वार्षिक प्रतिवेदन
ANNUAL REPORT
2016-17

भाकृअनुप
ICAR

भाकृअनुप–कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, कानपुर

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Published
2017

Citation
Annual Report (2016-17)
ICAR-Agricultural Technology Application Research Institute
Kanpur

CONTENTS

Published by
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Chapter 1

Executive Summary

Training Programmes

8106 courses were organized by involving 169103 farmers, farm women, rural youths and extension functionaries. In total, 15667 rural youths, 14629 extension functionaries and 138807 farmers/farm women were participated in training programmes conducted by KVKs.

Frontline Demonstrations

Total 24239 frontline demonstrations were organized related to crops (18556), horticulture (2572), livestock (2349), other enterprises (195), farm implements (270) and nutritional gardening (297).

Technology Assessment & Refinement

KVKs of Zone IV, conducted on farm trials in 16 major thematic areas. In both the states (Uttar Pradesh and Uttarakhand) of this zone, 537 technologies were tested with involvement of 2452 farmers. A total of 63 technologies were assessed under livestock management by KVKs of Uttar Pradesh and Uttarakhand with active participation of 775 farmers. Thematic areas like household food security and nutritional garden (7) were also taken up for assessment. 75 beneficiaries were involved in above enterprises. Kitchen gardening, house hold security, vermi culture, etc. were considered as an economic activity and to support nutritional security of the farmers.

Extension Programmes

Large number of extension activities were organized by KVKs of Uttar Pradesh and Uttarakhand. The major activities like advisory service (12929), diagnostic visits (6867), field days (684), group discussions (565), kisan gosthies (1733.), film shows (51), self help groups (237), kisan mela (361), exhibitions (268), scientist visit (12910), animal health camps (96), farm science clubs (137), ex-trainees meet (177), farmers' seminars (73), method demonstrations (538), celebrations of important days (214), special days celebration (125.), exposure visits (159) and other activities (3137) with the participation of 1061731 farmers and 27260 extension personnel were performed. 41900 number of other extension activities viz use of electronic media, extension literature, newspaper coverage, popular articles, animal health camp, radio & TV talks were performed by KVKs. Kisan Mobile advisory services were given by all 67 KVKs with 1432980 SMSs to farmers. Voice messages were delivered to all registered farmers. By sending text and voice messages by mobile has enabled the KVKs to reach the farmers in distant and remotely located areas.

Seed Production

KVKs of both states produced 16954.29 q seed including cereals (11452.76 q), oilseeds (528.25 q), pulses (640.69 q), commercial crops (4103.63 q), fodder (36.05 q) and spices (182.4 q).

Planting Material Production

KVKs of both the states produced 1.26 carore number of planting materials including vegetable seedlings (1.21carore), fruit saplings (50588), ornamental (134613), forestry (16522) medicinal and aromatic plants (6870), etc.

Bio-Products

The KVKs of Uttar Pradesh produced 139922 kg of bio-products whereas, the KVKs of Uttarakhand produced 30120 kg of bio-products. It included vermi compost (111495.80 kg), NADEP compost (27370 kg), FYM (29160 kg). Besides, KVKs also produced 986 kg bio pesticides.

Livestock & Fingerling Production

KVKs of Uttar Pradesh also produced 88 calf, 8 buffalow's child, 347 goat kids (Barbari), 2621 Broiler, 26 piglets (Large White Yorkshire) and fingerlings (1082520). Whereas, in Uttarakhand very meagre production of broilers (400), cows (9) was reported.

Soil, Water and Plant Analysis

A total of 82398 farmers of Uttarpradesh and Uttarakhand were benifited by Soil, Water and Plant analysis. In U.P 73603 farmers, while in Uttarakhand 6069 farmers get benifited by Soil analysis.

HRD Activities

Total 8 training programmes were organized with the 510

participants covering all 81 KVKs by ICAR-ATARI, Kanpur and total 8 training programmes with 171 participants attended covering all the respective KVKs of CSAUAT, NDUAT, SVPUAT & GBPUAT. Total 23 workshops/meetings were organized by ICAR-ATARI, Kanpur whereas 27 such meetings organized by all respective SAUs

Publications

Total 10 research papers, 3 bulletin, 6 technical reports including APR, proceedings, project reports and quarterly news letters were published by ICAR-ATARI, Kanpur. Where as KVKs published 102 Technical bulletins, 278 research papers, 88 technical reports, 19 book and 57 book chapter 540 other publications in both states.

Awards & Recognition

i. KVK Pratapgarh awarded with Best Zonal KVK Award 2015 in 88th foundation day of ICAR- New Delhi, during July 16, 2016.

ii. KVK Saharanpur and KVK Haridwar conferred Pandit Deen Dayal Upadhyay Zonal KVK Award 2016 in Krishi Unnati Mela held at New Delhi on 15 March 2017.

Chapter 1

कार्यकारी सारांश

प्रशिक्षण कार्यक्रम

प्रशिक्षण कार्यक्रम के अन्तर्गत कुल 8106 विषयों का आयोजन किया गया जिसमें 169103 कृषक, ग्रामीण युवक एवं प्रसार कार्यकर्ता शामिल हुए। कृषि विज्ञान केन्द्रों द्वारा आयोजित प्रशिक्षण कार्यक्रमों में 15667 ग्रामीण युवाओं , 14629 प्रसार कार्यकर्ताओं एवं 138807 कृषकों नें प्रशिक्षण प्राप्त किया।

प्रथम पंक्ति प्रदर्शन

कुल 24239 प्रथम पंक्ति प्रदर्शन कराये गये, जिसमें से फसल (18556), उद्यान (2572), पशुपालन (2349) अन्य व्यवसाय (195) प्रक्षेत्र उपकरण (270) एवं पोषण वाटिका पर (297) पर प्रदर्शन कराये गये।

तकनीकी मूल्यांकन एवं परिष्करण

जोन चतुर्थ के कृषि विज्ञान केन्द्रों द्वारा 16 विभिन्न निर्धारित विषयों पर प्रक्षेत्र परीक्षण कराये गये। इस जोन के दोनो राज्यों (उ.प्र. एवं उत्तराखण्ड) द्वारा 537 तकनीकों का परीक्षण किया गया जिसमें 2452 कृषकों ने भाग लिया। उ.प्र. एवं उत्तराखण्ड के कृषि विज्ञान केन्द्रों द्वारा पशु संसाधन पर कुल 63 तकनीकों का मूल्यांकन किया गया जिसमें 775 कृषकों ने सक्रिय रूप से भाग लिया। निर्धारित विषयों जैसे– घरेलू खाद्य सुरक्षा एवं पोषण वाटिका पर 7 प्रक्षेत्र परीक्षण कराये गये जिसमें 75 लाभार्थियों ने भाग लिया । इसके अतिरिक्त मूल्य संवर्धन पर 4 एवं परिश्रम में कमी पर 3 परीक्षण कराये गये जिसमें क्रमशः 25 एवं 12 लाभार्थियों नें भाग लिया, साथ ही कृषिवानिकी मशीनीकरण, एवं संसाधन संरक्षण तकनीकी पर भी एक–एक परीक्षण कराये गये। गृह वाटिका, घरेलू खाद्य सुरक्षा, वर्मी कम्पोस्ट आदि को आर्थिक क्रिया एवं कृषकों की पोषण सुरक्षा में सहायक माना जाता है।

प्रसार कार्यक्रम

उ.प्र. एवं उत्तराखण्ड के कृषि विज्ञान केन्द्रों द्वारा वृहद स्तर पर प्रसार कार्यक्रमों का आयोजन किया गया। मुख्य कार्यक्रम जैसे– सलाह सेवायें (12929) ,रोग व कीट पहचान भ्रमण (6867) प्रक्षेत्र दिवस (684) समूह परिचर्चा (565) ,किसान गोष्ठी (1733) , फिल्म शो (511), स्वयं सहायता समूह (237) ,किसान मेला (361) , प्रदर्शनी (268), वैज्ञानिक भ्रमण (12910), पशु स्वास्थ्य शिविर (96) , फार्म साइन्स क्लब (137) , पूर्व प्रशिक्षणार्थी सम्मेलन (177), कृषक सेमिनार (73) , विधि प्रदर्शन (538), महत्वपूर्ण दिवस आयोजन (214) , विशेष प्रदर्शन दिवस आयोजन (125) , एक्सपोजर भ्रमण (159) , एवं अन्य गतिविधियों (3137) में 1061731 कृषकों एवं 27260 कार्यकर्ताओं ने भाग लिया । इसके अतिरिक्त 41900 अन्य प्रसार गतिविधियों जैसे इलेक्ट्रानिक मीडिया , प्रसार साहित्य , समाचार प्रकाशन लेख , पशु शिविर , रेडियो एवं दूरदर्शन वार्ता पर कृषि विज्ञान केन्द्रों द्वारा किये गये। सभी कृषि विज्ञान केन्द्रों द्वारा किसान मोबाइल सन्देश दिये गये। 1432980 एस.एम.एस. पाठ्य सन्देश एवं वाइस सन्देशों के द्वारा कृषि विज्ञान केन्द्रों की पहुँच दूर के कृषकों तक हुई।

बीज उत्पादन

दोनो राज्यों के के.वी.के. के द्वारा 16954.29 कुन्तल बीज का उत्पादन किया गया जिसमें खाद्यान्न (11452.76 कु.) तिलहन (528.25 कु.), दलहन (640.69 कु.), वाणिज्यिक फसलें (4103.63 कु.), चारा (36.05 कु.) एवं मसाले (182.4 कु.) है।

रोपण सामग्री उत्पादन

दोनों राज्यो के कृषि विज्ञान केन्द्रों द्वारा 1.26 करोड़ पौध सामग्री का उत्पादन किया गया जिसमें सब्जी पौध (1.21 करोड़), फल सामग्री (50588), शोभाकारी (134613), वानिकी (16522) तथा औषधीय संगधीय के 6870 पौध सामग्री सम्मिलित है।

जैव उत्पाद

उत्तरप्रदेश के के.वी.के. के द्वारा 139922 किग्रा जैव उत्पादों का जबकि उत्तराखण्ड के के.वी.के. के द्वारा 30120 किग्रा जैव उत्पादन किया गया जिसमें 111495.80 किग्रा वर्मी कम्पोस्ट , 27370 किग्रा नाडेप , 29160 किग्रा एफ. वाई.एम था। इसके अतिरिक्त कृषि विज्ञान केन्द्रों द्वारा 986 किग्रा जैव कीटनाशी का भी उत्पादन किया गया ।

पशुपालन एवं मत्स्य बीज उत्पादन

उत्तरप्रदेश के कृषि विज्ञान केन्द्रों द्वारा 88 गाय के बछड़े, 8 भैंस के बच्चे, 347 बकरी के बच्चे (बरबरी), 2621 ब्रायलर , 26 पिगलेट (लार्ज व्हाइट यार्कशायर) एवं 1082520 मत्स्य अंगुलिकाये उत्पादित किये गये। जबकि उत्तराखण्ड में बहुत कम ब्रायलर (400) एवं 9 गाय ही उत्पादित हुए।

मृदा, जल एवं पौध विश्लेषण

उत्तरप्रदेश एवं उत्तराखण्ड के कृषि विज्ञान केन्द्रों द्वारा मृदा नमूना, जल एवं पौध का विश्लेषण करके 82398 कृषकों को लाभान्वित किया गया। उत्तरप्रदेश में मृदा नमूनों का विश्लेषण करके 73603 कृषकों जबकि उत्तराखण्ड में 6069 कृषकों को लाभान्वित किया गया।

मानव संसाधन विभाग गतिविधियाँ

आई.सी.ए.आर.– अटारी कानपुर में आयोजित 8 विषयों में 81 के. वी.के. के 510 प्रतिभागियों ने भाग लिया जबकि सम्बन्धित राज्य विश्वविद्यालयों में आयोजित 8 प्रशिक्षण कार्यक्रमों में 171 प्रतिभागियों ने हिस्सा लिया । कुल 23 कार्यशाला बैठकों का आयोजन आई.सी.ए.आर.– अटारी कानपुर में किया गया जबकि सम्बन्धित राज्य विश्वविद्यालयों में 27 बैठकों का आयोजन किया गया।

प्रकाशन

आई.सी.ए.आर.– अटारी कानपुर द्वारा कुल 10 शोधपत्र , 3 बुलेटिन , 6 तकनीकी रिपोर्ट , जिसमें वार्षिक प्रगति आख्या, कार्यवृत , परियोजना आख्या एवं त्रैमासिक न्यूज लेटर है, प्रकाशित किये गये। कृषि विज्ञान केन्द्रों द्वारा कुल 102 तकनीकी बुकलेट , 278 शोधपत्र , 88 कार्यवृत्त एवं 19 बुक एवं 57 बुक चौप्टर एवं 540 अन्य प्रकाशन प्रकाशित किये गये ।

पुरस्कार / सम्मान

1. भारतीय कृषि अनुसंधान परिषद नई दिल्ली के 88वें स्थापना दिवस समारोह में के.वी.के. प्रतापगढ़ को 16 जुलाई 2016 को क्षेत्रीय उत्तम कृषि विज्ञान केन्द्र पुरस्कार 2015 प्रदान किया गया ।
2. के.वी.के. सहारनपुर एवं हरिद्वार को 15 मार्च 2017 को कृषि उन्नति मेला नई दिल्ली में पण्डित दीन दयाल उपाध्याय क्षेत्रीय कृषि विज्ञान केन्द्र का पुरस्कार प्रदान किया गया।

Chapter 2

Introduction and Achievements at a Glance

Indian Council of Agricultural Research established Zonal Coordination Unit at Kanpur in 1979 to monitor transfer of technology projects. The Zonal Coordination Unit was upgraded as Zonal Project Directorate in March, 2009. Again it was upgraded as ICAR-Agricultural Technology Application Research Institute (ATARI). Presently, ICAR-ATARI, Kanpur is engaged in planning, monitoring, reviewing and supporting ICAR initiated technology dissemination projects mainly Krishi Vigyan Kendras in Uttar Pradesh and Uttarakhand.

The major functions of the ICAR-ATARI, Kanpur are:

- Planning, monitoring and reviewing of KVK activities in the zone; to identify, prioritize and implement various activities related to technology integration and dissemination
- Coordinating with SAUs, ICAR institutes/organizations, line departments and voluntary organizations in the zone for implementation of KVK mandated activities and
- Facilitating financial and infrastructural support to KVKs for effective functioning.

2.1 KVK and its Mandate

In Zone-IV, 81 KVKs have been established by the ICAR, out of which 68 KVKs are in Uttar Pradesh and 13 in Uttarakhand. The mandate of KVK is – Technology Assessment and Demonstration for its Application and Capacity Development (TADA-CD).

The activities of KVK include –

- On-farm testing to identify the location specificity of agricultural technologies under various farming systems.
- Frontline demonstrations to establish production potential of technologies on the farmers' fields.
- Capacity development of farmers and extension personnel to update their knowledge and skills on modern agricultural technologies.
- To work as Knowledge and Resource Centre of agricultural technologies for supporting initiatives of public, private and voluntary sector in improving the agricultural economy of the district.
- Provide farm advisories using ICT and other media means on varied subjects of interest to farmers.
- To produce quality technological products (seed, planting material, bio-agents, livestock) and make it available to farmers, organize frontline extension activities, identify and document selected farm innovations and converge with ongoing schemes and programmes within the mandate of KVK.

S.No.	Name of the KVK	Year of establishment
NDUA&T, Faizabad		
1	Bahraich	1983
2	Ballia	1989
3	Basti	1984
4	Mau	1989
5	Varanasi	1989
6	Siddharthnagar	1992
7	Faizabad	2004
8	Gorakhpur	2004
9	Maharajganj	2004
10	Sonbhadra	2004
11	Azamgarh	2004

S.No.	Name of the KVK	Year of establishment
12	Barabanki	2004
13	Balrampur	2005
14	Chandauli	2005
15	Jaunpur	2005
16	Sant Kabir Nagar	2009
17	Ambedkar Nagar	2010
CSAUA&T, Kanpur		
18	Jhansi	1984
19	Raebareli	1984
20	Fatehpur	1989
21	Aligarh	1992
22	Kannauj	2004

23	Etawah	2004
24	Mainpuri	2004
25	Kanpur Dehat	2004
26	Mahoba	2004
27	Firozabad	2004
28	Hamirpur	2005
29	Lakhimpur Kheri	2005
30	Farrukhabad	2005
31	Jalaun	2005
32	Lalitpur	2005
33	Hardoi	2005
34	Banda	2007
35	Mahamaya Nagar	2009
SVPUA&T, Meerut		
36	Bijnor	1992
37	Rampur	1992
38	Badaun	1992
39	Saharanpur	1992
40	Ghaziabad	1992
41	Sahajahanpur	1994
42	Meerut	1994
43	Muzaffarnagar	1994
44	Pilibhit	1998
45	Baghpat	2004
46	Moradabad	2005
47	Gautam Budha Nagar	2005
48	Bulandshahar	2004
U.P. Pt. Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwa Vidyalaya Evam Go Anusandhan Sansthan, Mathura		
49	Mathura	1984
Kamla Nehru Memorial Trust, Sultanpur		
50	Sultanpur	1976
RBS College, Agra		
51	Etah	1992
52	Agra	2002
53	Mirzapur	1984
Deendayal Research Institute, Gonda		
54	Gonda	1989
55	Chitrakoot	1992
SHIAS&T, Allahabad		
56	Allahabad	1992
Raja Avadesh Singh Memorial Society, Pratatgarh		
57	Pratapgarh	1999
Kunwar Ram Bux Singh Educational Society, Lucknow		
58	Unnao	1999
Indian Veterinary Research Institute, Bareilly		
59	Bareilly	1985
Indian Institute of Sugarcane Research, Lucknow		
60	Lucknow	1994
Post Graduate College, Gazipur		
61	Gazipur	2002
Indian Institute of Vegetables Research, Varanasi		
62	Kushinagar	2005
63	St. Ravidas Nagar	2008
64	Deoria	2009
Manav Vikas Evam Seva Sansthan, Lucknow		
65	Sitapur-I	2005
Dr. Bhimrao Ambedkar Welfare Society, Allahabad		
66	Kaushambi	2006
Sarpanch Samaj, New Delhi		
67	Auraiya	2007
Ranvir Rananjay Degree College Association, Sultanpur		
68	Sitapur-II	2011
Guru Gorakshnath Sewa Sansthan		
69	Gorakhpur-II	
GBPUA&T, Pantnagar		
70	Champawat	1994
71	Almora	2004
72	Chamoli	2004
73	Haridwar	2004
74	Rudraprayag	2004
75	Nainital	2004
76	Pithouragarh	2004
77	Dehradun	2004
78	Udham Singh Nagar	2004
VPKAS, Almora		
79	Uttarkashi	2004
80	Bagheshwar	2007
UUHF, Pauri (Transferred from GBPUAT, Pantnagar)		
81	Tehri Garhwal	1983
82	Pauri Garhwal	2004

2.2 Agro-climatic Zones

Uttar Pradesh is divided into 9 agro climatic zones (South Western Semi Arid, Bhabhar and Tarai, Western Plain, Mid Western Plain, Central Plain, Bundelkhand, North Eastern Plain, Eastern Plain and Vindhyan Zone) whereas Uttarakhand represents the hill agriculture and is classified as hill zone though Dehradun, Haridwar, U.S. Nagar and part of Nainital are characterized as Bhabhar and Tarai Zone.

Network of KVKs in ICAR-ATARI, Kanpur

2.3 Achievement at a glance

2.3.1 Training Programmes

Clientele	Uttar Pradesh				Uttarakhand				Grand Total			
	C	M	F	Total	C	M	F	Total	C	M	F	Total
Farmers & Farm women	5630	95963	24388	120351	847	8284	10172	18456	6477	104247	34560	138807
Rural Youths	820	11340	3215	14600	61	501	611	1112	881	11841	3826	15667
Extension Functionaries	697	11593	2300	14006	51	450	286	736	748	12043	2586	14629
Total	**7147**	**118896**	**29903**	**148957**	**959**	**9235**	**11069**	**20304**	**8106**	**128131**	**40972**	**169103**

2.3.2 Frontline Demonstrations

Enterprise	Uttar Pradesh			Uttarakhand			Grand Total		
	Demo	Area (ha)	Units	Demo	Area (ha)	Units	Demo	Area (ha)	Units
Pulses	7127	2427.32	-	1483	114.80	-	8610	2542.12	-
Oilseeds	3684	1336.44	-	471	28.47	-	4155	1364.91	-
Cereals	3153	1065.10	-	660	46.46	-	3813	1111.56	-
Millets	63	21.40	-	399	13.60	-	462	35.00	-
Hybrids	269	67.55	-	104	4.05	-	373	71.60	-
Fodder	413	74.02	-	161	8.00	-	574	82.02	-
Spices	35	3.05	-	60	1.40	-	95	4.45	-
Commercial	434	96.40	-	40	1.50	-	474	97.90	-
Total (Crops)	**15178**	**5091.28**	**-**	**3378**	**218.28**	**-**	**18556**	**5309.56**	**-**
Vegetables	1554	216.68	-	890	21.57	-	2444	238.25	-
Fruits	108	24.85	-	20	2.00	-	128	26.85	-
Total (Hort)	**1662**	**241.53**	**-**	**910**	**23.57**	**-**	**2572**	**265.10**	**-**
Livestock strains	1614	4.00	1249	735	-	1164	2349	4.00	2413
Other Enterprises	175	-	455	20	-	35	195	-	490
Farm Implements	270	173.27	-	-	-	-	270	173.27	-
Kitchen garden	185	-	185	112	-	112	297	-	297
Grand Total	**19084**	**5510.08**	**1889**	**5155**	**241.85**	**1311**	**24239**	**5751.93**	**3200**

2.3.3 Technology Assessment

(i) Crop related technology assessed

Thematic Area	Uttar Pradesh			Uttarakhand			Grand Total		
	Crop	Technology	Trial	Crop	Technology	Trial	Crop	Technology	Trial
Integrated Nutrient Management	23	60	285	7	20	104	30	80	389
Varietal Evaluation	25	84	375	12	40	162	37	124	537
IPM	18	68	316	08	25	112	26	93	428
ICM	24	42	163	06	17	55	30	59	218
IDM	15	41	188	07	22	129	22	63	317
Small scale income generation	4	6	29		-		4	6	29
Weed Management	14	35	192	02	03	13	16	38	205
RCT	12	34	132	02	03	15	14	37	147
Integrated Farming system	6	8	28	0	-	-	6	8	28
Drudgery reduction	9	18	89	0	-	-	9	18	89
Nutritional garden	1	1	5	0	-	-	1	1	5
Storage	1	1	20	0	-	-	1	1	20
Fodder Production	-	-	-	02	06	25	2	6	25
Protected cultivation	-	-	-	01	01	05	1	1	5
Mechanization	-	-	-	01	02	10	1	2	10
Total	**152**	**398**	**1822**	**48**	**139**	**630**	**200**	**537**	**2452**

ii) Assessment of Livestock Technologies

Thematic Area	Enterprises	Uttar Pradesh		Uttarakhand		Grand Total	
		Technology	Trial	Technology	Trial	Technology	Trial
Disease Management	Cow, Buffalow, goat, calf,	17	221	05	45	22	266
Evaluation of breed	Cow, Buffalow, goat, calf	4	165	04	25	8	190
Feed and Fodder management	Cattle, Buffalo , fodder	7	60	0	0	7	60
Nutrition Management	Cattle, Buffalo and Goat	15	174	03	20	18	194
Production and Management	Goat	5	56	03	09	8	65
Total		**48**	**676**	**15**	**99**	**63**	**775**

(iii) Assessment of Technologies related to Enterprises

Thematic Area	Enterprises	Uttar Pradesh		Uttarakhand		Grand Total	
		Technology	Trial	Technology	Trial	Technology	Trial
House hold food security	Vegetables	5	35	02	40	7	75
Organic Farming	Vermi compost, Nadep compost	2	4			2	4
Value Addition	Milk aonla, Tomato	3	20	01	05	4	25
Drudgery Reduction	sickle	2	10	01	02	3	12
Agro forestry Management	Poplar	01	05	0	0	1	5
Mechanization	Sugarcane	01	03	0	0	1	3
RCT	Agril. Engineering	01	05	0	0	1	5
Total		**15**	**82**	**04**	**47**	**19**	**129**

2.3.4 Extension Programmes

(i) Extension activities

Activities	Uttar Pradesh		Uttarakhand		Grand Total	
	Programmes	Participants	Programmes	Participants	Programmes	Participants
Advisory Services	11799	184753	1130	6607	12929	191360
Diagnostic visits	6051	27808	816	3926	6867	31734
Field Day	625	25802	59	1676	684	27478
Group discussions	523	11508	42	380	565	11888
Kisan Ghosthi	1348	150427	385	37312	1733	187739
Film Show	390	13241	121	2074	511	15315
Self -help groups	220	5642	17	239	237	5881
Kisan Mela	347	184126	14	51480	361	235606
Exhibition	247	121261	21	65541	268	186802
Scientists' visit to farmers field	10804	70471	2106	13517	12910	83988
Plant/animal health camps	90	5668	6	274	96	5942
Farm Science Club	136	2645	1	24	137	2669
Ex-trainees Sammelan	120	3989	57	552	177	4541
Farmers' seminar/workshop	68	5995	5	269	73	6264
Method Demonstrations	526	6410	12	306	538	6716
Celebration of important days	181	16900	33	1552	214	18452
Special day celebration	114	10562	11	793	125	11355
Exposure visits	134	6462	25	958	159	7420
Others	2721	46831	436	1010	3157	47841
Total	**36444**	**900501**	**5297**	**188490**	**41741**	**1088991**

(ii) Other extension activities

Activities	Uttar Pradesh		Uttarakhand		Grand Total	
	Number	KVKs	Number	KVKs	Number	KVKs
Electronic Media (CD./DVD)	96	19	2	6	98	25
Extension Literature	28850	42	37	7	28887	55
News paper coverage	3771	61	151	10	3922	74
Popular articles	1627	49	37	8	1664	62
Radio Talks	2592	40	28	7	2620	53
TV Talks	402	43	72	6	474	56
Animal health amps (Animals Treated	3729	44	45	6	3774	57
Others	453	39	8	3	461	42
Total	**41520**	**-**	**380**	**-**	**41900**	**-**

(iii) Mobile Advisory Services

State	No. of Calls (Voice)	No. of Message s (Text)	No. of farmers Covered	Type of messages					
				Crop	Livestock	Weather	Marketing	Awar-Eness	Other Enterprise
Uttar Pradesh	16013	1411527	2466511	9751	933	688	2295	4518	22126
Uttarakhand	2518	2922	21	6	2	43	71	3065	2518
Grand Total	**18531**	**1414449**	**2466532**	**9757**	**935**	**731**	**2366**	**7583**	**24644**

2.3.5 Seed and Planting Material Production

(i) Seed Production

Enterprise	Uttar Pradesh		Uttarakhand		Grand Total	
	Quantity (q)	Value (Rs. in lakh)	Quantity (q)	Value (Rs. in lakh)	Quantity (q)	Value (Rs. in lakh)
Cereals	10768.41	163.57	684.35	2.83	11452.76	166.4
Oilseeds	413.13	17.82	115.12	0.31	528.25	18.13
Pulses	585.94	42.45	54.75	1.19	640.69	43.64
Vegetables	5.21	0.74	5.30	0.99	10.51	1.73
Commercial	353.63	1.01	3750	0	4103.63	1.01
Spices	11.02	0.83	171.38	0.03	182.4	0.86
Fodder	34.55	2.88	1.50	0.06	36.05	2.94
Total	**12171.89**	**229.31**	**4782.4**	**5.41**	**16954.29**	**234.72**

(ii) Planting Material Production

Enterprise	Uttar Pradesh		Uttarakhand		Grand Total	
	Quantity (No.)	Value (Rs. in lakh)	Quantity (No.)	Value (Rs. in lakh)	Quantity (No.)	Value (Rs. in lakh)
Vegetable	1753225	4.03	10438807	13.19	12192032	17.22
Fruits	43651	3.75	6937	0.08	50588	3.83
Ornamental	133113	1.32	1500	-	134613	1.32
Medicinal & Aromatic	3850	0.05	3020	-	6870	0.05
Forestry/plantation	16522	0.75	-	-	16522	0.75
Fodder	172910	1.18	70000	0.39	242910	1.57
Total	**2123271**	**11.08**	**10520264**	**13.66**	**12643535**	**24.74**

(iii) Production of Bio-Products

Bio-product	Uttar Pradesh		Uttarakhand		Grand Total	
	Quantity (Kg)	Value (Rs. in lakh)	Quantity (Kg)	Value (Rs. in lakh)	Quantity (Kg)	Value (Rs. in lakh)
Vermicompost	110595.80	2.02	900	0.05	111495.80	2.07
Nadep compos	27150.00	0.18	220	0.01	27370.00	0.19
Other	160.00	0.18	29000 (FYM)	0.89	29160.00	1.07
Total	**137905.8**	**2.39**	**30120**	**0.95**	**168025.80**	**3.34**
Beauveriabassiana	253.00	0.33	-	-	253.00	0.33
Metarrhizium anisoplae	23.00	0.03	-	-	23.00	0.03
Botanicals	660.00	0.86	-	-	660.00	0.86
Total	**936.00**	**1.22**	**-**	**-**	**936.00**	**1.22**
Trichoderma harzianum	50.00	0.00	-	-	50.00	0.00
Total	**50.00**	**0.00**	**-**	**-**	**50.00**	**0.00**
Honey	130.00	0.02	-	-	130.00	0.02
Vermiculture	5.00	0.02	-	-	5.00	0.02
Worms	486.00	1.47	-	-	486.00	1.47
Verms	410.00	0.04	-	-	410.00	0.04
Total	**1031.00**	**1.54**	**-**	**-**	**1031.00**	**1.54**
Grand Total	**139922.80**	**5.15**	**30120**	**0.95**	**170042.80**	**6.10**

(iv) Livestock & Fingerling Production

Livestock strains	Uttar Pradesh		Uttarakhand		Grand Total	
	Number	Value (Rs in Lakh)	Number	Value (Rs in Lakh)	Number	Value (Rs in Lakh)
Cows (calf)	88	0.89	9	2.00	97	2.89
Buffaloes	8	0.00	-	-	8	-
Calves	17	0.60	2	0.08	19	0.68
Goat	347	2.31	-	-	347	2.31
Others	6	0.24	9319	2.76	9325	3.00
Total	**466**	**4.04**	**9330**	**4.84**	**9796**	**8.88**
Broilers	2621	2.98	400	0.00	3021	2.98
Duals (broiler & layer)	20	0.02	-	-	20	0.02
Others	480	0.72	449	0.00	929	0.72
Total	**3121**	**3.72**	**849**	**0.00**	**3970**	**3.72**
Piglets	26	0.78	-	-	26	0.78
Total	**26**	**0.78**	**-**	**-**	**26**	**0.78**
Indian carp	1079000	1.02	-	-	1079000	1.02
Exotic carp	303	0.19	-	-	303	0.19
Others	1604	0.12	-	-	1604	0.12
Total	**1080907**	**1.33**	**-**	**-**	**1080907**	**1.33**
Grand Total	**1082520**	**11.38**	**10179**	**4.84**	**1092759**	**16.22**

2.3.6 Soil, water and plant analysis

Type of Samples	Uttar Pradesh		Uttarakhand		Grand Total	
	No. of beneficiaries	Value (Rs)	No. of beneficiaries	Value (Rs)	No. of beneficiaries	Value (Rs)
Soil	73603	928603	6069	-	79672	928603
Water	2523	2556	114	-	2637	2556
Plant	203	-	-	-	203	-
Total	76329	931159	6069	-	82398	931159

2.3.7 HRD and Publications (No.)

Sr. No.	Category	Uttar Pradesh	Uttarakhand	ICAR-ATARI	Total
1	Workshops	123	34	9	166
2	Conferences	86	21	2	109
3	Meetings	304	81	23	408
4	Trainings for KVK officials	127	44	7	178
5	Visits of KVK officials	254	169	220	643
6	Book published	19	6	2	27
7	Training Manual	1047	5	4	1056
8	Book chapters	57	1	-	58
9	Research papers	263	15	11	289
10	Lead papers	19	1	4	24
11	Seminar papers	118	7	10	135
12	Extension folder	14184	64	5	14253
13	News letters	4	-	4	8
14	Bulletins	15	2	3	20
15	Technical Reports	68	13	2	83
16	Proceedings	79	9	15	103
17	Award & recognition	92	3	11	106
18	On going research projects	39	6	7	52

Note: Total participants involved in HRD activities : 440

2.4 Projects & Events

(I) In-house projects (2015-18)

S. No.	Project Name	Achievement
1	Digitization of Krishi Vigyan Kendras (dKVK) for efficient management information system: An Action Research	i. Under this project on the Finance related record i.e, budget released details, financial records and Audit utilization certificate with respect to all the 81KVKs for the period of 2005-06 to 2015-16 were digitized with user friendly retrieval system. ii. The online monitoring system of all the KVKs from Uttar Pradesh and Uttarakhand were made for PMO Report, MPR, QPR and also for SBA. Currently the success rate of this online monitoring system is 95%. iii. The website for all the 81 KVKs of UP and Uttarakhand were structured, symenticized, hosted and validated
2	Improving production efficiency through situation specific farm mechanization : A diagnostic investigation	i. Case Analysis of Sugarcane Trench maker was done for its energy efficiency as compared to manual planting and use of ridger for planting. ii. The relative Energy required in different planting methods of Sugarcane for Field preparation were $36x10^4$ hps, $100x10^4$ hps, $115.2x10^4$ hps Respectively for Manual planting, Use of Ridger and Trench Maker. iii. Similarly for sugarcane planting the energy requirements were $72x10^4$ hps, $0.72x10^4$ hps and 0.72×10^4 hps, respectively for manual planting, use of ridger and trench maker.
3	Developing Location Specific Livelihood Security Frontline Models Integrating With Credit & Marketing of Disadvantage District of U.P. Uttarakhand, Zone-IV.	The detailed activity chart and time framework were standardized for each objective.
4	Externally funded project UPCAR on "Harnessing modern communication technologies for sharing of available knowledge resources with pulse growing farmers of Uttar Pradesh" in collaboration with IIPR, Kanpur	Demonstrations of chickpea, lentil, fieldpea, pigeonpea were conducted at farmers' fields. i. Capacity building programmes for them were also organized. ii. Voice messages were sent to 2500 farmers of the project areas. iii. Documentary films on IPM, value addition and processing were made and hosted
5	Externally Funded Research Project under Extramural funding by ICAR on Value chain analysis of selected agribusiness enterprises in the states of Uttar Pradesh and Uttarakhand	i. Survey was conducted among the farmers of Jalon, Kannauj and Pratapgarhdistricts and date were collected on various parameters of supply chain like cost share of various actors, share of various cost components in the given chain, structural provisions and functioning of at various level of supply, etc; and also the value chin in reverse direction which included the relative economic gains by various actors, differential share of producers in consumers", retailers' and wholesellers' price in different marketing chains. ii. The commodities included were potato, aonla, banana, guava and vegetable pea.

6	Extramural research project funded by ICAR on "Determinants of Adoption and Socio-economic Impact of NARS technologies in Indo-Gangetic Plains	The findings are as follows: ➢ Punjab, Uttar Pradesh, West Bengal and Uttarakhand had been selected for the purpose for the study. ➢ Four districts from each of the three states and one district from Uttarakhand had been selected representing different agro-ecosystem in the states. ➢ Two adopted and one non-adopted villages suggested by local KVK from each of the selected districts had been identified for data collection. ➢ Sixty adopter from two (thirty from each) KVK adopted villages and non-adopters from the non-adopted village have been randomly selected. ➢ The variable for measurement e.g. adoption, its determinants and socio-economic and technological impact including measurement techniques had been identified based on review of literature. ➢ Data have been collected from 1170 farmers of identified district of four states. ➢ Adoption of improved Wheat varieties has been recorded as HD-2967 (50%) and HD-3086 (30%) in Punjab, HD-2967 (45%) and Lok-1 (25%) in Uttar Pradesh, HD-2967 (60%) in Haridwar (Uttarakhand). ➢ Adoption of improved Paddy varieties has been recorded as PB-1121 (40%) and PB-1509 (12 %) in Punjab, Sharbati (60%) and Pusa-2511 (10%) in Haridwar, (Uttarakhand), PB-1121 (30%) in Uttar Pradesh, Swarna (40%), Bidhan-2 (45%) in West Bengal. ➢ Adoption of improved sugarcane varieties has been recorded as Sugarcane Coimbatore-0238 (30%) in Uttar Pradesh.
7	Inter-institutional research project on "Combating Drudgery for Enhancing Farm Women's Efficiency in Different Agro-climatic of Uttar Pradesh and Uttarakhand.	Under this project survey of 960 women farmers from 36 villages across 18 districtsof Uttar Pradesh and Uttarakhand to ascertain their socio-economic background, work participation, perceived work load and hardship in the areas of crop production, dairying and post-harvest management. Based on the findings, the action plan for assessment and demonstration of drudgery reducing implements were finalized.

(II) National Innovations on Climate Resilient Agriculture (NICRA)

Enhancing the resilience of Indian agriculture to cope with climate variability and climate change is imperative to the livelihood security of millions of small and marginal farmers in the country. The Indian Council of Agricultural Research (ICAR) has responded to this challenge of climate change on Indian agriculture and launched National Initiative on Climate Resilient Agriculture (NICRA) in 2011 but now with change name National Innovations on Climate Resilient Agriculture. The aim is to build the resilience of the farming community to face extreme weather events such as drought, floods, heat stroke, ground water depletion and hail storm cold waves. Globally agriculture is undergoing major changes in terms of climatic change, shrinking resource base and declining factor productivity. Researchers and policy makers have realized that In order to sustain farming in change climate.

The focus of the programme is not only to demonstrate the climate resilient agriculture technologies but also to institutionalize mechanisms at the village level for continued adoption of such practices in sustainable manner. One village or a cluster of villages from each of the 15 districts were selected for this purpose by the respective Krishi Vigyan Kendra (KVK). Planning, coordination and monitoring of the programme at national level is the responsibility of CRIDA. ICAR-Agricultural Technology Application Research Institute Zone-IV, Kanpur are involved in coordinating the project in UP & Uttrakhand. At district level, the selected KVK is responsible for implementing the project at village level through farmer's participatory approach. Under this programme, the interventions were focused only to address climate related constraints and to general agriculture development by 6 modules viz. Natural Resource management, Crop Production, Livestock and Fisheries, Institutional Interventions, Capacity Building (HRD) Extension activities

Table 2.4: NICRA KVK Districts and villages along with their climatic vulnerability

S. No.	District	Village	Soil type	Annual rainfall (mm)	Climatic vulnerability
State: Uttar Pradesh					
1.	Bahraich	Baundi	Sandy loam	900	Flood
2.	Gorakhpur	Jhangha	Sandy loam/loam	1211	Flood
3.	Mahrajganj	Gopala	Clay Loam, Loamy	870	Flood
4.	Gonda	Soauli Mohammadpur	Loam/ clay	1431	Flood
5.	Jhansi	Gandhinagar	Rakar, Padwa Black	885	Drought and Heat wave
6.	Kushinagar	Amwakhas	Sandy loam	1282	Flood
7.	Sonbhadra	Bisrekhi	Black /Clay loam /Red laterite	1035	Drought heat wave

8.	Baghpat	Shikhera	Loam to Sandy	750	Ground water depletion
9.	Muzaffarnagar	Rasoolpur Jattan	Sandy loam to Clay	760	Ground water depletion
10.	Chitrakoot	Titihara	Silty clay	543	Drought and Heat wave
11.	Hamirpur	Mankikhurd	Kabar, Maar, Paduwa	864	Drought and Heat wave
12.	Pratapgarh	Chhachhamau	Sandy loam	800	Sodacity
13.	Kaushambi	Umarcha	Sandy loam	850	Sodacity
State: Uttarakhand					
14.	Uttarkashi	Dunda	Sandy loam	2500	Cold wave, flood, hail storm
15.	Tehrigarhwal	Dabri & Kalaith	Brown black	1230	Cold wave, hail storm

Table 2.5: Outcome of NICRA

Module	Beneficiaries	Area (ha) / No. of Courses	Plants/ Animals
Natural Resource Management	2013	387.2	2158
Crop Production	1821	512.9	-
Livestock & Fisheries	1619	32.2	3109
Institutional Interventions	2041	446.7	-
Capacity Building (HRD)	4356	214	-
Extension Activities	6881	566	-
Total	**18731**	**1379 ha & 780 no.**	**5267**

Crop residue burning:

Before the intervention

85-95% burning of the crop residue like paddy, wheat & sugarcane.

Soil Temp. goes up to 33.80C to 42.20C due to burning.

After the intervention

During last four years burning of wheat & paddy straw reduced up to 80 % & in sugarcane 70-75 %.

Farmers aware to incorporate the crop residue through Rotavator & M.B. Plough .

Burning of crop residue

Incorporation of crop residue

Demonstration of mulching in sugarcane:

Problem identified: Require frequent irrigation & much infestation of weeds

Comparison of Treatments	Variety	Seed yield	Gross cost	Gross returns (Rs./ha)	Net returns	BC
Late sown variety	K-9533	46.00	68138	115000	46862	1.69
Early sown variety	PBW-343	39.50	68138	98750	30612	1.45



Demonstration of Raised bed sowing of pigeon pea through raised bed planter (RCT)

Problem identified : The plant of pigeon pea is damaged due to un-drained water in the field.

Interventions : Raised bed sowing of pigeon pea through raised bed planter

Comparison of Treatments	Variety	Seed yield	Gross cost	Gross returns	Net returns	BC
Raised bed sowing	NA-1	13.15	59460	105200	45740	1.77
Broadcasting sowing	NA-1	9.85	60135	78800	18665	1.31



Raised bed sowing of pigeon pea

Performance of crop on Raised bed

Workshop on NICRA:

One day workshop on NICRA project was organized on 20 March, 2017 at ICAR-ATARI, Kanpur. Chief Guest of this workshop was Dr. U.S Gautam Director, ATARI, Kanpur. Dr. Ajit Kumar Srivastava, RA, ICAR- ATARI Kanpur, along with KVK Heads/Sr. Scientist, Scientists and SRFs of the ICAR-ATARI, Kanpur participated. Presentation on NICRA based on different vulnerabilities such as flood, drought, heat stroke, ground water depletion, cold wave hail storm, water logged etc. NICRA stands for National Innovations in Climate Resilient Agriculture. Uttar Pradesh state facing drought problems 60% in 32 districts and 40% in 12 districts.

KVK, Baghpat has been selected for ground water depletion and KVK, Pratapgarh for sodicity problem and therefore, judicious use of ground water and use of short duration and tolerant varieties respectively were suggested. Also the interventions like use of land leveler. The funds utilization by KVK is really matter of concern due to lack of staff and administrative problems. Further, he shared with house about his successful experiences about it. The commitments towards the work win over every situation. Director, ICAR-ATARI appreciated some of the KVKs for on their performances. He emphasized on climate resilient technologies and its successful interventions against specified climate vulnerability in the given district. The successful interventions should be scaled up and taken up to the State Departments for large scale demonstration. Since the project has completed 5 years hence, some replicable modules should come out from the project. Successful interventions and technologies activities should highlighted

III) Tribal Sub-plan (TSP) Scheme in Uttar Pradesh and Uttarakhand

The project is being implemented in 10 districts namely Sonbhadra, Balrampur, Lakhimpur Khiri, Chamoli, Dehradun, U.S. Nagar, Nainital, Pithouragarh, Uttarkashi and Chitrakoot from Uttar Pradesh and Uttarakhand. This project envisage to address the social vulnerability of tribal farmers through minimizing the yield gap, enhancing the farm income and ensuring employment generation through the appropriate enterprises. In both the states KVKs have worked different activities under TSP -demonstration and on-farm trials (400 numbers); Trainings (175) for 2200 farmers; seed production (80 tonnes); production of planting materials (20000). The yield gap was minimized to the extent of 40%, 35% and 22% with respect to farmers' yield, state yield and potential yield across all the enterprises. Capacity building programmes and extension activities helped to enhance tribal farmers' awareness and knowledge gain considerably (50-66%)



IV) Mera Gaon Mera Gaurav (MGMG)

Under ICAR promoted programme on Mera Gaon Mera Gaurav, ICAR-ATARI, Kanpur coordinated this programme being implemented by all the ICAR research institute working in Uttar Pradesh and Uttarakhand during March, 2015. In this programme it was envisaged that each scientist/group of scientist of the institute will identify a village & will be in constant touch with that village in order to facilitate flow of technical messages and advisories to the farmers. In this programme, scientists of the institutes visited the identified villages and convened meeting of the farmers and discussed various technical issues and other schemes run by the other organizations/departments for the farmers. The Director, ATARI is Nodal Officer nominated as the Zonal Nodal Officer for monitoring the programme in this zone. To implement this programme following institutes have taken the initiation – IISR, Lucknow; CISH, Lucknow; CSSRI-RC Lucknow; SHIATS, Allahabad;BHU, Varanasi; PD-DSR, Mau; IIPR, Kanpur; CARI, Jhansi; IGFRI, Jhansi; VPKAS, Almora; IISWCRT, Agra; CARI, Bareilly; IVRI, Bareilly; DCFRAB, Bhimtal; IISWC, Dehradun and NBAIM, Mau Nath Bhanjan.

Achievements of different ICAR institutes under MGMG programme:

Name of Institute	Total No of Groups formed	No. of Scientists Involved	No. of villages covered	No. of field activities conducted	No. of messages/ advisory sent	Farmers benefited (No.)
ICAR-IISWC, Dehradun	25	98	119	2642	229	24658
ICAR-DCFR, Bhimtal	06	15	07	04	05	05
ICAR-IIPR, Kanpur	18	72	54	09	24600	2500
ICAR-IISS, Mau	04	12	24	35	08	7148
ICAR-IGFRI, Jhansi	15	61	75	350	563	5648
ICAR-VPKAS, Almora	6	30	30	24	429	8854
ICAR-IVRI, Bareilly	1	4	1	1	1	-


V) Attracting Rural Youths in Agriculture (ARYA)

1st Meeting: One day workshop on ARYA Project was organized on 12.07.2016 at ICAR-ATARI, Kanpur. Under this scheme, special efforts are to be taken to attract the rural youth under the age of 35 years in agriculture so that the migration of rural youth towards cities may be minimized. The objective of this programme are -

- To attract and empower the youth in rural areas to take up various Agriculture, allied and service sector enterprises for sustainable income and gainful employment in selected districts.
- To enable the farm youth to eastablished network groups to take up resources and capital intensive activities like processing value addition and marketing.
- To demonstrate functional linkage with different institutions and stakeholders for available under various schemes programme for sustainable development of youth.

Expert of this workshop was Dr. S.P.S. Tyagi CSAU&T Kanpur and Co-Chaired by Dr. U.S. Gautam Director ICAR-ATARI Kanpur. Scientists from KVKs namely Haridwar and Muzaffarnagar nemely Dr. R.C. Verma; Dr. Puroshottam Kumar, Head KVK; Dr. S.K. Dubey (AE); Dr. Atar Singh; Shri Kanta Prasad AFAO ICAR-ATARI, Kanpur; Shri R.B. Verma, AAO, ICAR-ATARI Kanpur were present. Dr. U.S. Gautam Director, ICAR-ATARI, Kanpur briefed about activities of KVKs during this year. He apprised the work progress of KVKs of U.P. and Uttarakhand and finalization of the action plan for the next year

2nd Meeting : Zonal level review meeting of ARYA project was held at ICAR-ATARI Kanpur on 6 March, 2017. Krishi Vigyan Kendra (KVK), Muzaffarnagar (Uttar Pradesh) and Krishi Vigyan Kendra (KVK), Haridwar (Uttarakhand) attended this review meeting. The resource persons namely Dr. Munish Gangwar, Head , agri-business centre, CSAUAT, Kanpur ; Dr. Dhoom singh, Director(Extension), CSAUAT, Kanpur, Dr. S.P.S. Tyagi, Head (Animal Husbandry and Dairying Division), CSAUAT, Kanpur and Dr. Atar Singh, PS (Agron), ICAR-ATARI, Kapur were present in the meeting. The meeting was Chaired by Dr. U.S. Gautam, Director and coordinated by Dr. S. K. Dubey, PS (AE), ICAR-ATARI, Kanpur.

In the opening remarks, Dr. S.K. Dubey, PS(AE) briefed the house about the significance of this project as envisioned by ICAR. He also made the reference of National level review meeting of ARYA project held in the month of January 2016 in New Delhi in which it was categorically decided that both KVKs of Uttar Pradesh and Uttarakhand must focus on including more number of youth in this program and also using the group approach for effective spread of the project. In the inaugural remarks, Director ICAR–ATARI Kanpur, Dr. U.S. Gautam impressed upon the house for documenting the output and outcome of ARYA project and also making the results as objective and quantified as possible. The presentation was made by both the KVKs on technical progress, financial progress for year 2016-2017 and the action plan for year 2017-2018.

VI) Events

कृषि वि०वि० (शीआट्स) इलाहाबाद में कृषक वार्ता

12 जून 2016 को माननीय केंद्रीय कृषि एवं किसान कल्याण मंत्री श्री राधा मोहन सिंह जी, कृषि वि०वि० (शीआट्स) इलाहाबाद में आयोजित कृषक वार्ता में मुख्य अतिथि के रूप में पधारे, उनका स्वागत माननीय कुलपति प्रो० डॉ० आर० बी० लाल० व उपकुलपति डॉ० ऐ० के० ऐ० लारेंस जी ने किया। आयोजित कृषक वार्ता भारतीय कृषि अनुसन्धान परिषद् व शीआट्स के सहयोग से आयोजित की गई जिसमे निदेशक, भाकृअनुप–कृ०त०अनु०सं० डॉ० यू० एस० गौतम व सिफ्री संस्थान के वरिष्ठ वैज्ञानिक डॉ० के० जोशी जी ने माननीय मंत्री जी का स्वागत किया। माननीय मंत्री जी ने सर्वप्रथम कृषि विज्ञानं केन्द्रों द्वारा लगाई गई कृषि प्रदर्शनी में विभिन्न तकनीकियों का अवलोकन किया। इसके उपरांत माननीय केंद्रीय कृषि मंत्री जी ने आयोजित कृषक वार्ता का शुभारम्भ किया जिसमें उन्होंने बताया की इस वर्ष 456 करोड़ रूपए मृदा परीक्षण के लिए राज्य सरकारों को दिए गए जिसमे देश के 14 करोड़ किसानो को मार्च 2017 तक सभी को मृदा स्वास्थ्य कार्ड वितरित करने का लक्ष्य पूर्ण कर लिया जायेगा तथा मृदा परीक्षण हेतु प्रयोगशाला बनाने के लिए सभी कृषि विज्ञानं केन्द्रों को दिया जा रहा है।

उन्होंने बताया की देश में चल रही प्रधानमंत्री फसल बीमा योजना जिसमे किसानो को रबी फसलों के लिए 1.5: व खरीफ फसलों के लिए 2: की ब्याज दर पर बीमा किया जा रहा है, ताकि अधिक से अधिक किसान भाइयों को लाभ मिल सके। माननीय केंद्रीय कृषि मंत्री जी ने कृषि वैज्ञानिकों से कहा की कुछ वैज्ञानिक मिलकर एक–एक गाँव को गोद लें जिससे सीधे किसानो से जुड़कर उनकी उत्पादकता व आय बढ़ाएं। माननीय मंत्री जी ने तकनीकी पर जोर देते हुए कहा की हर हाथ को रोजगार तभी पूरा होगा जब हम मजबूत तकनीकी को हासिल करते हैं। उन्होंने बताया की केंद्र की 89 कृषि सम्बंधित परियोजनायें जो की वर्षो से लंबित है उन्हें मिशन मोड पर कार्य करने को हरी झंडी दी जा चुकी है और नाबार्ड के सहयोग से 20 हजार करोड़ की निधि बनायीं गयी है, जिससे की किसान भाई लाभान्वित होंगे और 23 योजनाओं के लिए 12 हजार 517 करोड़ रूपए इस मिशन को पूरा करने के लिए दिया गया है। 2015–16 में परंपरागत कृषि खेती योजना जैविक खेती योजना बनाई गई इसमें 3 वर्ष के अन्दर 10,650 हेक्टेयर का क्लस्टर बना के कम किया जायेगा। कृषि उत्पादों की खरीद फरोक्त में किसानो को बिचौलियों से बचने के लिए राष्ट्रीय स्तर पर मंडी बनाई गई है, तथा किसानो के लिए ई–ट्रेडिंग प्लेटफार्म भी बनाया गया है जिसमे इस वर्ष 26000 किसानों ने खरीद फरोक्त किया। माननीय केंद्रीय कृषि मंत्री जी ने कृषि विज्ञान केंद्र इलाहाबाद को 10 लाख रूपए मत्स्यकी भवन व 20 लाख रूपए मत्स्य उत्पादन फार्म के लिए आवंटित किया।

Pradhan Mantri Phasal Bima Yojana (2 April 2016, Lucknow)

Sri Rajnath Singh, Union Minister of Home Affairs inaugurated one-day awareness programme on "Pradhan Mantri Phasal Bima Yojana" at KVK, Lucknow today. The event was organised in collaboration with ICAR-Indian Institute of Sugarcane Research, Lucknow and with support from ICAR-Agricultural Technology Application Research Institute, Kanpur. On this Occasion, four progressive farmers including two women farmers were honoured with Deen Dayal Antyoday Kisan Samman by the Chief Guest for their extra-ordinary contribution in harvesting impressive dividends from their very small land holdings. The Award were distributed to the farmers/farm women Sh. Ramesh Verma of Block Gosaiganj; Sh. Ramchandra Yadav and Mrs. Kamla Devi of Block Sarojini Nagar and Mrs. Bitana Devi of Block Mohanlalganj of District Lucknow

Workshop on NICRA, NIFTD & Strategy for Kharif Season of KVKs.

Two days workshop was organized during 18-19 April, 2016 at ICAR-ATARI, Kanpur.Chief Guest of this workshop was Dr. A. K Singh DDG, (AE) ICAR, New Delhi and Co-chaired by Dr. J.V.N.S Prasad coordinator, NICRA project,ICAR-CRIDA Hyderabad, Dr. S. S. Singh Head Crop Division, ICAR-IIPR, Kanpur, Dr. U.S Gautam Director,ATARI, Kanpur. Dr. Atar Singh, PS (Agron)& Nodal Officer NICRA & NIFTD, Dr. S. K. Dubey PS (AE), Dr. Ajit Kumar Srivastava, RA (NICRA), ICAR- ATARI Kanpur, along with Heads, Scientistsand SRFs of the KVKs were present.

Dr. A. K. Singh, DDG (Agricultural Extension), ICAR, New Delhi emphasized, why NICRA has been planned and selected for particular district. NICRA stands for National Innovations in Climate Resilient Agriculture. Uttar Pradesh state facing drought problems 60% in 32 districts and 40% in 12 districts. Basic of this project is management of different kind of stress. KVK, Baghpat has been selected for ground water depletion and KVK, Pratapgarh for sodicity problem, respectively. He suggested on the judicious use of ground water, use of short duration and tolerant varieties. He praised the interventions like use of land lesser & leveler. The funds utilization by KVK is really matter of concern due to lack of staff and administrative problems. Further, he shared with house about his successful experiences about it.

Two days training – cum – workshop for the Home Scientists of KVKs of Uttar Pradesh & Uttarakhand on "Building Home Scientists' Capacity for Gender Orientited On-Farm Activities"

Two days training – cum – workshop for the Home Scientists of KVKs of Uttar Pradesh & Uttarakhand was jointly organized by ICAR-ATARI, Kanpur and KVK, Allahabad at SHIATS, Allahabad from 6-7 May, 2016. Forty seven (47) Home Scientists from all the State Agricultural Universities, Deemed University and ICAR Institutes attended this workshop. Dr. U. S. Gautam, Director, ATARI; Dr. Om Prakash Singh, Former Director

(Exten.), SVPUAT, Meerut; Prof. (Dr.) Wilson Kispotta, Director Extension, SHIATS, Allahabad; Dr. S. K. Dubey, Principal Scientist, ICAR-ATARI; Dr. Sarita Sheikh, Dean, Home Science, SHIATS; Dr. J.P. Srivastava, Prof. Emeritus; Dr. Ranjana Chauhan, NGO Representative from Fatehpur acted as the key experts besides the resource persons from the Department of Extension Education and Home Science, SHIATS, Allahabad.

Dr. U. S. Gautam, Director, ATARI, Kanpur introduced the very purpose of this workshop and also the areas of training to be covered in the programme. He stated that it has become indispensible for the KVK Home Scientists to come on the fore front of agricultural development.

Their visibility and presence need to be made more convincing. He further stated that often the works of Home Scientists lack the thematic and focused approach and also the scientific touch in their on-farm related activities are missing.

Annual Zonal Workshop of KVKs - 2016

Shri Ram Naik, Hon'ble Governor of Uttar Pradesh inaugurated XXIII Annual Zonal Workshop on KVKs of Uttar Pradesh and Uttarakhand at ICAR-Indian Institute of Sugarcane Research, Lucknow on 26 May 2016. While addressing the gathering, he said KVK as a grass root level institution have immense potential for strengthening agriculture and related industries for bringing prosperity to the villages which ultimately may culminate to national prosperity. Terming the KVK as lighthouse for the farmers which are capable to offer scientific direction to the farmers, especially in the current changing scenario of Indian agriculture and to play an effective tool for disseminating welfare schemes of the farmers started by the Central Govt. Hon'ble Governor facilitated three farmers/farm woman for their adoption of innovative technologies. Shri Naik also released the Annual Report of the KVKs for the period 2015-16. He also visited the Exhibition organized on the occasion. Dr. A.K. Singh, Deputy Director General (Ag. Extension), ICAR expressed his satisfaction over demonstrations on pulses and oilseed crops in 60,000 acre area by KVKs, sending of SMSs to 1.5 crore farmers of the country and production of 1.5 lakh tonnes of seed/planting material. He also highlighted the major schemes of ICAR launched for the benefit of farmers like Mera Gaon Mera Gaurav, Farmers' First, ARYA, Pre-Kharif and Pre-Rabi Kisan Sammelan and Pradhan Mantri Fasal Beema Yojana.

Dr. U.S Gautam, Director, ICAR-ATARI, Kanpur briefed about activities of KVKs during last year. He apprised that review of the work progress of KVKs of Uttar Pradesh and Uttarakhand during the last year (2015-16) and finalization of action plan for the next year will be discussed in this workshop.

Dr. A.D. Pathak, Director, ICAR-Indian Institute of Sugarcane Research highlighted the research and development contributions of the Institute for the economic development of sugarcane farmers and the state and proposed the formal vote of thanks to all the delegates and dignitaries.

Dr. Gaya Prasad, VC, SVPUA&T, Meerut; Dr. K.M.L. Pathak, VC, DUVASU, Mathura; Dr. S.L. Goswami, VC, BUA&T, Banda; Dr. S. Rajan, Director, ICAR-CISH, Lucknow; Dr. Ravindra Kumar, Director, ICAR-NBFGR, Lucknow; Dr. Mathura Rai, Ex. Director, ICAR-IIVR, Varanasi and Heads of 81 KVKs participated in the event.

"Take it to Breeders & researchers - the plant Breeder's and Researcher's Right through Awareness and streamlining of farmers' varieties."

A Workshop on "Take it to Breeders & researchers - the plant Breeder's and Researcher's Right through Awareness and streamlining of farmers' varieties." was held on 30 June, 2016. On this occasion ICAR-ATARI, Kanpur released a book entitled "Steps up farmer's Right with PPV&FRA and ICAR-ATARI Kanpur."

Dr. M. S. Swaminathan; Former Secretary & D.G ICAR was the Chief Guest of the inaugural function.

Dr. R. S. Paroda Former Secretary DARE & DG ICAR, Dr. Trilochan Mohapatra, Secretary & DG, ICAR New Delhi; Dr. A. K.

Singh DDG (AE) New Delhi; Mr. A. Pattnayak, Secretary Agriculture GOI New Delhi; Dr. R.R. Hanchinal Chairman PPVFRA, Dr. R.C. Agarwal Registrar-General, PPVFRA GOI; Vice chancellors of different universities, Director of ICAR Institutes, Director (Research) & Director (Extension) and other scientists were present in inaugural function.

Dr. Mohapatra said that – It depends on how deeply motivated are the breeders and researchers forsignificantly contributing selection and identification of varieties for the farmers.

Dr. R S Paroda, Former Secretary, DARE & DG ICAR said that farmers right is an unique act. Lot of efforts are required in defining farmers' right, sharing benefits among them and creating awareness for the same among them. The rich genetic strength of plants crops and animals in India need to be captured and exploited.

Workshop for Farm Managers & Review Meeting of Pulses & Oilseeds

Two days "Workshop for Farm Managers & Review Meeting of Pulses & Oilseeds" was held during 24-25 June, 2016 at ICAR-ATARI, Kanpur. This workshop was specially held for farm managers/Incharge (SMS) Farm from 81 KVKs who is taking care of instructional farm at their respective KVKs. The farm managers shared the information regarding farm area, its layout, development of crop cafeteria, nutritional garden, seed production, status of farm implements, availability & its status and revolving fund status generated from the sale of seeds and planting materials. They also share details of technology with package of practice & success stories of pulses/oilseeds demonstrations laid out during Rabi 2015-16. Resource person from CSAUAT, Kanpur ; BHU, Varanasi and CSSRI Reg. Res. Station, Lucknow delivered the lectures on different topics such as Principles and better farm management skills, Soil and Water Management with special reference to cropping systems and Integrated Farming System models at farm and farmers fields .

पं. दीनदयाल उपाध्याय के जन्मशती महोत्सव के अवसर पर केन्द्रीय कृषि एवं किसान कल्याण मंत्री श्री राधामोहन सिंह जी द्वारा कृषि उन्नति मेला का उद्घाटन एवं अंत्योदय कृषि पुरस्कार का वितरण (26–29 सितम्बर, 2016)

दीनदयाल उपाध्याय अंत्योदय कृशि पुरस्कार समारोह के मुख्य अतिथि माननीय कृशि एवं किसान कल्याण मंत्री, भारत सरकार श्री राधामोहन सिंह जी ने दीनदयाल धाम के परिसर में भारी संख्या में उपस्थित कृषकों, युवाओं एवं महिलाओं को सम्बोधित किया। कृषि विज्ञान केन्द्र आगरा एवं मथुरा द्वारा 500 कृषकों को इस मेले में भ्रमण एवं ज्ञान अर्जित करने के लिए लाया गया। उन्होंने अपने भाशण में भारतीय कृषि को अत्यधिक लाभकारी बताया तथा कृषकों को कृशि आधारित उद्यमों के प्रति आह्वान किया। उन्होने पंडित दीनदयाल जी के जीवन मूल्यों को वर्तमान में समाज में उभरती चुनौतियों के प्रति सजगता के लिए अनुरोध किया। उन्होने जैवकि खेती, परम्परागत कृषि तकनीकों का उपयोग, कृषकों का बाजार से जुड़ाव, आधुनिक संम्प्रेषण तकनीकों से सूचना एवं ज्ञान की जानकारी आदि पर बल दिया।

कृषि उन्नति मेले में कृषि प्रदर्शनी का आयोजन रू इस मेले में 80 प्रदर्शनी पांडाल लगाये गये जिसमें 32 कृषि मंत्रालय, 20 भारतीय कृषि अनुसंधान परिषद के प्रमुख संस्थानों, भारतीय कृशि अनुसंधान संस्थान, नई दिल्ली, राष्ट्रीय डेयरी अनुसंधान संस्थान, केन्द्रीय कृषि मशीनरी संस्थान, भोपाल, तथा 5 कृषि विज्ञान केन्द्रों द्वारा सजीव नमूनेए बीज एवं उन्नत तकनीकों का प्रदर्शन किया गया, जिससे कृषक गण लाभान्वित हो सकें। इस दौरान कृषक संगोष्ठी का भी आयोजन किया गया जिसमें वैज्ञानिकों तथा कृषकों का सीधा सम्पर्क और प्रश्नोत्तरी द्वारा कृषकों को परामर्श भी दिया गया।

इस अवसर पर सचिव, डेयर एवं महानिदेशक भा.कृ.अनु.प. नई दिल्ली, डा. त्रिलोचन महापात्र, सचिव, पशुपालन, डेयरी एवं मत्स्य, श्री देवेन्द्र चौधरी, उपमहानिदेशक, कृषि प्रसार डा. ए.के. सिंह, दीनदयाल धाम के संरक्षक श्री बिहारी एवं अध्यक्ष श्री जय प्रकाश अग्रवाल, संयुक्त सचिव (पशुपालन, डेयरी व मत्स्य) श्री ए.जे.वी. प्रसाद व श्री इं. रमेश तथा कृशि एवं किसान कल्याण मंत्रालय विशेष कार्य अधिकारी श्रीमती दुर्गा शक्ति नागपाल, डॉ यू०एस० गौतम, निदेशक अटारी एवं डॉ. जे०पी० शर्मा, संयुक्त निदेशक भा.कृ.अनु. संए नई दिल्ली, उपस्थित थे।

Workshop organized for Subject Matter Specialist

Agronomy Scientist's Workshop (13 July, 2016)

Soil Science Scientists' Workshop (13th July, 2016)

Horticulure Scientists' Workshop (19 July, 2016)

Animal Scientists' Workshop (21 July, 2016)

Plant Protection Scientists' Workshop (28 July, 2016)

Director Extn. Education Conference

ICAR-ATARI, Kanpur organized Directors of Extension Education workshop on 11 August 2016 to review the progress of KVKs of Uttar Pradesh and Uttarakhand. In the Inaugural Session Dr. Atar Singh PS, (Agro.) welcomed the delegates and highlighted the week points of the KVKs which needs Directors' attention. Dr U. S. Gautam, Director ICAR-ATARI, Kanpur welcomed Dr A. D. Pathak Director ICAR-IISR, Lucknow; Directors (Extension) of SAUs and Director nominee of ICAR institutes. He heighted the achievements and progress of KVKs and requested all participants to make the year planner of KVKs and for Directorate level and work strictly according to the year planner 2016-17. This year planner should be shared with line department so that they may also participate or nominate some body from their department on the day of event. He also pointed out technical backstopping by the Directorate, which is the main function and also monitoring the mandated KVK activities. He discussed about newsletter of ICAR-ATARI, Kanpur and also requested all Directors to publish newsletter of all KVKs and Directorate level also. He also discussed to DEs about strategies to enhance the efficiency of Scientists of KVKs and suggested how to produce location specific quality seeds. He advised to develop Training Action Plan for SMSs of KVK under the area jurisdiction of SAUs on the subject of skill development of rural youth to be provided by ASCI (Agriculture Skill Council of India), production technology for hills at VPKAS, Almora; ICAR-IVRI, Bareilly and DUVASU, Mathura for Animal Hasbandry and ICAR-IIVR, Varanasi for Vegetables. The participating delegates presented progress of first quarter report and future plan and also discussed about the constraints of the KVK in the technical session.

Open discussion held with the participants about the problem solving approach in their area KVKs for proper monitoring and facilitation to achieve the targeted activities of the KVKs. DEs/ Director of ICAR Institutes should feel proud to having KVKs for technology demonstration from the SAUs/ICAR institute and NARS technologies. It was told that commodity based HRD programmes should be organized at SAUs and ICAR Institutes for updating the knowledge of the different subject scientist of the KVKs for dissemination of knowledge for further to clients. In this meeting Dr Dhoom Singh, DE, CSAUAT Kanpur; Dr R G Upadhyaya, DE, UUHF, Bharsar; Dr Wilson Kispotta, DE, SHIATS Allahabd; Dr S S Yadav, DE, DUVASU, Mathura; Dr Anil Garg, JD, ICAR-IVRI Bareilly; Dr R N Prasad, Director Nominee, ICAR-IIVR, Varanasi; Dr. Nirmal Chandra, Director Nominee, ICAR-VPKAS, Almora; Dr Satya Prakash, DE Nominee, SVPUAT, Meerut; Dr R A Singh and Dr R R Singh, DE Nominee, NDUAT, Faizabad and Dr T P Singh, Joint Director Extension, GBPUAT, Pantnagar were participated in the workshop. Vote of thanks was given by Dr. U S Gautam, Director, ICAR-ATARI, Kanpur to the participants.

Institute Management Committee Meeting (IMC)

The 6th Meeting of the IMC was held under the Chairmanship of Dr. U.S. Gautam, Director, ATARI, Kanpur on 17.08.2016. Following IMC Members and officers attended the Meeting

Dr. U.S. Gautam, Director, ATARI, Kanpur.	Chairman
Dr. R.K. Malhotra, Bareilly	Member
Dr. J.P. Bisht, Principal Scientist (Agron.) VPKAS Almora	Member
Dr. R.N. Prasad, Principal Scientist (Hort.) IIVR Varanasi.	Member
Dr. Naimudeen, In charge FAO, IIPR	Member
Dr. S.K. Chaturvedi Head plant breeding, IIPR	Member
Shri. R.B. Verma AAO,ICAR-ATARI Kanpur	Member Secretary

Dr. Atar Singh PS, (Agron.) ICAR-ATARI Kanpur, Dr. S.K. Dubey PS (AE), Shri. Yemul S.N., Chief Technical Officer & Shri Kanta Prasad, AF & AO were also invited to put up a brief about the related activities undertaken by them. On this occasion agenda items were discussed and recommendations were made.

Monitoring of NFSM Pulses Cluster Frontline Demonstration

Dr. U.S. Gautam Director monitoring Cluster FLD on Pigeonpea at Pratapgarh (14.07.2016)

Dr. A.K. Mehta visited N.A.-2 variety at Kaprahat village in Kanpur Dehat (28.07.2016)

Dr. A.K. Mehta visited N.A.-2 variety at Naikaha village Unnao district (27.09.2016)

Dr. A.K. Mehta also visited Shekhar variety of Seasmum at Naikaha village Unnao district

Best Krishi Vigyan Kendra Award-2015

Krishi Vigyan Kendra Pratapgarh awarded with best KVK award 2015 on the occasion of 88th Foundation day of Indian Council of Agricultural Research (ICAR) at New Delhi on 16 July, 2016.

Development of Mobile App of ICAR-ATARI, Kanpur : eKVK-UP

ICAR has initiated to develop mobile app of each KVK for the benefit of farmer community. In this regard a short meeting on Development of Mobile App by ICAR-ATARI, Kanpur was held on 13 January, 2017. In this meeting Dr U.S. Gautam, Director; Dr Atar Singh, PS, & Dr. S.K. Dubey, PS from ICAR-ATARI, Kanpur and other dignitogories Dr. Dhoom Singh, DE, Dr S.K. Srivastava from CSAUAT, Kanpur were present and gave their views on requirements of Mobile App. In this meeting Dr. U.S. Gautam, Director, ATARI focused on how to facilitate farmers by considering following points through Mobile App –

- KVK facilities, profile & their activities
- Commodity Trading Details
- Agro Meteorological Advisory
- Information on FLD/OFT/Training/Extn. Activities etc
- Query based information
- Mobile connectivity for quick response & easy communication
- Centralize information facility with ICAR-ATARI
- Medium for representing past, current & future events

- Awareness regarding special programmes for farming community
- Transparency of information & working
- Availability of digitized publications

Shri S.N. Yemul, Chief Technical Officer; Shri VD Shukla & KK Bajpai, Young Computer Professionals delivered the presentation on the cited subject.

CSAUAT, Kanpur also organized a training on Mobile App during 14-15 Feb, 2017. In this training 30 KVKs participated. Training was given on how to prepare content in both English and Hindi language so that farmers can understand easily. Technical know-how were also presentated by both the young professionals namely Shri KK Bajpai and Shri V.D. Shukla from ICAR-ATARI, Kanpur

National Review Workshop of Oilseeds at IGKV, Raipur

National Review Workshop of Oilseeds was organized at IGKV-Raipur during 17-18 Feb 2017. From this zone, Dr. Atar Singh, PS (Agron.); Dr. Dhoom Singh, DE, CSAUAT, Kanpur & SRF attended this workshop. The technical session was chaired by Dr. A.K. Singh, DDG(AE), ICAR-New Delhi as the Chief Guest; Co-Chaired by Dr. V.P. Chahal, ADG(AE) New Delhi; DES, IGKV Raipur; Dr. M. P. Thakur and Dr. Anupam Mishra, Director ATARI, Jabalpur. Remarks on following point were given by the dignitaries –

- Developing Action Plan on Oilseeds continuously to achieve success story and it is main agenda of this pogramme.
- 60% deficiency in oilseeds and Rs. 70 thousands crores invested for import of oils from outside.
- Best National and Zonal Award every year for KVKs & ATARIs may be given.
- How to validate innovations for Horizontal Spread.
- Price utilization in oil palm.
- Small pocket diary of Govt. Schemes and oilseeds publishing in month time.
- Awareness about GOI, State Govt. Scheme planning to the farmers.
- Skill development training for 200hrs for every KVKs, need to be compulsory.
- Identification of critical inputs and full package of practices.
- Empowerment of Women.
- Production, processing and marketing should be focused.
- List of farmers should be on KVK Portal with the Adhar card number of the farmer.
- Achievements should also be depicted on website.

ICAR-ATARI, Kanpur Awarded Quality Control Certification ISO 9001:2015

The Award Ceremony of Quality Control Certification ISO 9001:2015 was organized on 31 January 2017 at ICAR-ATARI, Kanpur. The ISO award was given by Er. Ankur Singla, Lead Auditor, Quality Control Certification, New Delhi. He also narrated the importance of the ISO certification. On this Occasion, Dr. S. L. Goswami, Hon'ble Vice Chancellor, BUA&T, Banda was present as the Chief Guest and Dr. S. Soloman, Hon'ble Vice Chancellor, CSAUA&T, Kanpur was the Guest of Honour on this occasion. Dr. Dhoom Singh, Director Extension, CSAUA&T, Kanpur; Dr. N.K. Bajpai, Director Extension, BUA&T, Banda; Dr. Ram Batuk Singh, DAM, CSAUA&T, Kanpur; Dr. Jitendra Singh, Associate Director Extension CSAUA&T, Kanpur. Dr. Atar Singh, PS(Agronomy); Dr. S.K. Dubey,PS(AE) & all the staff of ICAR-ATARI Kanpur were present during this event. Chief Guest appreciated the efforts of all the staff of IAR-ATARI, Kanpur for receiving the award of ISO

certificate. He also emphasized that other universities and KVK should follow the procedure and guidelines to get such awards.

Dr. U.S. Gautam welcome the Chief Guest and given introductory remarks. Hon'ble Chief Guest also released the Quarterly News Letter of ICAR-ATARI, Kanpur, Volume 5 (Oct-Dec.), 2016 during the occasion.

Review workshop of CSISA-CIMMYT

One day review workshop of CSISA-CIMMYT partnership programme was organised on 14 March, 2017. Head of KVK Kushinagar and scientists from KVK Deoria participated in this review workshop and presented the work progress of Rabi 2016-17 in respect of On Farm interventions related to 10 farmer participatory trials in Zero Till Wheat crops. Dr. R.K. Malik Country representative of CSISA-CIMMYT also representing the session. Dr. S.K. Dubey, PS(AE) coordinated the programme

Workshop on Soil Testing Kit

One day workshop on Soil Testing Kit was organized at ICAR-ATARI, Kanpur on dated 18 March 2017. Dr. Dhoom Singh, Director Extension, CSAUA&T, Kanpur Chaired the function as the Chief Guest; Dr. Tapan Adhikari, PS, ICAR-IISS Bhopal ; Dr. U.S. Gautam, Director, ICAR-ATARI, Kanpur; Dr. Atar Singh,PS (Agro); Dr. Deepak Kaul, IISS Bhopal; Mr. T. Rama Murthy from Nagarjuna Pvt ltd. Hyderabad were present in the programme. In the inaugural speech Dr. Atar Singh, PS (Agro), ICAR-ATARI,Kanpur expressed the overall scenario of the Soil Testing Kit used by the KVKs and also narrated the number of Soil Health Cards distributed by the KVKs to the farmers.

Dr. U.S. Gautam, Director, ICAR-ATARI discussed about the Soil testing Kit and purpose of the workshop. This programme was targeted for 3000 soil health card distribution from each KVK which is monitored by Government of India. Dr. Tapan Adhikari emphasized on proper soil sample collection, training organized among the farmers by the Soil Scientist/ Head of KVKs because it is essential for preparing good soil report. He also requested the scientists to collect samples on grid basis. The parameters of grid sampling should be 2.5 ha for irrigated and 10 ha for rain fed situation. Dr. T Rama Murthy of Nagurjuna Pvt. Ltd, Hyderabad & Dr. Depak Kaul displayed the soil testing machine among the KVK scientists and explained how to analyze and develop proper soil test report of soil samples. KVKs of Fatehpur, Jalaun, Chandauli, Badaun, Saharanpur, Kushinagar, Sultanpur, Ghazipur, Mirzapur & Ghaziabad have achieved more than targeted soil sample analysis and distributed soil cards as per target.

Review Meeting of Inter-institutional Research Project on "Combating Drudgery for Enhancing Farm Women's Efficiency in Different Agro-climatic Zones of Uttar Pradesh and Uttarakhand"

Review meeting of Inter-institutional Research Project on Combating Drudgery for Enhancing Farm Women's Efficiency in Different Agro-climatic Zones of Uttar Pradesh and Uttarakhand was held during 28-29 March, 2017. Chief Guest Dr O.P. Singh, Ex. DE, SVPUAT, Meerut inaugurated this meeting. Other Dignitaries Dr. (Mrs) Razia Parvez, Prof., SHIATS, Allahabad, Dr. U.V. Kiran, Lucknow, Dr US Gautam, Director, ATARI, Kanpur, Dr. Atar Singh, PS (Agron) and Dr. S.K. Dubey, PS(AE) gave their views on the subject. Thirty two KVKs of U.P. and Uttarakhand under nine agro-climatic zones are involved for implementing this important women oriented project. The participating Home Scientists/SMS (H.Sc.) are the CoPIs. This project is being jointly implemented by ICAR-ATARI,Kanpur & SHIATS, Allahabad, and the KVKs. Following objectives & work plan of this project were discussed by the dignigories during the session –

- Quantification of extent of drudgery experienced by the women farmers in various farm related activities in the project area

- To study the Work Rest Cycle for farm women with respect to their Age, body weight, height and nutrition intake for different drudgery prone farm operations.
- Assessment of available drudgery reducing tools and equipments on farm women, suitability modify and redesigning them to make ergonomically sound for enhancing work efficiency
- Standardizing the zone specific 'Ergonomically Sound Technology Kit' for reduction of the drudgery of farm women and devising the strategies for their upscaling..

Dr. U.S. Gautam, Director and Dr. O.P. Singh, Ex. DE, SVPUA&T, Meerut also shared the following points for successful implementation of this project –

- What is the quantified estimate of hardship & drudgery of women farmers in crop production, livestock and post harvest related operations ?
- What are the different gender appropriate tools and farm implements recommended by research institutes and how effective they are in real working situation ?
- What prototype or kit can be developed containing the available and tested drudgery reducing tools for farm women ?



Review workshop on Seed Hub Project

A Review Meeting & Action Plan on Pulses seed hub was held under the Chairmanship of Dr. U.S. Gautam, Director, ICAR-ATARI, Kanpur in the Conference Hall of ATARI, Kanpur on 22 March, 2017. Dr. P.K. Kathiyar, Nodal Officer (Seed Hub), ICAR-IIPR, Kanpur, Dr Dhoom Singh Director Extension, CSAUA&T, Kanpur; Dr. N.K. Bajpai, Director Extension, BUA&T, Banda and all the Head/ Scientists of Krishi Vigyan Kendras of pulses seed hub participated in the programme.

At the outset, Chairman welcomed all the participants and briefed about the programme of establishment of Seed Hubs for pulses in the country funded under the NFSM through ICAR, New Delhi in general and in Zone IV in particular. In his remarks, he made a mention that to cope up with the targeted production of pulses in the country, self reliance is more important and reduces import of pulses. In this direction creation of Seed Hubs on pulses is one of the options to harness the pulses production through the availability of quality seeds at the door steps of the farmers in the KVK respective districts.

Dr. P.K. Katiyar, Nodal Officer (Seed Hub), ICAR-IIPR, Kanpur discussed with head KVKs of Seed hub & try to solve their problems. He also explains the operational guidelines and highlighted important points regarding availability of breeder seed, target of seed production , use of varieties under 10 years old etc.

Plant Protection Variety and Farmers Right Act (PPV&FRA) Workshop

Two days workshop was organized during 20-21 March, 2017 at ICAR-ATARI, Kanpur. Chief Guest of this workshop was Dr. P. K Singh (PS) ICAR-IISR, Lucknow and the event of Co-chaired by Dr. U.S Gautam Director, ATARI, Kanpur and attended by Dr. Ajit Kumar Srivastava, RA, ICAR- ATARI Kanpur, along with KVK Heads/Sr. Scientist, Scientists and SRFs of the ICAR-ATARI, Kanpur. On this occasion Dr. U. S. Gautam, Director, ICAR-ATARI, Kanpur remarked on PPV&FRA project regading progress made and budget utilization. He appreciated some of the KVKs' performances whereas others were suggested to follow the similar kind of activities on collection of material and organizing the training programme. Further, he narrated KVKs to demonstrate the mandate of the project. He also urged to the KVKs that they must collect and document the samples latest up to the 31 March, 2017.

Chapter 3

Technical Achievements

State: Uttar Pradesh

(1) TRAINING PROGRAMMES

KVKs organized 7147 training courses with the participation of 148957 farmers, farm women, rural youths and extension functionaries. The farmers and farm women were represented in a proportion of 79.93% and 20.07.% respectively. In all 120351 farmers and farm women and 14600 rural youths were provided skill training in different enterprises. Similarly, 14006 extension personnel were also trained in different areas.

Clientele	Courses	Male	Female	Total
Farmers & Farm women	5630	95963	24388	120351
Rural Youths	820	11340	3215	14600
Extension Functionaries	697	11593	2300	14006
Total	**7147**	**118896**	**29903**	**148957**

1.1 Farmers and Farm Women

Total of 5630 courses were conducted by KVKs of the Uttar Pradesh with the participation of 123169 farmers and farm women. Maximum courses (1164) and participants (26270) were related to crop production. The other areas of trainings were horticulture (990 courses and 22029 participants); livestock production management (687 courses and 14988 participants); women empowerment (700 courses and 14286 participants); and soil health and fertility management (572) courses and 12599 participants).

Table 1.1: Training of farmers and farm women (U.P.)

Area of training	Uttar Pradesh			
	Courses	Male	Female	Total
Crop Production	1164	24168	2104	26270
Horticulture	990	20201	1824	22029
Soil Health & Fertility Management	572	11563	1036	12599
Livestock Production & Management	687	12823	2163	14988
Home Science/ Women empowerment	700	702	13377	14286
Agril. Engineering	222	4327	382	4709
Plant Protection	723	13844	1392	15146
Fisheries	46	988	71	1059
Production of Input at site	186	3773	338	4111
Capacity Building & Group Dynamics	224	4699	726	5414
Agro forestry	116	2257	301	2558
Total	**5630**	**99345**	**23714**	**123169**

1.1.1 Crop Production

With respect to crop production, 1164 training courses were organized in Uttar Pradesh with the participation of 26270 farmers and farm women. Integrated crop management related 281 courses were organized in which 6342 farmers and farm women participated; followed by 166 courses on weed management, 88 on resource conservation technologies 134 courses on seed production and with the participation of 3749, 2139 and 3136 farmers and farm women respectively. The other important areas like cropping systems, crop diversification, integrated farming, integrated nutrient management, nursery management, production of organic inputs, etc. were also taken up.

Table 1.1.1: Training programmes related to crop production (U.P.)

Area of training	Courses	Trainees
Weed Management	166	3749
Resource Conservation Technologies	88	2139
Cropping Systems	86	1919
Crop Diversification	38	857
Integrated Farming	39	844
Micro irrigation/irrigation	34	761
Seed production	134	3136
Nursery management	69	1552
Integrated Crop Management	281	6342
Soil & water conservation	38	830
Integrated nutrient Management	99	2165
Production of organic inputs	41	924
Others	51	1052
Total	**1164**	**26270**

1.1.2 Horticulture

Training on production technologies of vegetables, fruits, ornamental plants, plantation crops, tuber crops, spices and medicinal plants were organized. 450 courses on vegetables involving 9930 and 308 courses on fruit with the participation of 7077 were held. Similarly, in case of ornamental plants, organization of 78 courses with participation of 1775 persons was ensured. In the area of plantation crops, tuber crops, spices, medicinal & other crops 24, 55, 42 and 33 courses were organized with participation of 521, 1134, 920 and 672 farmers and farm women.

Table 1.1.2: Training on horticulture including sponsored (U.P.)

Area of training	Courses	Trainees
A) Vegetable Crops		
Production of low volume and high value crops	144	3315
Off-season vegetables	52	1127
Nursery raising	109	2372
Exotic vegetables	13	254
Export potential vegetables	16	324
Grading and standardization	19	409
Protective cultivation	45	1003
Others	52	1126
Total (A)	**450**	9930
B) Fruits		
Training and Pruning	36	813
Layout and Management of Orchards	74	1584
Cultivation of Fruit	60	1468
Management of young plants/orchards	49	1138
Rejuvenation of old orchards	41	1023
Export potential fruits	5	109
Micro irrigation systems of orchards	15	306
Plant propagation techniques	23	507
Others	5	129
Total (B)	**308**	7077
C) Ornamental Plants		
Nursery Management	24	617
Management of potted plants	4	75
Export potential of ornamental plants	5	112
Propagation techniques of Ornamental Plants	14	313
Others	31	658
Total (C)	**78**	1775
D) Plantation crops		
Production and Management technology	21	464
Processing and value addition	2	35
Others	1	22
Total (D)	**24**	521

Area of training	Courses	Trainees
E) Tuber crops		
Production and Management technology	51	1049
Processing and value addition	4	85
Others	0	0
Total (E)	**55**	1134
F) Spices		
Production & Management technology	38	844
Processing and value addition	2	40
Others	2	36
Total (F)	**42**	920

Area of training	Courses	Trainees
G) Medicinal and Aromatic Plants		
Nursery management	6	121
Production and management technology	19	373
Post harvest technology and value addition	7	148
Others	1	30
Total (G)	**33**	672
Grand Total (A -G)	**990**	**22029**

1.1.3 Soil Health and Fertility Management

Total of 572 courses were attended by 12599 participants. The courses in the area of soil fertility management (90), integrated nutrient management (127), soil & water testing (102), production & use of organic inputs (65), balanced use of fertilizer (34), management of problem soils (36), etc. were organized with the objectives to create awareness, knowledge and skill among farmers to address various issues.

Table 1.1.3: Training on soil health and fertility management (U.P.)

Areas of training	Courses	Trainees
Soil fertility management	90	2018
Integrated water management	37	753
Integrated nutrient management	127	2858
Production and use of organic inputs	65	1316
Management of problematic soils	36	746
Micro nutrient deficiency in crops	46	1003
Nutrient use efficiency	27	596
Balance use of fertilizer	34	745
Soil & water testing	102	2352
others	8	212
Total	**572**	**12599**

1.1.4 Livestock Production Management

All together 687. courses were organized with the participation of 14988 participants. The courses related to dairy management (159) were organized with the participation of 3610 cattle owners. Disease management (142) was second preferred programme attended by 3192 participants. Feed and fodder management, animal nutrition, poultry, quality animal products, etc were other priority areas.

Table 1.1.4: Training on livestock production and management (U.P.)

Areas of training	Courses	Trainees
Dairy management	159	3610
Poultry management	69	1473
Piggery management	48	968
Rabbit management	11	220
Animal nutrition management	110	2174
Disease management	142	3192
Feed & fodder technologies	100	2099
Production of quality animal products	24	688
Others	24	564
Total	**687**	**14988**

1.1.5 Women Empowerment

A range of courses (700) related to women empowerment were organized with the participation of 14286 farm women. Value addition courses (111) were attended by highest number of farm women (3167), followed by courses on women and child care (114) attended by 2347 participants, household food security by kitchen gardening (85) attended by 1720 farm women, etc. The farm women also showed interest in courses like storage losses, women & child care, rural craft, developing high nutrient efficient diet, drudgery reduction, diet related courses, etc. were also conducted.

Table 1.1.5: Training on Home Science/Women Empowerment (U.P.)

Areas of training	Courses	Trainees
Household food security by kitchen gardening	85	1720
Design and development of low/minimum cost diet	52	1031
Development of high nutrient efficiency diet	44	879
Minimization of nutrient loss in processing	41	896
Processing & cooking	32	564
Gender mainstreaming through SHGs	33	737
Storage loss minimization techniques	57	1140
Value addition	111	2347
Women empowerment	50	1058
Location specific drudgery reduction technologies	46	996
Rural crafts	34	622
Women and child care	93	1867
Others	22	429
Total	**700**	**14286**

1.1.6 Agricultural Engineering

Total of 222 courses in various aspects related to farm machinery, implements and its maintenance, post harvest and value addition were organized by KVKs, benefiting 4709. farmers and farm women. Maximum courses on repair & maintenance of farm machinery & implements (58) were organized benefiting 1339 persons. Newer areas like installation and maintenance of micro irrigation system, use of plastics, small tools, etc. were also taken up in training programmes.

Table 1.1.6: Training on agricultural engineering (U.P.)

Areas of training	Courses	Trainees
Farm machinery & its maintenance	58	1339
Installation and maintenance of micro irrigation systems	15	337
Use of plastics in farming practices	8	157
Production of small tools & implements	5	109
Repair and maintenance of farm machinery and implements	77	1491
Small scale processing & value addition	13	272
Post harvest technology	19	424
Others	27	580
Total	**222**	**4709**

1.1.7 Plant Protection

Under Plant Protection total 723 courses were organized with the participation of 15146 persons. The highlights of these programmes and others each courses were on IDM (201), IPM (346), bio control of pests and diseases (88), production of bio control pests & agents (42).

Table 1.1.7: Training on plant protection (U.P.)

Areas of training	Courses	Trainees
Integrated pest management	346	7356
Integrated disease management	201	4292
Bio-control of pests and diseases	88	1802
Production of bio control agents & bio pesticides	42	896
Others	46	800
Total	**723**	**15146**

1.1.8 Fish Production

The courses on integrated fish farming (21) and composite fish culture (09) were mainly organized with the participation of 486 and 202 persons. Overall 46 courses attracted participation of 1059 persons.

Table 1.1.8: Training on fish production (U.P.)

Areas of training	Courses	Trainees
Integrated fish farming	21	486
Carp breeding and hatchery management	4	80
Carp fry and fingerling rearing	3	46
Composite fish culture	9	202
Fish processing and value addition	4	129
Others	5	116
Total	**46**	**1059**

1.1.9 Production of inputs at site (U.P.)

Total 186 courses on this theme attracted participation of 4111 persons were organized. Seed production, vermi composting and organic manures attracted maximum participation.

Table 1.1.9: Training on production of input at the site (U.P.)

Areas of training	Courses	Trainees
Seed Production	86	1880
Planting material production	14	344
Bio-agents production	3	80
Bio-pesticides production	4	80
Bio-fertilizer production	6	126
Vermi-compost production	29	653
Organic manures production	16	326
Production of fry and fingerlings	3	102
Production of Bee-colonies and wax sheets	1	27
Small tools and implements	1	31
Production of livestock feed and fodder	3	60
Mushroom Production	6	143
Others	14	259
Total	**186**	**4111**

1.1.10 Capacity Building and Group Dynamics

224 courses were organized benefiting 5414 persons. The topics covered in the programmes included leadership development, group dynamics, SHGs, entrepreneurship development, WTO & IPR, etc.

Table 1.1.10: Training on capacity building and group dynamics (U.P.)

Areas of training	Courses	Trainees
Leadership development	57	1305
Group dynamics	48	1081
Formation and management of SHGs	42	964
Mobilization of social capital	11	287
Entrepreneurial development of farmers/youths	35	759
WTO and IPR issues	11	263
Others	20	755
Total	**224**	**5414**

1.1.11 Agro-forestry

In this area, 116 courses were organized benefiting 2585 farmers. The topics covered in the programmes included production technology, nursery management, integrated farming systems, etc.

Table 1.1.11: Training on agro-forestry (U.P.)

Areas of training	Courses	Trainees
Production technologies	47	1011
Nursery management	23	526
Integrated farming systems	40	893
Others	6	128
Total	**116**	**2558**

1.2 Training of Rural Youths

Total of 820 courses involving 14600 persons were conducted. The highest participation was attracted towards the programmes like seed production (155), nursery management of horticultural crops (44), vermi culture (37), mushroom production (45) and organic inputs production (34). Other courses viz protected cultivation, commercial fruit production, planting material production, bee keeping, value addition, rural crafts, dairying, poultry, etc were preferred by the youth. Similarly, livestock and fisheries, crop production and management and post harvest management related programmes were also organized.

Table 1.2: Training on Rural youths (U.P.)

Areas of training	Courses	Trainees
Nursery Management of Horticulture crops	44	817
Training and pruning of orchards	21	379
Protected cultivation of vegetable crops	22	485
Commercial fruit production	23	577
Integrated farming	25	517
Seed production	155	2287
Production of organic inputs	34	699
Planting material production	21	377
Vermi-culture	37	622
Mushroom Production	45	910
Bee-keeping	26	472
Sericulture	4	100
Repair and maintenance of farm machinery and implements	23	362
Value addition	75	1022

Training Programmes

Farmer's training: Kannauj

Training on Bee keeping: Auraiya

Farmer's training: Etah

Farmer's training: Mirzapur

Training on Poultry: Chitrakoot

Rural youth training: sant ravidas nagar

Training Programmes

Farmer's training on beekeeping: Gorakhpur

Mushroom training:Varanasi

Farmer's training on goat rearing: Varanasi

Honey Production training: Kaushambi

Training on azolla production: Sitapur II

Training on IPM: Sitapur II

Small scale processing	8	119
Post Harvest Technology	14	261
Tailoring and Stitching	22	398
Rural Crafts	21	364
Production of quality animal products	6	100
Dairying	43	864
Sheep and goat rearing	34	730
Piggery	7	151
Poultry production	18	349
Ornamental fisheries	1	15
Composite fish culture	2	30
Fry and fingerling rearing	1	6
Other	88	1587
TOTAL	**820**	**14600**

1.3 Training of extension personnel

697 courses involving 14006 extension personnel were organized in the by the KVKs of Uttar Pradesh. Major areas in which extension personnel were trained were productivity enhancement in field crops (102), integrated pest management (83), INM (78), production of organic inputs (28), livestock feed & fodder (28), women & child care (45) etc.

Table 1.3: Training for extension personnel (U.P.)

Areas of training	Courses	Trainees
Productivity enhancement in field crops	102	2240
Integrated Pest Management	83	1581
Integrated Nutrient management	78	1629
Rejuvenation of old orchards	39	721
Protected cultivation technology	31	689
Production and use of organic inputs	28	583
Care & maintenance of farm machinery & implements	21	414
Gender mainstreaming through SHGs	11	220
Formation and Management of SHGs	17	408
Women and Child care	45	869
Low cost and nutrient efficient diet designing	21	462
Group Dynamics and farmers organization	8	259
Information networking among farmers	5	118
Capacity building for ICT application	4	103
Management in farm animals	36	742
Livestock feed and fodder production	28	541
Household food security	21	415
Other	119	2012
TOTAL	**697**	**14006**

(2) FRONTLINE DEMONSTRATIONS

FLD on Pulses and Oilseeds

Technology demonstrations on pulses were organized on an area of 2427.32 ha involving 7127 farmers and on oilseeds on an area of 1336.44 ha involving 3684 farmers. The crop wise and thematic area wise information is exhibited in tables.

2.1 FLD on Pulses

Table 2.1: Thematic area wise physical achievement of FLD on pulses (U.P.)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase
Pigeonpea (45)	ICM	476	142.25	16.71	12.30	35.85
	IWM	13.00	3.00	10.75	8.80	22.16
	RCT	117	30.63	15.65	11.75	33.19
	IPM	66	20.75	13.70	10.13	35.24
	RCT	117	30.63	15.65	11.75	33.19
	Varietal	826	280.78	16.47	12.66	30.09
Total		**1615**	**508.04**	**14.82**	**11.23**	**31.97**
Blackgram (22)	ICM	442	182.87	9.08	6.64	36.75
	IDM	23	8.00	10.40	8.33	24.85
	INM	100	38.00	12.43	9.07	37.05
	IWM	10.00	2.00	9.25	7.50	23.33
	Varietal	620	254.06	9.17	6.68	37.28
Total		**1195**	**484.93**	**10.07**	**7.64**	**31.81**
Greengram (20)	ICM	183	66.00	8.71	5.92	47.13
	IDM	5	0.50	9.46	8.37	13.02
	INM	50	20.00	10.40	7.40	40.54
	IPM	64	34.80	7.95	6.57	21.00
	IWM	114	4.00	8.60	7.20	19.44
	Varietal	344	117.62	7.63	5.59	36.49
Total		**760**	**242.92**	**8.79**	**6.84**	**28.51**
Chickpea (22)	ICM	34	18.00	17.26	13.60	26.91
	INM	30	11.00	17.00	14.62	16.28
	IPM	51	8.24	19.54	14.63	33.56
	IDM	2	0.50	24.55	21.73	12.98
	Varietal	384	141.81	18.44	14.12	30.59
Total		**501**	**179.55**	**19.36**	**15.74**	**23.00**
Fieldpea (20)	ICM	161	42.20	17.19	14.50	18.55
	VE	1114	337.33	20.07	13.20	52.05
	INM	15	3.50	21.45	18.00	19.17
	IPM	15	3.00	17.10	11.92	43.46
Total		**1305**	**386.03**	**18.95**	**14.41**	**31.51**
Lentil (27)	ICM	352	143.50	13.63	10.33	31.95
	INM	50	20.00	11.80	9.35	26.20
	IPM	20	10.00	14.10	10.14	39.05
	Varietal	1324	451.80	13.93	10.82	28.74
	IDM	5	0.55	12.62	10.31	22.41
	Total	**1751**	**625.85**	**13.22**	**10.19**	**29.74**
	Grand Total	**7127**	**2427.32**	**-**	**-**	**-**

Pigeonpea: The forty five KVKs conducted 1615 demonstrations on pigeonpea by covering an area of 508.04 ha, exhibited yield realization of 14.82 q/ha which was 31.97 % higher than local check with net return of Rs. 65556/ha. Seven KVKs attained more than 20 q/ha of yield and five KVKs reported yield of more than 18 q/ha in all the components. Highest yield was obtained under varietal evaluation by variety NA 2 (24.62q/ha) at Unnao district. Similarly, performance of component demonstrations was considerably better under integrated crop management (21.10 q/ha) followed by RCT (18.10 q/ha).

Cluster Frontline Demonstrations on Pulses

FLD on pigeonpea: Fatehpur

FLD on Lentil: Hathras

FLD on chickpea var. uday : Banda

FLD on chickpea var. JG 16: Jalaun

FLD on lentil var. KLS 218 : Lalitpur

FLD on fieldpea var. Aman : Lalitpur

Cluster Frontline Demonstrations on Pulses

FLD on Lentil : Bareily

FLD on pigeonpea : Chandauli

FLD on chickpea var. JAKI 9218 : Jaunpur

FLD on fieldpea : Mau

FLD on lentil var. Pl 406 : Sultanpur

FLD on fieldpea var. Aparna : Sultanpur

Blackgram : Twenty two KVKs laid out 1195 demonstrations on 484.93 ha area, exhibited yield levels of 10.07 q/ha against 7.64 q/ha in local checks. A net return of Rs. 48891/ha was realized in demonstrations which was about Rs. 14000 higher over local check. PU-31 variety yielded highest (15.50 q/ha) with full package. Performance of different component demonstrations was found satisfactory like HYV + IINM (14.0 q/ha) in Rampur district and ICM (13.52 q/ha) in Shahjahanpur district.

Greengram : Greengram related technologies were demonstrated by 20 KVKs with 760 demonstrations on 242.92 ha. This crop is mainly grown as summer crop with average yield of 8.79q/ha in demonstrations against 6.84 q/ha in local check with 28.51 % increase. A net return of Rs. 32678/ha was obtained from demonstrations. The highest yield was obtained under varietal evaluation (12.75 q/ha) with Pant Moong 5 in Etah district. In other component demonstration the highest yield was observed under ICM (11.48 q/ha) in district Shahjahanpur followed by variety sweta + sulphur (11.0 q/ha) at Hardoi.

Chickpea : The twenty two KVKs conducted 501 demonstrations on chickpea by covering an area of 179.55 ha, exhibited yield of 19.36 q/ha against 15.74 q/ha of local check showing an increase of 23.0% higher than local check with net return of Rs. 61070/ha. Nine KVKs realized more than 20.0 q/ha. The highest yield of 25.92 q/ha was recorded in GNG 1581+IPM at Unnao followed by var Jaki-992 +IPM (25.31 q/ ha) at Mirzapur.

Field pea : Twenty KVKs conducted demonstrations in an area of 386.03 ha. On an average 18.95 q/ha yield of field pea was recorded in demonstrations, which was 31.51 % higher over local check. Net return of Rs. 41998/ha was reported. Highest yield (27.77 q/ha) was recorded under variety Prakash +INM by KVK Mainpuri followed by variety IPF-4-9 (26.0 q/ha) at Kanpur Dehat and district Kannauj (22.62 q/ha) with variety Prakash +ICM.

Lentil : Twenty seven districts laid out 1751 demonstrations by covering an area of 625.85 ha with lentil crop, exhibited 13.22 q/ha of productivity in demonstrations which was 29.74% higher than local check (10.19 q/ha). A net return of Rs. 48484 q/ha was realized in demonstrations. The variety HUL 57 with ICM+IPM gave highest yield in district Shahjahanpur followed by variety PL-8 under ICM gave yield of 20.3 q/ha at Saharanpur.

2.2 FLD on Oilseeds

Table 2.2: FLD on Oilseeds (U.P.)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Groundnut (9)	ICM	50	20.00	14.37	6.97	106.17
	INM	97	38.00	24.87	21.19	17.37
	IPM	20	8.00	20.50	15.00	36.67
	IDM	5	1.00	17.50	14.75	18.64
	IWM	24	6.00	22.72	17.58	29.24
	Varietal	10	1.00	20.85	18.21	14.50
	Total	**206**	**74**	**20.14**	**15.62**	**28.94**
Sesamum (24)	ICM	98	39.00	5.71	3.87	47.55
	IDM	8	2.00	4.30	2.00	115.00
	INM	52	22	7.10	4.91	44.60
	Varietal	783	294.52	5.28	3.67	43.87
	Total	**941**	**357.52**	**5.60**	**3.61**	**55.12**
Mustard (59)	ICM	605	206.60	19.92	15.22	30.88
	INM	241	70.25	18.25	13.61	34.09
	IPM	52	11.25	15.85	12.15	30.45
	IWM	11	2.00	18.13	15.63	15.99
	Varietal	1474	584.75	17.29	13.04	32.59
	Total	**2383**	**874.85**	**17.89**	**13.93**	**28.43**
Linseed (2)	Varietal	106	11.50	8.69	6.87	26.49
	Total	**106**	**11.50**	**8.69**	**6.87**	**26.49**
Sunflower (2)	Varietal	48	18.57	19.15	16.51	15.99
	Total	**48**	**18.57**	**19.15**	**16.51**	**15.99**
	Grand Total	**3684**	**1336.44**	**-**	**-**	**-**

Groundnut: A total of 206 demonstrations were organized on 74 ha area in groundnut crop (summer & kharif season) with productivity level of 20.14 q/ha which was 28.94% higher over local practice. The net return of Rs. 67429 was realized in demonstrations while it was Rs. 46025 in local check. A total of six component demonstrations were conducted. The highest yield of 33.86 q/ha was obtained in INM component (NPK S Zn + Rhizobium culture) at Kannauj followed by 27.80 q/ha in IWM (application of Imazathyper) at Etawah district.

Sesamum: The demonstrations on sesamum were laid out at 889 farmers' fields on 335.52 ha area. On an average 5.10 q/ha of yield was recorded in demonstrations, which was 55.12 % higher over local check (3.18 q/ha). A net return of Rs. 24472 /ha was realized in demonstrations. The highest yield of 7.35 q/ha was recorded in variety Pragati +seed treatment + line sowing at KVK Sitapur II followed by 7.25 q/ha under ICM in Shahjahanpur district.

Mustard: The demonstrations on mustard were laid out at 2383 farmers' fields at 874.85 ha area. On an average 17.89 q/ha of yield was recorded in demonstrations, which was 28.43% higher over local check (13.93 q/ha). A net return of Rs. 40615/ha was realized in demonstrations. The highest yield of 26.67 q/ha was recorded by variety NRCDR-2 under varietal evaluation in district Ambedkarnagar followed by 25.87 q/ha by in Firozabad. The variety DMR IJ 31 also gave 25.51 q/ha yields at Firozabad under varietal evaluation.

Linseed: The two KVKs conducted 106 demonstrations on linseed by covering an area of 11.50 ha, exhibited yield of 8.69 q/ha against 6.87 q/ha of local check showing an increase of 26.49% higher than local check with net return of Rs. 24896/ha. The highest yield of 8.75 q/ha was recorded in variety Mau Azad 2 at Chitrakoot district followed by var. Padmini (8.62 q/ ha) at Mirzapur.

Sunflower: KVKs Pratapgarh and Kannauj conducted demonstrations in an area of 40 ha. On an average 19.15 q/ha yield of sunflower was recorded in demonstrations, which was 15.99 % higher over local check. Net return of Rs. 40668/ha was reported.

2.3 FLD on Cereals and Millets

A total of 3153 demonstrations on 1065.10 ha on cereals and 63 demonstrations on 21.40 ha area in millets were laid out, covering important crops in all the crop seasons.

Table 2.3: FLD on Cereals and Millets (U.P.)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase
Cereal crops						
Paddy (49)	ICM	220	83.40	45.88	35.45	29.42
	IDM	96	37.10	48.18	40.09	20.18
	INM	180	61.00	48.45	42.77	13.28
	IPM	133	51.00	45.01	38.80	16.01
	IWM	204	73.20	50.49	43.20	16.88
	RCT	72	26.00	43.18	36.79	17.37
	Varietal	455	183.97	43.11	35.60	21.10
	Total	**1360**	**515.67**	**46.33**	**38.96**	**18.92**
Coarse Rice (6)	INM	5	2.00	58.30	48.60	19.96
	IPM	30	4.00	54.15	46.35	16.83
	RCT	5	2.00	57.05	45.20	26.22
	Varietal	72	21.10	47.32	38.96	21.46
	Total	**112**	**29.1**	**54.21**	**44.78**	**21.06**
Wheat (58)	ICM	173	54.35	46.62	39.76	17.25
	INM	161	53.40	45.90	37.93	21.01
	IDM	122	43.40	45.19	39.44	14.58
	IPM	50	18.20	45.58	36.81	23.83
	IWM	142	51.20	41.86	37.51	11.58
	RCT	149	51.50	42.98	37.84	13.58
	Varietal	750	217.16	43.73	35.87	21.91
	Total	**1547**	**489.21**	**44.55**	**37.88**	**17.61**
Barley (4)	INM	4	1.00	42.80	30.00	42.67
	Varietal	53	7.10	28.74	21.41	34.24
	Total	**57**	**8.1**	**35.77**	**25.71**	**39.13**

Cluster Frontline Demonstrations on Oilseeds

FLD on mustard : Fatehpur

FLD on mustard : Hardoi

FLD on sesamum : Etawah

FLD on sunflower : Kannauj

Rhizobium culture in groundnut : Kannauj

FLD on mustard : Bareilly

Maize (9)	INM	15	3.00	64.60	54.50	18.53
	IPM	10	2.00	62.00	55.50	11.71
	RCT	4	4.00	69.07	64.28	7.45
	Varietal	38	12.00	41.24	32.94	25.20
	IWM	10	2.00	60.25	56.00	7.59
	Total	**77**	**23.00**	**59.43**	**52.64**	**12.90**
G. Total (Cereal)		**3153**	**1065.10**	**-**	**-**	-
Millet Crops						
Jowar (1)	Varietal	15	6.00	7.20	6.57	9.59
	Total	**15**	**6.00**	**7.20**	**6.57**	**9.59**
Bajra (9)	Varietal	10	4.00	23.00	20.00	15.00
	INM	20	5.00	34.36	24.00	43.17
	IWM	18	6.40	25.00	18.00	38.89
	Total	**48**	**15.40**	**27.45**	**20.67**	**32.80**
	Total (Millet)	**63**	**21.40**	**-**	**-**	**-**

Paddy: The demonstrations on seven thematic areas were conducted at 1360 farmers' fields on 515.67 ha area by 49 KVKs. The average yield of 46.33 q/ha was achieved in demonstrations, which was 18.92 % higher over local check (38.96 q/ha). Net return of Rs. 43980/ha was realized in demonstrations. The highest yield of 72.41 q/ha was recorded in IWM component with application of bispyriback sodium (Nominigold) in district Kannauj followed by at KVK Moradabad (72.00 q/ha) the highest yield was recorded at KVK.

Under varietal evaluation 455 demonstrations laid out in an area of 184 ha. The average yield of varieties was obtained 43.11 q/ha which was 21.09 % higher over local check (35.60 q/ha) with economic gain of Rs. 45745/ha. The highest yield was obtained by Pilibhit (70.47 q/ha) followed by Auraiya (58.10 q/ha).

Similarly, the demonstrations on coarse rice in four thematic areas were organized at 112 farmers' fields on 29.10 ha area. On an average 54.21 q/ha of yield was gained, which was 21.06 % higher over local check (44.78 q/ha).

Wheat: The wheat demonstrations on different thematic areas were conducted at 1547 farmers' fields covering an area of 489.21 ha. On an average 44.55 q/ha of yield was recorded in demonstrations, which was 17.61% higher over local check (37.88 q/ha). A net return of Rs. 42990/ha was realized in demonstrations. The highest yield of 58.60 q/ha was recorded in wheat variety WH-1105 when Weed control through chemical Cladinophop ethyl under IWM in district Saharanpur followed by under varietal evaluation in variety HD-3086 (58.0 q/ha) and HD-2967 (55.2 q/ha) in Saharanpur and Ambedkarnagar district, respectively.

Barley: Four KVKs laid out barley demonstrations at 57 farmers' fields covering an area of 8.10 ha. On an average 35.77 q/ha of yield was obtained over local check (25.71 q/ha) which was 39.13 % higher over local check. A net return of Rs. 29060/ha was obtained in demonstrations. The highest yield 42.8 q/ha was obtained under INM with application of MOP/Zn/S in Agra followed by 37.1 q/at Azamgarh.

Maize: The demonstrations on maize were laid out on INM, IPM, IWM, RCT and varieties at 77 farmers' fields at 23.0 ha area. Maize is being grown in all the three crop seasons. The average yield of 59.43 q/ha was achieved in demonstrations, which was 12.90 % higher over local check. A net return of Rs. 60436/ha was realized in demonstrations. The highest yield of 69.07 q/ha was recorded in ridge planting under ICM component at Kannauj followed by under INM with application of Zn @ 25 kg/ha at Farrukhabad which was 64.6 q/ ha.

Millets:

Bajra: The demonstrations on varietal evaluation, integrated nutrient management and integrated weed management of bajra were laid out at 48 farmers' fields on 15.40 ha area. On an average 27.45 q/ha of yield was recorded in demonstrations, which was 32.80 % higher over local check (20.67 q/ha). A net return of Rs. 19771/ha was realized in demonstrations.

Jowar: KVK Jalaun demonstrated Jowar variety at 15 farmers' fields on 6.0 ha area. The variety CSV 17 recorded 7.20 q/ha yield in demonstrations, which was 9.59 % higher over local check (6.57 q/ha). Jowar being fodder crop has again value for livestock. Value addition may be created in the villages for enhancing their family income.

2.4 FLD on Vegetables

A total of 1564 demonstrations on 217.63 ha were laid out on vegetables covering important crops in all the three crop seasons.

Table 2.4: FLD on Vegetables (U.P.)

Crop/	Thematic	No. of	Area	Demo	Local Check	%
Bottlegourd (13)	IPM	46	5.20	165.19	144.33	14.46
	Varietal	88	19.11	218.57	180.51	21.08
	IDM	23	8.00	300.15	260.16	15.37
	ICM	25	2.70	211.84	160.40	32.07
	Total	**182**	**35.01**	**223.94**	**186.35**	**20.17**
Bittergourd (3)	Varietal	24	0.62	179.75	143.75	25.04
	IPM	3	0.50	101.00	90.00	12.22
	Total	**27**	**1.12**	**140.37**	**116.87**	**20.10**
Tomato (21)	IDM	27	2.00	349.00	289.04	20.75
	INM	20	31.00	249.00	212.00	17.45
	IPM	15	5.00	287.50	220.00	30.68
	RCT	3	0.50	275.00	232.00	18.53
	ICM	25	2.20	445.59	370.04	20.42
	Varietal	68	5.17	303.92	221.87	36.98
	Total	**158**	**18.87**	**308.43**	**250.99**	**22.89**
Chilli (12)	IDM	38	4.80	126.68	101.06	25.35
	IPM	5	1.00	113.00	86.00	31.40
	ICM	3	0.40	115.00	87.00	32.18
	Varietal	26	2.95	112.73	85.05	32.54
	Total	**72**	**9.15**	**116.85**	**89.78**	**30.15**
Brinjal (18)	ICM	10	0.20	307.75	235.00	30.96
	IPM	40	7.67	388.50	338.03	14.93
	Varietal	70	9.17	316.59	253.74	24.77
	Total	**120**	**17.04**	**337.61**	**275.59**	**22.50**
Broccoli (2)	INM	17	1.50	200.00	180.00	11.11
	ICM	10	1.00	54.06	44..00	22.03
	Total	**27**	**2.50**	**127.03**	**112.15**	**13.27**
Vegetable pea (14)	ICM	9	1.50	71.77	53.925	33.10
	IDM	10	2.00	68.34	58.25	17.32
	INM	21	7.20	98.30	87.50	12.34
	Varietal	303	19.90	96.03	74.75	28.47
	Total	**343**	**30.60**	**83.61**	**68.61**	**21.86**
Okra (15)	IPM	19	4.10	117.45	86.64	35.56
	Varietal	76	5.39	98.12	81.86	19.87
	RCT	10	4.10	79.27	64.03125	23.81
	Total	**105**	**13.59**	**98.28**	**77.51**	**26.80**
Onion (10)	INM	9	2.00	169.70	146.70	15.68
	IDM	10	3.00	239.00	218.00	7.65
	ICM	35	2.50	193.42	157.21	23.03
	Varietal	111	5.30	247.37	200.34	23.47
	Total	**165**	**12.80**	**212.37**	**180.56**	**17.62**
Capsicum (2)	INM	5	0.20	190.00	165.00	15.15
	Varietal	8	45.00	156.45	114.50	36.64
	Total	**13**	**45.20**	**173.22**	**139.75**	**23.95**
Cabbage (5)	INM	5	1.00	321.00	254.00	26.38
	Varietal	11	1.60	308.75	255.00	21.08
	Total	**16**	**2.60**	**314.87**	**254.50**	**23.72**
Cauliflower (16)	ICM	39	4.10	228.94	200.34	14.27
	INM	18	2.50	260.37	218.50	19.16
	IPM	10	1.00	192.00	171.00	12.28
	Varietal	71	5.50	234.60	191.71	22.37
	Total	**138**	**13.10**	**228.98**	**195.39**	**17.19**
Carrot (5)	INM	16	0.25	147.00	128.00	14.84
	Varietal	42	2.10	193.25	168.30	14.83
	Total	**58**	**2.35**	**170.13**	**148.15**	**14.84**
Caoriander (1)	Varietal	6	1.00	12.41	6.32	96.36
Colocasia (1)	IDM	34	5.00	183.34	162.26	12.99
Spinach (4)	Varietal	32	1.40	65.66	54.79	19.83
Pointed gourd (1)	IPM	10	4.00	103.90	84.31	23.24
Radish (2)	Varietal	17	0.25	165.00	146.00	13.01
Frenchbean (2)	Varietal	18	1.05	101.34	81.80	23.89
Fenugreek (1)	Varietal	16	0.25	12.00	9.50	26.32
	Grand Total	**1554**	**216.68**	-	-	-

Frontline Demonstrations on other crops

FLD on Rabi Maize MM 7526 : Etawah

FLD on vermin compost : Banda

Trichoderma treated potato crop : Kannauj

FLD on Paddy HUR 917 Kala Namak : Mirzapur

FLD on kharif onion : Kannauj

Seed treatment in colocasia : Kannauj

Frontline Demonstrations on other crops

FLD on paddy : Lakhimpur

FLD on banana : Lakhimpur

FLD on wheat var. HD 2967 : Etah

FLD on potato : kannauj

FLD on Chilli : Mirzapur

FLD on wheat : Mathura

Bottle gourd: The demonstrations were conducted by 13 KVKs at 182 farmers' fields on 35.01 ha area. Average yield 223.94 q/ha was recorded in demonstrations, which was 20.17 % higher over local check (186.35 q/ha). A net profit of Rs. 136995/ ha was attained by farmers. The highest yield of 451.73 q/ha was recorded for Kashi Bahar (DVBG 1) variety in district Mirzapur followed by Pusa Naveen (393.76 q/ha) under ICM (Carbendazim + Mancozeb @ 2.50 kg/ha, Micro Nutrient (UP Grade) @ 25kg/h) in Shahjahanpur.

Bitter gourd: Three KVKs conducted 27 demonstrations on 1.12 ha area on IPM and varietal evaluation. The demonstrations yielded 140.37 q/ha against 116.87 q/ha in local check showing an increase of only 20.10 % and net return of Rs. 125191 /ha in demonstrations over local check.The highest yield was obtained in variety Narendra barahamasi (240 q/ha) in Etawah district.

Tomato: 158 demonstrations were conducted by 21 KVKs, exhibited 308.43 q/ha of yield against local check (250.99 q/ha) showing an increase of 22.89 % higher. The net return of Rs. 177131 /ha was reported. The highest yield of 688.85 q/ha was recorded by variety Arka Rakshakin in district Lucknow under ICM followed by variety NS 585 (500 q/ha) at Etawah and Rupali (403.21 q/ha) under IDM at Rampur district.

Chilli: 12 KVKs laid out seventy two demonstrations on four different components with average yield of 116.85 q/ha showing an increase of 30.15% over local check (89.78 q/ha) and net return of Rs. 146450 /ha. The highest yield of 172.10 q/ha was obtained by variety NS-1701 (265 q/ha) at Kaushambi followed by under IPM (application of properzyte) in district Farrukhabad (172.10 q/ha).

Brinjal: A total of 120 demonstrations were carried out by 18 KVKs on 17.04 ha area in the field of ICM, IPM and varietal interventions showed yield potential of 337.61 q/ha against 275.59 q/ha in checks, showing an increase of 22.50 %. The net profit of Rs. 186217/ha whereas, variety + IPM resulted yield of 587.6 q/ha at district Lucknow followed by 546.19 q/ha at district Mirzapur with the variety Kashi Sandesh.

Broccoli: KVK, Raebareli and Lucknow laid out 27 demonstrations on 2.50 ha area with INM and ICM aspects. The average yield was observed 127.03 q/ha showing an increase of 13.27% over local check (112.15 q/ha) and net return of Rs. 129357/ha.

Vegetable Pea: A total of 343 demonstrations laid out by 14 KVKs with four interventions namely ICM, IDM, INM and Varietal evaluation on 30.60 ha area. The average yield was observed 83.61 q/ha against 68.61 q/ha in local check with an increase of 21.86 % and net return of Rs. 101689/ha. The highest yield was obtained by the variety Kashi Kanchan (136.91 q/ha) at Mirzapur followed by Kashi Uday (122.5 q/ha) at Sant Ravi das Nagar.

Okra: The fifteen KVKs conducted demonstrations on 13.59 ha area with involvement of 105 farmer's field, exhibited average yield of 98.28 q/ha against 77.51 q/ha in local check with an increase of 26.80 % and net return of Rs. 126281/ha. Five KVKs attained the yield more than 100 q/ha on different interventions whereas, 180 q/ha yield obtained under IPM by at district Gorakhpur followed by (160.0 q/ha) with application of Chlorantraniliprole 18.5% SC at district Agra.

Onion: The onion demonstrations on different thematic areas were conducted at 165 farmers' fields covering 12.80 ha area by 10 KVKs. The average yield was obtained under demonstration was 212.37 q/ha against local check yield of 180.56 q/ha showing an increase of 17.62 % and net return of Rs. 194782/ha. The highest yield 325.10 q/ha was obtained at district Saharanpur followed by 267.5 q/ha in district Fatehpur with varity Agri found dark red.

Capsicum: KVK Mainpuri and Raebareli conducted 13 demonstrations on of 4.7 ha area, exhibited yield of 173.22 q/ha against 139.75 q/ha of local check showing an increase of 23.95% higher than local check with net return of Rs. 293387/ha. The highest yield of 190 q/ha was recorded in variety US 1147 +INM at Raebareli.

Cabbage: Five KVKs conducted demonstrations at 16 farmer's fields in an area of 2.60 ha on INM and varietal evaluation with yield level of 314.87 q/ha against check yield of 254.50 q/ha showing an increase of 23.72 % and net return of Rs. 172100/ha. The highest yield 350 q/ha was recorded with variety BC 76 +INM in district Balrampur followed by 321 q/ha with INM in district Gorakhpur.

Cauliflower: A total of 138 demonstrations were conducted in an area of 13.10 ha by sixteen KVKs on Integrated crop management, integrated nutrient management, integrated pest management and varietal evaluation with yield level

Frontline Demonstrations on other crops

FLD on Kitchen garden: Deoria

FLD on Mushroom: Ambedkarnagar

Staking in tomato: Azamgarh

Mulching in bottle gourd: Ballia

Mulching in bottle gourd: Ballia

Intercropping tomato + cabbage: Faizzabad

Frontline Demonstrations on other crops

Staking in tomato : Gorakhpur

FLD on Paddy : Jaunpur

FLD on ridge furrow planting of wheat : Gonda

FLD on cabbage : Gorakhpur

Cauliflower var. Shubhra : Maharajganj

FLD on bottle gourd : Siddarthnagar

of 228.98 q/ha against local check yield of 195.39 q/ha showing an increase of 17.19 % and net return of Rs. 163729/ha. Highest yield of 405 q/ha was recorded with cultivar Pusa Shukti in district Mathura followed by 300 q/ha with in Rampur and 245.75 q/ ha with INM in district Ghaziabad.

Coriander: KVK Chitrakoot conducted six demonstrations on 1 ha area. Variety PD 1 gave 12.41 q/ha yield which was 96.36 % higher over local check (6.32 q/ha) with net return of Rs. 75180/ha.

Carrot: Five KVKs conducted demonstrations at 58 farmer's fields in an area of 2.35 ha on INM and varietal evaluation with yield level of 170.13 q/ha against check yield of 148.15 q/ha showing an increase of 14.84 % and net return of Rs. 112962 /ha.

Colocasia: KVK Kannauj conducted 34 demonstrations on 5 ha area on seed treatment before sowing. The average yield was obtained under demonstration was 183.34 q/ha against local check yield of 162.26 q/ha showing an increase of 12.99 % and net return of Rs. 159708 /ha.

Spinach: Four KVKs conducted demonstrations at 32 farmer's fields in an area of 1.40 ha on varietal evaluation with yield level of 65.66 q/ha against check yield of 54.79 q/ha showing an increase of 19.83 % and net return of Rs 43280/ha.

Frenchbean: Two KVKs conducted 18 demonstrations on of 1.05 ha area, exhibited yield of 101.34 q/ha against 81.8 q/ha of local check showing an increase of 23.89% higher than local check with net return of Rs. 131828/ha.

Fenugreek: KVK, Basti conducted sixteenteen demonstrations in an area of 0.25 ha with yield level of 12 q/ha against check yield of 9.5 q/ha showing an increase of 26.31 % and net return of Rs. 70000 /ha.

Pointed gourd: KVK Meerut conducted 10 demonstrations on 4 ha area. Demonstrated field exhibited yield of 103.90 q/ha against local check (84.31 q/ha) showing an increase of 23.24 % in demonstrations. The net return of Rs. 118405/ha was reported.

Radish: Three KVK, conducted seventeen demonstrations in an area of 0.25 ha with yield level of 165 q/ha against check yield of 146 q/ha showing an increase of 13.01% and net return of Rs. 17750 /ha.

2.5 FLD on Fruits

Table: Physical achievement of FLD on Fruits (U.P.)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Banana (1)	INM	5	2.00	873.38	861.50	1.38
	ICM	13	5.00	891.47	857.50	3.96
	Total	**18**	**7.00**	**882.42**	**859.50**	**2.67**
Mango (2)	IDM	5	1.25	169.70	132.60	27.98
	IPM	7	2.00	130.90	99.00	32.22
	INM	8	2.00	135.90	93.00	46.13
	Total	**20**	**5.25**	**145.50**	**108.20**	**34.47**
Watermelon (1)	RCT	30	3.00	215.00	108.00	99.07
Guava (2)	IPM	25	9.00	817.25	722.50	13.11
Papaya (1)	Varietal	15	0.60	550.75	493.17	11.67
	Grand Total	**108**	**24.85**	**-**	**-**	**-**

Banana: KVK Lakhimpur conducted eighteen demonstrations on INM and ICM on 7.0 ha area. Demonstrated field exhibited yield of 882.42 q/ha against local check (859.50 q/ha) showing an increase of 2.67 % in demonstrations. The net return of Rs. 442675/ha was reported.

Mango: KVK Bareilly and Lucknow conducted 20 demonstrations on 5.25 area in the field of IDM, INM and IPM. The average yield was obtained under demonstration was 145.50 q/ha against local check yield of 108.20 q/ha showing an increase of 34.47 % and net return of Rs. 154723/ha. The highest yield of 169.7 q/ ha was obtained under IDM component in Bareilly.

Watermelon: The demonstrations under RCT yielded 215.0 q/ha against 108.0 q/ha in local check showing an increase

of 99.07 % and net return of Rs. 150000 /ha in demonstrations over local check.

Papaya and Guava: Demonstrations on Papaya and guava were conducted on 40 farmer's field on an 9.60 ha area by three KVKs. The average yield of papaya in demonstrations was 550.75 q/ha which was 11.67 % higher than local check yield (493.17 q/ha) with net return of Rs. 424562/ ha while in guava the average yield was obtained by 817.25 q/ ha which was 13.17 higher than local check. The net return from guava was Rs.370140/ha.

2.6 FLD on Spices

In Uttar Pradesh, total 35 demonstrations were conducted by seven KVKs on spices on an area of 3.05 ha.

Table 2.6: FLD on Spices (U.P.)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Spices (5)						
Turmeric	ICM	13	1.565	185.01	140.80	31.40
	VE	12	0.48	229.00	176.50	29.75
	Total	**25**	**2.05**	**212.51**	**162.90**	**30.45**
Garlic	Varietal	10	1.00	65.00	52.50	23.81
Grand Total		**35**	**3.05**	-	-	-

Turmeric: Six KVKs conducted demonstration at 25 farmers' fields in 2.05 ha area resulted yield of 212.51 q/ha against 162.90 q/ha in local check showing an increase of 30.45%. The net return was Rs. 192129/ha with benefit cost ratio of 3.49.

Garlic: KVK, Allahabad conducted 10 demonstrations on one ha area resulted yield of 65.00 q/ha against 52.50 q/ha in local check showing an increase of 23.81%. The net return was Rs. 268100/ha.

2.7 FLD on Commercial crops

Sugarcane: The seven KVKs conducted demonstration at 119 farmers' fields with four interventions namely ICM, INM, IPM and IDM in an area of 38.20 ha resulted yield of 722.80 q/ha against 639.60 q/ha in local check showing an increase of 13.01 %. The net return was Rs. 146157/ha. The highest yield of 1475 q/ha obtained under ICM (Trench method of sowing) in district Bijnaur followed by 1107 q/ha with INM (Zinc sulphate - 30kg/ha & FeSo4 - 20kg/ha) components in district Moradabad.

Potato: A total of 144 demonstrations laid out by 12 KVKs with four interventions namely ICM, INM, IPM and IDM on 33.30 ha area. The average yield of 324.04 q/ha with an increase of 24.69 % over local check (259.68 q/ha) was obtained. The net return of Rs. 92956 per ha was realized by the farmers.

Marigold: Six KVKs conducted demonstration at 71 farmers' fields in an area of 9.62 ha with varietal evaluation, ICM and IDM interventions resulted of 147.74 q/ha yield against 117.16 q/ha in local check showing an increase of 26.10%. The highest yield of 197.3 q/ha was obtained by Pusa Narangi at Lucknow followed by 167.75 q/ ha at Meerut district.

Gladiolus: KVK, Kannauj conducted 14 demonstrations in an area of 4.48 ha with INM and IDM intervention. The average yield was obtained 181250 spikes/ha in comparison to local checks where it was 168900/ha, showing an increase of 7.31% and net return of Rs.312507/ha.

Table 2.7: FLD on Commercial crops (U.P.)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Potato (12)	IDM	80	23.20	335.49	279.26	20.13
	INM	22	4.00	296.35	257.40	15.13
	IPM	10	2.00	312.20	225.80	38.26
	Varietal	22	1.60	351.15	295.92	18.66
	Total	**144**	**33.30**	**324.04**	**259.68**	**24.69**

Sugarcane (7)	ICM	51	12.30	569.03	561.40	1.36
	INM	35	14.00	841.35	684.31	22.95
	IPM	27	9.50	799.16	670.66	19.16
	IDM	6	2.40	681.66	642.00	6.18
	Total	**119**	**38.20**	**722.80**	**639.60**	**13.01**
Mentha(1)	IPM	10	4.00	118.75	105.62	12.43
Flower (9)						
Marigold(6)	Varietal	51	4.62	116.04	88.33	31.36
	ICM	10	1.00	197.30	158.60	24.40
	IDM	10	4.00	129.87	104.56	24.21
	Total	**71**	**9.62**	**147.74**	**117.16**	**26.10**
Gladiolus(1)	IDM	7	2.80	182500.00	165300.00	10.41
	INM	7	1.68	180000.00	172500.00	4.35
	Total	**14**	**4.48**	**181250.00**	**168900.00**	**7.31**
Chrysanthemum(1)	Varietal	5	0.50	169750.00	147200.00	15.32
Grand Total (Flower)		**90**	**13.20**			
Medicinal & aromatic plants(1)						
Mentholment	INM	20	3.00	341.00	280.00	21.79
GT (Commercial)		**434**	**96.40**	**-**	**-**	**-**

2.8 FLD on Fodder

Agriculture without livestock is not complete therefore, the feed and fodder requirement is very much essential for nutritional security to the livestock. Therefore, different fodder crops demonstrations advocated at the farmers' fields to feed the animal population in the rural areas as concentrate roughages and green fodder for maintained their good health and enhanced the milk, meat and wool production.

Sorghum: Seven KVKs conducted demonstration at 81 farmers' fields in an area of 7.12 ha resulted average yield of 383.31 q/ha against 288.99 q/ha in local check showing an increase of 32.64 %. The net return was Rs. 28714/ha with benefit cost ratio of 2.08. The highest yield of 580 q/ha obtained under variety (SSG 593) in district Kannauj followed by 457 q/ha in district Raebareli.

Berseem: The sixteen KVKs conducted 261 demonstrations on 26.25 ha area with an average yields of 547.14 q/ha against 438.93 q/ha in local check. The yield gain was 24.65% higher over local check. A net return of Rs. 60588/ha was obtained under demonstrations. The highest yield (907 q/ha) was obtained with cultivar Vardan in district Auraiya followed by Rampur (860 q/ha).

Maize: KVK, Sitapur 2 laid out ten demonstrations on 1 ha area on fodder maize. The average yield was obtained by 385 q/ha over local check (330 q/ha) which was 16.67 % higher.

Oat: KVK, Ghaziabad conducted 8 demonstrations in an area of 1.40 ha with an average yield of 393.50 q/ha against 310 q/ha in local check. The yield gain was 26.94 % higher over local check.

Sudan Grass: 8 demonstrations were laid out by KVK, Raebareli in an area of 0.25 ha. The average yield was 410 q/ ha which was 24.24 % higher than local check (330 q/ha).

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Sorghum (7)	Varietal	81	7.12	383.31	288.99	**32.64**
	Total	**81**	**7.12**	**383.31**	**288.99**	**32.64**
Berseem (16)	ICM	43	7.60	560.70	455.40	23.12
	Varietal	218	18.65	533.57	422.46	26.30
	Total	**261**	**26.25**	**547.14**	**438.93**	**24.65**

Maize (1)	Varietal	**47**	**38.00**	385.00	330.00	16.67
Oat (1)	Varietal	8	1.40	393.50	310.00	26.94
Makhan Grass (1)	ICM	8	1.00	850.00	765.00	10.00
Sudan (1)	Varietal	8	0.25	410.00	330.00	24.24
	Grand Total	**413**	**74.02**	-	-	-

2.9 FLD on livestock & fishery

Demonstrations on different interventions on livestock were carried out. 1614 demonstrations were laid out on enhancing milk yield, disease management, nutritional management & Diary, etc. 25 KVKs have conducted 261 demonstrations on cattle, 15 KVKs on Buffalo with 855 demonstrations, 5 KVK on goat and sheep with 237 demonstrations, 3 KVKs on calf with 101demonstration, 8 KVKs on vaccination with 156 demonstrations and 4 demonstrations were conducted as composite fish culture.

Table 2.9: FLD conducted on livestock (U.P.)

Category/	No. of KVKs	No. of Demonstrations	No. of Units/Area
Cattle	25	261	94
Buffalo	15	855	802
Sheep & Goat	5	237	237
Calf	3	101	101
Vacination	8	156	15
Composite fish culture	1	4	4.00
Total	**57**	**1614**	**1249/4.00**

2.10 FLD on Hybrid crops

Hybrid Oilseed: KVK Mainpuri laid out 10 demonstrations on hybrid mustard on 4 ha area. The hybrid mustard gave 22 q/ha yield over local check (17.80 q/ha) which was 23.59 over local check. The net return was Rs. 247300/ ha.

Hybrid Cereals: The thirteen KVKs laid out demonstrations on hybrid varieties of paddy, maize and bajra at 155 farmers' fields in an area of 44.55 ha. The demonstration yield of paddy (50.72 q/ha), maize (77.99 q/ha) and bajra (25.36 q/ha) was recorded. The percentage yield increase was 27.11, 27.74 and 26.26% respectively over local check.

Hybrid Vegetables: The ten KVKs conducted 79 demonstrations on important hybrid vegetable crops in 18.7 ha area. Among the vegetables, Bottle gourd registered yield q/ha (191.0), cabbage (249.87), cauliflower (249.87), chilli (203.65), pea (21) and tomato (404.50). The percentage yield increase was 19.40, 36.96, 36.96, 37.44, 22.96, 18.24 and 35.30 respectively over local check.

Table 2.10: FLD on Hybrid crops (U.P.)

Crop/No. of KVKs	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Oilseed					
Mustard (1)	10	4.00	22.00	17.80	23.59
Total (Oilseed)	**10**	**4.00**	**22.00**	**17.80**	23.59
Cereal crop					
Paddy (06)	12	5.20	50.72	39.90	27.11
Maize (3)	100	25.20	77.99	61.05	27.74
Bajra (4)	**43**	**14.15**	25.36	20.09	26.26
Total (Cereal)	**155**	**44.55**	**51.35**	**40.34**	**27.03**

Vegetable					
Bottle gourd (1)	5	1.00	191.00	160.00	19.40
Cabbage (2)	9	3.00	249.87	182.43	36.96
Cauliflower (3)	19	6.00	249.87	182.43	36.96
Chilii (1)	3	1.50	203.65	147.80	37.44
Okra (1)	15	5.00	96.40	78.40	22.96
Pea (1)	20	0.20	213.30	180.40	18.24
Tomato (1)	8	2.00	404.50	261.00	35.30
Total Veg. Crops	**79**	**18.70**	**239.97**	**177.79**	34.98
Fodder					
Napier (2)	25	0.30	336.03	85.83	291.50
G.Total (Hybrid)	**269**	**67.55**			

2.11 FLD on Other Enterprises

Seven KVKs demonstrated mushroom production (button, oyster and dhingri) at 40 farmers fields covering 185 units and total production was 350 kg in Uttar Pradesh; whereas 9 KVKs demonstrated value addition covering 45 farmers in 150 units. Bio compost at 50 farmers' fields covering with the production of 4 q/unit.

Table 2.11: FLD on other enterprises (U.P.)

Category	No. of KVKs	No. of Farmer	No. of units
Button Mushroom	1	5	50
Oyster Mushroom	1	10	10
Value addition	9	45	150
Dhingari Mushroom	5	25	125
Storage of grain	4	70	70
Vermi Compost	1	50	50
Total	**21**	**175**	**455**

2.12 FLD on farm implements & machinery

19 KVKs demonstrated implements (Potato Planter, Rotavator, ZT Machine, Paddy Drum, Laser land levellar Deep ploughing, Seed drill, Groundnut decorticator, Thresher, and maize sheller) covering an area of 173.27 ha by involving 270 farmers in Uttar Pradesh.

Table 2.12: FLD on Farm implements & machinery (U.P.)

No. of KVKs	No. of Farmer	Area (ha)
Potato Planter (1)	5	2.0
Rotavator (2)	57	42.0
ZT Machine (2)	36	20
Paddy Drum (2)	30	20.00
Deep ploughing (1)	6	4.7
Seed drill (3)	39	24.37
Fertilizer Broadcaster (1)	10	1.2
Laser land levellar (1)	35	22.00
Thresher (2)	25	20.0
Maize Sheller (2)	10	14.0
Groundnut Decorticator (2)	17	3.0
Grand Total	**270**	**173.27**

2.13 FLD on Kitchen Gardening

A total 185 demonstrations in 180.39 sq meter area at 15 districts in farmers fields were organized with production of 132.02 q/ha.

Frontline Demonstrations on other crops

FLD on carrot: Sonbhadra

FLD on turmeric: Sonbhadra

FLD on marigold var. Pusa Narangi : Varanasi

FLD on Livestock : Gorakhpur

FLD on Poultry: Auraiya

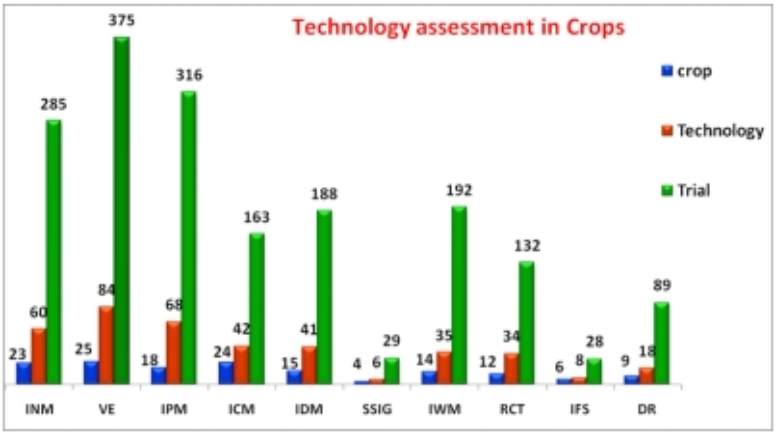
FLD on Fish farming: Chitrakoot

Table 2.13: FLD on Kitchen Gardening (U.P.)

Name of the technology demonstrated	No. of Farmer	Area (sq m)
Kitchen Gardening	75	80.39
Improved variety seed with scientific technology	10	5.00
House hold nutritional security	35	90.00
Growing seasonal fruits and vegetable	15	-
Use of vegetables throughout the year	50	5.00
Total	**185**	**180.39**

(3) TECHNOLOGY ASSESSMENT

3.1 Crop Related Technology Assessment



KVKs of Zone IV conducted on-farm trials in 12 major thematic areas in the state of Uttar Pradesh. Total of 398 technologies were tested with involvement of 1822 farmers. Cereals, pulses, oilseeds, vegetables, fruits, cash crops, etc. were assessed under different thematic areas namely integrated nutrient management (60), integrated pest management (68), integrated disease management (41), integrated crop management (42), weed management (35), varietal evaluation (84), resource conservation technologies (34), drudgery reduction (18), nutritional garden (1), integrated farming system (8), small scale income generation (6) and storage technique (1) etc.

Table 3.1: Crop related technologies assessed by KVKs (U.P.)

Thematic Area	Crop	Technology	Trial
Integrated Nutrient Management	23	60	285
Varietal Evaluation	25	84	375
IPM	18	68	316
ICM	24	42	163
IDM	15	41	188
Small scale income generation	4	6	29
Weed Management	14	35	192
RCT	12	34	132
Integrated Farming system	6	8	28
Drudgery reduction	9	18	89
Nutritional garden	1	1	5
Storage	1	1	20
Total	**152**	**398**	**1822**

3.2 Assessment of Livestock Technologies

A total of 48 technologies were assessed under livestock management by KVKs of Uttar Pradesh with active participation of 676 beneficiaries. The technologies related to different thematic areas like disease management (17), evaluation of breeds (4), feed and fodder management 7), nutritional management (15) and production management (5) were assessed.

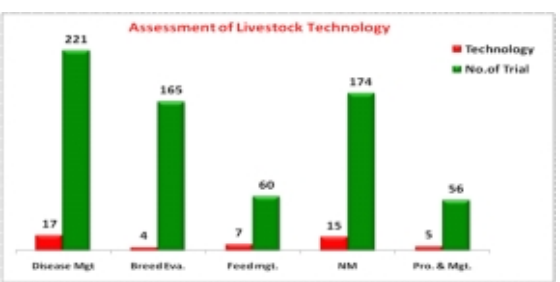
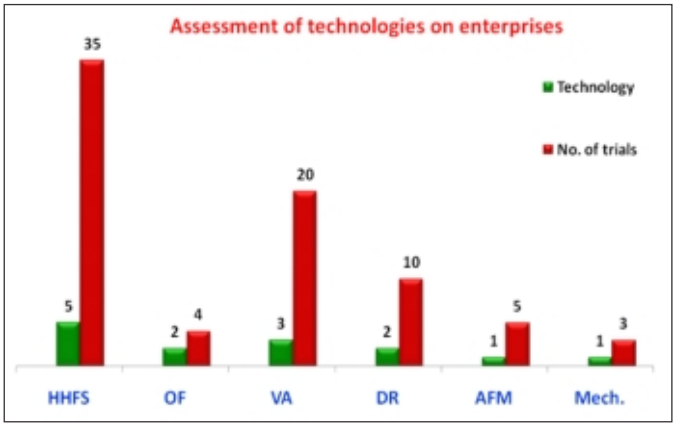


Table 3.2: Assessment of livestock technologies

Thematic Area	Enterprises	Technology	Trial
Disease Management	Cow, Buffalow, goat, calf,	17	221
Evaluation of breed	Cow, Buffalow, goat, calf	4	165
Feed and Fodder management	Cattle, Buffalo , fodder	7	60
Nutrition Management	Cattle, Buffalo and Goat	15	174
Production and Management	Goat	5	56
Total		**48**	**676**

3.3 Assessment of Technologies related to Enterprises



Thematic areas like household food security (5), organic farming (2), value addition (3), drudgery reduction (2), Agroforestry management (1), RCT (1) and mechanization (1) were taken up for assessment. 82 beneficiaries were involved in different enterprises. Kitchen gardening, house hold security, organic farming, RCT, value addition, drudgery reduction etc. were considered as an economic activity and to support nutritional security of the farmers.

Table 3.3: Assessment of technologies related to enterprises (U.P.)

Thematic Area	Enterprises	Technology	Trial
House hold food security	Vegetables	5	35
Organic Farming	Vermi compost, Nadep compost	2	4
Value Addition	Milk aonla, Tomato	3	20
Drudgery Reduction	sickle	2	10
Agro forestry Management	Poplar	01	05
Mechanization	Sugarcane	01	03
RCT	Agril. Engineering	01	05
Total		**15**	**82**

3.4 Results of selected On Farm Trials

Technology Assessment under various crops

Integrated Nutrient Management (INM)

Nutrient management in field pea

Field Pea in an important pulse crop of Farrukhabad. Farmers are not using the practice of seed treatment with bio fertilizer or other micronutrient, so the yield is low. KVK Farrukhabad conducted on farm trial to know the performance of seed treatment with *Rhizobium* and ammonium molybdate on fieldpea yield. Results indicated that seed treatment with *Rhizobium* culture (@400g/10kg seed and 2g ammonium molybdate (T_3) gave highest yield of 19.80g/ha followed by T_4 (Seed treatment with *Rhizobium culture* (@ 400g/10kg alone) and soil application of Ammonium molybdate @1kg/ha.

Technology Option	No.of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1 : Farmers Practice (No use of bio-fertilizer (Rhizobiam culture)in pulse crop	5	15.66	-	18000	54810	36810	3.0
T_2: Seed treatment with rhizobium culture @1pkt (400g) /10kg seed		18.42	17.62	18100	64470	46370	3.56
T_3 Seed treatment with rhizobium culture @1pkt (400g) /10kg seed+2g Ammonium Molibdate @10kg/haSeed		19.80	26.44	18300	69300	51000	3.79
T_4 Seed treatment with rhizobium culture @1pkt (400g) /10kg seed and soil application of Ammonium Molibdate @1kg/ha		18.44	17.75	18700	64540	45840	3.45

Assessment of biofertlizers for wheat in salt affected soil

KVK, Hardoi conducted an on farm trial to assess the two biofertilizer strains in wheat variety DBW- 17 on salt affected soil. The highest yield 35.7 q/ha of wheat variety (DBW 17) was obtained by sowing of treated wheat seed with (Halo Azo + Halo PSB) in comparison to no seed treatment with biofertilizers (31.5 q/ha) . The farmers were advised to use treated seed with biofertilizers (Halo Azo + Halo PSB) in salt affected soils to get better return.In biofertilizer treated seed yield enhanced to 13 per cent as compared to farmer's practice with net return of Rs. 34400/ha.

Technology Option	No. of farmers	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Returns (Rs/ha)	B:C Ratio
T_1 : Farmer Practice (Var. DBW 17 with no biofertilizers treatment)	4	31.5	-	24100	51188	27088	2.12
T_2:Sowing of treated seed with (Halo Azo + Halo PSB)		35.7	13	25400	59800	34400	2.35

Suitability of water soluble fertilizers 18:18:18 and 17:44:00 on varieties of Paddy under high pH

KVK, Pratapgarh, U.P. took up on-farm trial to assess the suitability of water soluble fertilizers 18:18:18 and 17:44:00 on Paddy under high pH (up to 9) gave 23.80 in the treatment of 18:18:18 whereas 26.10 per cent increase with 17:44:00 treatment on yield over Farmer's Practice 02 – 03 Basal application of fertilizers.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs/ha)	Net Return (Rs./ha)	B:C Ratio
T_1 : 03 Basal application of fertilizers (Farmers Practice)	3	39.4	-	18200	32340	14140	1.7
T_2 : Water soluble fertilizer (50% of RDF + Two spray of 18:18:18 at 25 DAS and 45 DAS)		36.4	23.80	19300	40040	20740	2.0
T_3 : Water soluble fertilizer (50% of RDF + Two spray of 17:44:0 at 25 DAS an d 45 DAS)		37.1	26.10	19750	40810	21060	2.1

Nutrient management in paddy

KVK, Moradabad conducted on-farm trials on different doses of fertilizers on soil testing bases in high yielding varieties of paddy. Application of @ 158:60:52:30 N:P:K& Zn Kg/ha NPKS 120:60:60:40 kg/ha was found better and enhanced yield by 17.82% higher over local practice with net return of Rs. 59718/ha.

Technology Option	No.of trials	Yield (q/ha)	Yield Increase (%)	Net Return (Rs/ha)	B:C Ratio
T_1 : Farmers practice 120:40:0:0 N:P:K& Zn Kg/ha. (PB-1509)	05	39.4	-	45700	2.11
T_2 : Recomended dose 150:60:40:30 N:P:K& Zn Kg/ha		43.22	8.48%	52374	2.22
T_3 : Soil testing basis 158:60:52:30 N:P:K& Zn Kg/ha		46.94	17.82	59718	2.37

Integrated nutrient management in rainfed condition

KVK, Mirzapur assessed barley variety HUB-113 after pearlmillet under integrated nutrient management by the application of fertilizers and nutrients after soil testing in recommended amounts and for its effect on the yield and economics of the crop. It was observed that application of NPK @ 40:30:30 kg/ha integrated with sulphur @2 0kg/ha and boron @ 20kg/ha proved to be most remunerative among all the three treatments tested.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	B:C Ratio
T_1 : Application of Fertilizers in injudicious amounts without soil testing (Farmers Practice)	04	22.60	-	3.98
T_2 : N:P_2O_5:K_2O @ 40:30:30Kg/ha + 20 Kg S/ha + 20 Kg B/ha		29.80	31.85	4.64
T_3 : N:P_2O_5:K_2O @ 60:40:30Kg/ha + 20 Kg S/ha + 20 Kg B/ha		32.30	42.92	4.48

Assessement of the efficiency of CSR-Bio on disease occurrence under salt affected area of Paddy

Paddy is an important crop of district pratapgarh UP. However, there is high incidence of disease resulting in yield loss. The KVK Pratapgarh conducted on-farm trial to assess efficiency of CSR-Bio on disease occurrence under salt affected area of Paddy the control measure. The assess technology of Paddy + Seed treatment @100gmCSR-Bio/kg seed + Seed-ling root treatment through CSR-Bio 3% solution + Soil treatment @ 25 kg CSR-Bio with 500Kg FYM/ha yield was increased by 20.42 per cent over farmer practice . Paddy + 02 – 03 Basal & Broad-casted application of fertilizers.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs/ha)	Net Return (Rs./ha)	B:C Ratio
T_1: (Farmers Practice)	3	28.4	-	17600	31240	13640	1.7
T_2: Seed treatment @100gm CSR-Bio/kg seed + Seed-ling root treatment through CSR-Bio 3% solution + Soil treatment @ 25 kg CSR-Bio with 500Kg FYM/ha		34.2	20.42	19000	37620	18620	1.98

Nutrient management in paddy in salt affected soil

KVK-II, Sitapur, Uttar Pradesh conducted on-farm trial to find out the impact of green and brown manuring before Paddy crop and to assess the impact on soil health. The data revealed that brown manuring with Urea gives better impact in improvement of soil health as well as on paddy yield 53.7 q/ha and net return Rs 47830 compared to green manuring with yield 52.4 q/ha and net return 46275 and Control yield 44.3 q/ha and net return Rs. 37120.

Technology Option	No. of trials	Pre-soil analysis	Post Soil analysis	Yield (q/ha)	Gross Cost (Rs./ha)	Gross return (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1: No Green/ Brown Manuring (Farmers Practice)	15	OC-0.32 N-96.8 P-17.2 K- 117.2	OC-0.29 N-129.3 P-19.3 K-128.3	44.3	20470	57590	37120	1.81
T_2: Green manuring with Dhaincha Seed @60 kg/ha After 40 days of sowing		OC-0.31 N-99.3 P-17.3 K-148.2	OC-0.51 N-142.3 P-19.7 K-153.4	52.4	21845	68120	46275	2.1
T_3: Brown manuring with urea (32 kg/ 800 lit of water per ha.) + After 40 days of sowing		OC-0.30 N-92.5 P-16.3 K-126.4	OC-0.53 N-147.3 P-18.9 K-167.3	53.7	21980	69810	47830	2.17

Assessment of phosphorus in pigeon pea on the basis of soil testing

KVK, Chandauli in Uttar Pradesh conducted on-farm trial to find out appropriate nutrient management practice to enhance the Pigeon pea productivity. Phosphorus when applied to legumes, enhance the activity of rhizobium by increasing nodulation and there by helps in atmospheric nitrogen fixation.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Net Return (Rs/ha)	B:C Ratio
T_1: No use of phosphorus pigeon pea (FP)	5	7.05	-	25542	1.88
T_2: Recommended dose of phosphorus in pigeon pea on the basis of soil testing		8.85	25.53	29912	2.02
T_3:PSB + 75% Recommended dose of phosphorus in pigeon pea on the basis of soil testing		9.15	29.78	31080	2.06

Effect of integrated nutrient management on tomato yield

KVK Sohna, Siddharthnagar conducted an OFT on integrated nutrient management in tomato crop during Rabi 2016-17 on 5 farmers' field. Results revealed Root treatment with Azotobactor with three spray of Ferrous Ammonium Sulphate @ 200 ppm at 30, 45 & 75 DAT recorded 36.44 percent higher fruit yield compared to farmers practice. Higher net return & B:C ratio was also recorded with this treatment.

Technology option	No. of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B: C ratio
T_1: No spray of Ferrous Ammonium Sulphate (Farmers practice)	6	312	-	72000	249600	177600	3.47
T_2: Root treatment by Azotobactor +3 spray of F.A.S. 200 PPM at 30, 45 & 75 DAT		425.7	36.44	75000	340560	265560	4.54

Varietal Evaluation (VA)

Assessment of high yielding short duration pigeon pea varieties

Pigeon pea is the major pulse crop of Aligarh district of U.P. Farmers of the district are growing UPAS-120 since long back. To find out the alternative of the variety performance of two short duration varieties of pigeon pea viz. Pusa-2001 and Pusa-2002 were assessed. Performance of Pusa-2001 variety was found highly better as compared to UPAS-120. Percentage increase in yield was 30.8 and 20.0 in case of Pusa-2001 and Pusa-2002, respectively.

Technology Option	No. of trials	Yield q/ha	Yield Increase (%)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1: Farmers practice (UPAS-120)	09	12.8	-	44800	22300	1.99
T_2: Variety – Pusa-2001		18.5	30.8	64750	40250	2.62
T_3: Variety – Pusa-2002		16.0	20.0	56000	31500	2.8

Evaluation of barley variety suited for salt affected soil

The district Jalaun has large area under salt affected. Barley crop is grown on most of the salt affected land. The productivity is very low due to non adoption of suitable variety for salt affected condition. KVK Jalaun conducted on-farm trial to find out suitable variety of barley for usar soil. Variety Narendra barley -1 found to be better because it gave 10.45 q/ha yield in comparison to Framer's practice (7 q/ha), which was 49.28 % higher over farmer's practice.

Technology Option	No. of trials	Plant population /m2	No. of effective tillers /m2	Straw yield (q /ha)	Grain yield (q / ha)	Yield Increase (%)
T_1:Farmer practice (Parvati)	03	355-380	7-10	18.20	7.0	-
T_2:Recommended Practice Azad barley		450-476	6-8	22.24	7.9	11.39
T_3:Narendra Baeley-1		490-535	3-6	27.30	10.45	49.28

Evaluation of different varieties of vegetable pea

Vegetable pea is an important crop as green pod vegetable of district Jalaun at Bundelkhand region. It is grownfor green pod vegetable on 30000 ha area of the district in rabi season alone. The low availability of high yielding variety the yield is low of this crop. KVK Jalaun conducted on-farm trial to find out high yielding variety of vegetable pea. The variety Kashi Mukti (VRP-22) gave 15.24 q/ha grain yield with 27 % increase in yield in comparison to farmer's practice.

Technology Option	No. of trial	Plant population/m2	No. of pods/plant	No. of seeds / plant	Maturity Days	Grain yield (q/ ha)	Yield Increase (%)
T_1: (AP-3) Farmer practice	03	55	12	60	90	12.0	-
T_2: Kashi Udai-(VRP-6)		58	10	60	80	13.50	12.50
T_3: Kashi Mukti (VRP-22)		66	15	105	75	15.24	27.0

Assessment of high yielding mustard varieties

Mustard is an important oilseed crop of district Firozabad. To assess the high yielding variety of the crop. The variety DMR IJ-31 gave highest yield (27.60q/ha) followed by NRC HB-101 (24.30) and farmers practice. The maximum net return of Rs. 59520 was found in DMR IJ-31 followed by NRC HB-101 (48630) and farmers practice (41320).

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs./ha)	B:C ratio
T_1 : FP (Urvashi/ chhapka)	3	21.80	-	30620	71940	41320	2.35
T_2 : DMRIJ 31		27.6	26.60	31560	91080	59520	2.88
T_3 : NRCHB 101		24.3	11.47	51560	80190	48630	2.54

Assessment of high yielding linseed varieties

KVK, Hardoi conducted on farm trial on inseed varieties for yield assessment. The highest yield of linseed variety (Padmini) 12.8 q/ha was obtained followed by11.4 q/ha by the variety Azad Alsi-1. The lowest yield was obtained from farmers practice by using variety Neelam i.e. 8.7 q/ha. The farmers were advised to use Padmini to get better return.

Technology Option	No of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs./ha)	B:C ratio
T_1 :F.P. (Neelam)	4	8.7	-	16800	40890	24090	2.43
T_2 : Azad Alsi 1		11.4	47	17300	57340	40040	3.31
T_3 : Padmini		12.8	30	17300	66740	49440	3.86

Varietal evaluation of Basmati Rice

KVK Hastinapur (Meerut) has conducted On Farm Trial on "varietal evaluation of basmati rice" testing two varieties of basmati rice Pusa-1509 & Pusa-1612 along with variety Pusa 1121 under farmer practice. The results obtained from the trial showed that the Pusa-1612 variety performed well with higher yield 57.41 q/ha. as compared with other trial varieties.

Technology Option	No. of trials	Area (ha)	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs./ha)	B:C ratio
T_1:Pusa-1509	06	0.40	47.75	-	49375	95500	46125	1.93
T_2:Pusa-1612		0.40	52.50	9.94)	48875	115500	66625	2.36

Evaluation of high yielding variety of wheat

KVK, Pilibhit conducted on-farm trial to assess new varieties of wheat. The new varieties WH-1105 and HD - 3086 had realized a net return of Rs. 37925/ha and Rs. 40098/ha, respectively as compared to the recommended practice with net returns of Rs. 33613 /ha.

Technology Option	No.of trials	Production (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Profit)/ ha (Rs)	B:C Ratio
T_1 : (PBW – 34) FP	05	50.53	--	49761	83374	33613	1.67
T_2 :WH-1105		53.61	6.09	50531	88456	37925	1.75
T_3 :HD- 3086		55.34	9.52	51213	91311	40098	1.78

Evaluation of HYV varieties of cucumber

KVK, Shahjahanpur, Uttar Pradesh conducted on-farm trial to assess the HYV of Pusa Udai and pusa barkha of cucumber to compare with local variety S-48. Results revealed that The variety (Pusa Barkha) was superior over the Pusa Udai and farmers practice (Local variety). It gave 217.47 q/ ha yield over farmer's variety (158.54 q/ha) with net return of Rs. 155470/ha in comparison to farmer's practice which gave net return of Rs. 94686/ha only.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs./ha)	Net Returns (Rs./ha)	B:C Ratio
T_1- S-48 (Local)	05	158.54	-	48000	142686	94686	2.97
T_2- Pusa Udai		208.80	31.7	62000	208800	146800	3.37
T_3- Pusa Barkha		217.47	37.17	62000	217470	155470	3.51

Evaluation of different varieties of gladiolus

Production potential of gladiolus varies with the variety grown. Therefore, keeping in consideration about the fact, KVK Shahjhanpur conducted On Farm Trial to evaluate the performance of 03 varieties of gladiolus under field condition. Data collected revealed that Pusa Kiran was adjudged as better performer with 134866 spikes and Rs. 196167net profit per ha. In comparison to traditional variety Sancerre with 101866 spikes and Rs. 126467 net profit per ha. (32.40% increase in production.) Spikes f Pusa Chandni is more attractive, having better vase life and more florets/spike but due to lower production than Pusa Kiran, its commercial acceptance is low.

Technology Option	No. of trials	Yield (spike/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Returns (Rs/ha)	B:C Ratio
T_1: Sanscerre (Local)	03	101866	-	128200	2546667	126467	1.99
T_2:Pusa Kiran		134866	32.40	141000	337167	196167	2.39
T_3:Pusa Chandani		122033	19.80	141000	305083	164083	2.16

Introduction of new high yielding sugarcane variety

KVK, Baghpat conducted a varietal trial to assess the yield potential of new varieties CoS-7250 and CoS-1434 in comparison of existing variety CoS-767, with three treatment including farmer's practice on four locations in 1.2 ha. The crop was sown on 04 to 11 Mar., 2016. Crop was harvested in the month of Feb., 2017 and CoS-7250 variety found suitable option to replace the CoS-767 with increase more than Rs. 30000 additional return per hectare.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha))	Gross Return (Rs./ha)	Net Returns (Rs./ha)	B:C Ratio
T_1:CoS-767 (Farmers Practice)	03	520	-	75000	161200	104000	2.14
T_2:CoS-7250		680	30.7	75000	210800	135800	2.81
T_3:CoS-1434		655	25.9	75000	203050	128050	2.70

Performance of improved variety of Rabi onion under the micro climatic situation i.e. Tarhar & Uprahar.

KVK, Gonda conducted on-farm trial to assess the performance of improved variety of Rabi onion. During this trial it was observed that onion variety Agrifound Light Red have 33.0 % more yield over local variety (Goran) and higher B:C ratio is 2.94.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Avg. diameter of bulb (cm)	Maturity (Days)	Net Return (Rs.)	B:C Ratio
T_1: Farmer practice - Local Variety (Goran)	9	190.14	-	3.5	125	108119	2.33
T_2: kalyanpur Red		229.76	20.8	3.75	135	146200	2.79
T_3: Agrifound Light Red		252.55	33.0	4.5	115	163511	2.94

Assessment of mustard varieties

KVK, Sultanpur in UP conducted on-farm trial to assess of mustard varieties. The new cultivar of mustard had realized a net return of Dhannya-555 Rs. 48300.00 & RH-406 Rs.-51450/ha as compared to the farmer practice with net returns of Rs. 31650 /ha (52.60 & 62.56% increase in net return per ha). The percent increase in yield was 37.78 %. & 44.44%, respectively.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1: Varuna (Farmers Practice)	4	13.5	-	31650	3.02
T_2: Dhanya-555		18.6	37.78	48300	3.87
T_3: RH-406		19.5	44.44	51450	4.06

Assessment of of lentil varieties under rainfed condition

KVK, Sultanpur in UP conducted on-farm trial to assess the low yield of lentil under rainfed condition. The lentil crop had realized a net return of Rs. 79,905 & 87550/ha as compared to the farmer practice with net returns of Rs. 58,750/ha (36.42 & 49.47% increase in net return per ha). The percent increase in yield was 29.52 % & 36.87%.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1 : K-75 (Farmers Practice)	4	14.46	-	58750	3.8
T_2 :PL-406		20.12	36.87	87550	4.78

To assess the most suitable variety of Kala namak in tarai region of district Balrampur

K.V.K., Balrampur conducted On Farm trial on to assess the most suitable variety of Kala namak in tarai region of district Balrampur. The results revealed that number of tillers/m2 (225), yield (20.25 q/ha), net profit (Rs. 55675) and B:C Ratio (3.66) were found maximum in Kala Namak-102 over Kalanamak-3 and farmer practice. It is recommended that farmers should sown scented paddy variety of Kalanamak-102 is suitable for tarai region due to it provides more yield and profit.

Technology option	No. of trials	No. of tillers /m^2	Yield (q/ha)	Net return (Rs/ha)	B:C Ratio
T_1: Old variety of Kala Namak (Farmer's practice)	3	155	14.50	36250	2.50
T_2: Kala Namak-3		208	17.75	46925	3.08
T_3 :Kala Namak-102		225	20.25	55675	3.66

Performance of HYV of wheat under late sown condition

KVK Jaunpur conducted on farm trial was laid out on the performance of HYV of wheat under late sown condition. Result indicates that use of late shown wheat variety (NW 2036) in late condition with others agronomical management practices produced highest grain yield with 34.62 per cent yield increase over farmer practice.

Technology Option	No. of trials	No. of tillers /plant	Yield (q/ha)	Yield Increase (%)	Net Return (Rs/ha)	BC ratio
T_1: Sowing of wheat with traditional variety ie. PBW 343, PBW502, 154 under late sown condition (Farmers Practice)	05	05	22.87	-	10412	1.47
T_2:NW 2036		09	30.62	34.53	20352	1.87
T_3:Golden halana		05	28.30	26.43	17197	1.72
T_4:Unnat halana		04	27.62	23.12	16110	1.70

Evaluation of wheat varieties under rice wheat system for late planting condition

Rice wheat is the most widespread and important cropping system. KVK Maharajganj conducted trial on late variety of wheat and found that variety HD 2967 yielded higher (43.26) under tarai region of Maharajganj.

Technology Option	No. of trials	Days to 50% heading	Test weight (g)	Yield (kg/ha)	Yield Increase (%)	B:C Ratio
T_1:Use of var. PBW-343 (Farmers' Practice)	4	90	25	3527	-	1.2
T_2:HD-2967		85	38	43.26	22.65	1.9
T_3:DPW 621-50		83	39	40.52	14.88	1.7
T_4:DBW-17		84	37	3830	8.59	1.6

Performance of high yielding indeterminate type of tomato variety S 230 with staking method

KVK, Mau in Uttar Pradesh conducted on-farm trial to assess the indeterminate type of tomato var. S 230 alongwith staking method of planting. Staking method of tomato planting with indeterminate growth habit of variety S 230 enhanced the fruit yield upto the level of 43 to 69 per cent. Net return of the system also increased to double with Rs. 2.49 lacs per ha. The B: C ratio of the system also increases upto the level of 2.11 as compared to farmers' practice (1.92).

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net Return	B:C Ratio
T_1:Older determinate type of varieties (FP)	8	186	-	145200	279000	133800	1.92
T_2: Indeterminate tomato variety S 230		267	43.55	180400	400500	220100	2.22
T_3: Indeterminate tomato variety S 230 with staking method		316	69.89	225000	438000	249000	2.11

Assessment of suitable HYV of brinjal

KVK Basti assessed high yielding varieties of brinjal and found that brinjal variety Kashi Prakash was found best in the terms of production 310 q/ha and also found B.C. ratio 2.48 followed by variety Kashi Taru (2.32) with 290 q/ha.

Technology option	No. of Trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs./ha)	B:C ratio
T_1: Local Var. (FP)	3	220	-	46000	77000	31000	1.16
T_2:Kashi Taru		290	11.84	50000	116000	66000	2.32
T_3:Kashi Prakash		310	28.28	50000	124000	74000	2.48

Performance of high yielding variety Suryamukhi of chilli for higher productivity

Sodicity is a major issue in the district and farmers are forced to grew cereals only. However, recent years farmers reclaimed the sodicity with the use of gypsum, press mud and green manuring and the soils became neutral in nature. These farms are ready to cultivate other high value crops like fruits, vegetables and medicinal crops. KVK, Mau conducted on-farm trial to assess the high yielding variety of chilli Suryamukhi under reclaimed sodic soil condition. The result revealed that higher yield (161 q/ha) were obtained with the HYV Suryamukhi and increase the yield upto the level of 37.60 per cent over the farmers practice. The net return of the trial were also higher of Rs. 1.16 lacs per ha with B:C ratio of 1.98.

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net Returns	B:C Ratio
T_1: Older non descriptive varieties (Farmers Practice)	4	117	-	98500	175500	77000	1.78
T_2: Suryamukhi		161	37.60	121750	241500	119750	1.98

Find out suitable variety of turmeric as intercrop under agroforestry (Tree shade) for Sonbhadra conditions

KVK, Sonbhadra assessed suitable variety of turmeric for Sonbhadra conditions under tree shade. In this trial two varieties (NDH-2 & NDH-3) and a desi (non-descriptive) variety was sown under tree shade. Growth and yield was observed. Yield data was taken by crop cutting (harvested the crop in 1 x 1 sq. m area). On the basis of crop cutting it can be concluded that variety NDH-2 has 34.70 % superiority over farmers' practice, whereas, variety NDH 3 showed 28.11% superiority over farmer practice. Both the varieties get 12.50% more price in the local market. Though the yields were less in both the varieties and farmers practice may be due to the delayed sowing, poor germination and heavy rain

Technology Option	No. of trials	Yield (q/ha)	Net Returns (Rs. /ha)	B: C Ratio
T_1: Non-descriptive (Farmers' Practice)	3	18.50	17500	1.39
T_2: NDH – 2		24.92	48925	1.77
T_3: NDH – 3		23.70	43450	1.69

Assessment of suitable HYV of perennial fodder crop

KVK Basti conducted OFT to assessment of suitable HYV of perennial fodder crop. The result indicates that hybrid Napier bajra JH-6 is more high yielding perennial fodder crop. It gives 21.25% more yield in comparison to FP & napier Bajra 6. The milch animals consume more fodder HNV JH-6 due to its palatability hence it provides more milk yield. The farmers feed back that its good fodder for summer season when fodder not available in the field. Hybrid Napeir bajra JH-6 is most suitable perennial fodder crop.

Technology option	No. of Trials	No. of Cutting	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ ha)	B:C ratio
T_1: NB-21 (Farmers' Practice)	3	4	1905	-	34600	17381	1.95
T_2:Hybrid Napier Bajra JH-6		6	2310	21.25	48200	21931	2.19

Integrated Crop Management (ICM)

Soil application of pachlobutrazol in dusheri orchard

KVK Saharanpur conducted OFT to assess the effect of pachlobutrazol to control of irregular bearing in mango cv dusheri. Treatment compared i.e. T1- Farmer's practice (No treatment) and T2- Soil application of pachlobutrazol (3.2 ml/m canopy). Application of pachlobutrazol was applid on 28.09.2015 on identified 5 plants of each treatment at 3 locations. Recommended cultural practices were carried out during the season. In off season soil application of pachlobutrazol (3.2 ml/m canopy) had recorded 33.15% yield. As compared with on season height net return Rs. 2.67 lakhs was achieved in Soil application of pachlobutrazol (3.2 ml/m canopy).

Technology Option	No. of trials	Yield (q/ha)	Yield Increase (%)	Net return (Rs./ha)	B:C ratio
T_1:No treatment (FP)	01	145.74	-	171610	4.65
T_2:3.2 ml/meter canopy diameter (Pa chlobutrazol)		218.04	33.15	267430	5.45

High density cauliflower production for higher return

KVK, Aligarh in Uttar Pradesh conducted on-farm trial to assess high density cultivation of cauliflower. The high density (45X30 cm) cultivation of cauliflower gave a net return of Rs. 170000 /ha as compared to the traditional practice which gave net returns of Rs. 78000 lakh /ha only. The net return in high density cauliflower was 54.1% higher in comparison to traditional spacing cultivation. The recommended spacing (60X45 cm) also gave net return of Rs.135000/ha.

Technology Option	No. of trials	Yield (q/ha)	Gross returns (Rs./ha)	Net Returns (Rs. /ha)	B:C ratio
T_1 :Farmers practice (unspecific spacing)	9	133	133000	78000	2.41
T_2 :Recommended plant to palnt and row to row distance(60X45 cm)		190	190000	135000	3.45
T_3 : High density plantation of seedlings (45X30 cm)		225	225000	170000	4.09

From per unit area

Tomato is growing on Rabi as well as Zaid season at district kannauj. KVK kannauj conducted on farm trial to assess the best intercrop in tomato for additional income. Winter tomato hybrid variety Namdhari-585 was planted in bed and furrow method in which two rows of tomato as sole and with intercrops was planted on 1 m wide bed at 75 cm row to row and 45 cm plant to plant spacing. In intercropping one row of cabbage and one row of radish was planted in between two rows of tomato. Tomato gave the highest yield 655.2 q/ha in sole followed by tomato + radish 628.0 q/ha but the lowest yield of tomato was recorded under tomato + cabbage 601.5 q/ha. However, additional yield of cabbage and radish enhance the yields and income considerably. The highest tomato equivalent yield was received under tomato + cabbage followed by tomato + radish but the lowest under sole crop.

Technology Option	No. of trials	Total No. of fruits / plant	Fruit Wt. / plant (kg)	Fruit weight (g)	Fruit damage (%)	Plant population Tomato/ intercrop	Crop period (days) Tomato / Intercrop	Tomato yield (q/ha)	Yield of intercrop (q/ha)
T_1:Sole planting of tomato	15	50.6	2.56	49.7	7.5	28702	148	655.2	-
T_2:Planting of tomato + cabbage (2:1)		48.7	2.43	48.6	9.7	28499 / 19918	147 / 60-75	601.5	215.8
T_3:Planting of tomato + reddish (2:1)		49.3	2.51	49.2	8.2	28496/ 62310	146 / 45-60	628.0	76.7

Economics of Intercrop

Technology Option	Tomato equivalent yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Returns (Rs/ha)	Net Return (Rs/ha)	Additional income (Rs/ha)	B:C Ratio
T_1 : Sole planting of tomato	655.2	-	82032	196560	114528	-	2.4
T_2 : Planting of tomato + cabbage (2:1)	817.3	17.2	91082	245190	154108	39580	2.7
T_3 : Planting of tomato + radish (2:1)	704.7	4.2	86932	211410	124478	9950	2.4

Intercropping of chilli & brinjal in Banana

KVK, Lakhimpur Kheri in Uttar Pradesh conducted on-farm trial to assess the effect of intercropping in Banana. The intercropping system of planting of Banana at 1.8 x1.8 m. spacing & seedling of Chilli and Brinjal has been planted at recommended spacing. The maximum gross return (Rs.739625.0/ha.),net return (Rs. 514875.0/ha.) and B:C ratio(3.29) was noted in intercropping of chilli with banana. This might due to intercrop reduce input cost and get more profit per unit area.

Technology Option	No. of trials	Banana Yield (q/ha)	Intercrop Yield (q/ha)	BEY (q/ha)	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
T_1: Sole crop (FP)	5	852.25	-	852.25	195500.0	621290	425790	3.17
T_2:Banana + Chilli		847.75	63.75	911.5	224750.0	739625	514875	3.29
T_3:Banana + Brinjal		829.75	92.50	922.25	201050.0	653675	452625	3.25

Assessment of suitable combination of inter crop with autumn sugarcane.

KVK Moradabad conducted on-farm trials on suitable inter crop (Sugarcane + mustard, S. cane + Garlic) combination with autumn s. cane. Generally farmers take single crop of sugarcane, resulting low income of sole crop as compaired to inert crop. The result indicated that intercropping of garlic & mustard gave higher net return Rs. 3.81 lac/ha. in garlic

followed by mustard Rs. 1.33 lakh per ha. over control (Sole crop), 0.97 lakh per ha. with benifit cost ratio of 2.72, 2.0 & 1.89 respectively. Sugarcane + garlic is highly labour intensive cropping system. Farmers have positive response about garlic intercropping with autumn sugarcane is more profitable as compared to S.cane + mustard.

Technology Option	No.of trials	Yield of intercrop (q/ha)	Cane yield (q/ha)	Cane equivalent (q/ha)	Yield increase (%)	Net return (Rs/ha)			B:C ratio
						S. cane	Intercrop	S.cane+ intercrop	
T_1: Farmers practices (Single crop)	03	-	715.5	715.5	-	97845	-	97845	1.89
T_2: S.cane + Mustard		17.50	711.5	729.0	1.89	93685	39892	133577	2.00
T_3: S.cane + Garlic		102.5	725.0	827.5	15.65	128285	253100	381385	2.72

Intercropping of onion and mustard with autumn sugarcane

KVK, Baghpat conducted a intercropping trial to assess the yield potential of intercropping of onion (N-53) and mustard (Pusa Jagannath) with Sugarcane varieties CoS-0238 in comparison of existing sole cultivation of sugarcane with three treatment including farmer's practice on three locations in 1.2 ha. The sugarcane was planted on 24 to 25 Oct., 2015 with mustard. However, the onion was transplanted in between the consecutive row on 15-16 Jan., 2016. Intercropping of sugarcane with onion found better with net returns Rs. 328750/ha.

Technology Option	No. of trials	Yield (q/ha)	Gross Returns (Rs./ha)	Net Returns (Rs. /ha)
T_1: Sole planting of Sugarcane (CoS-0238)(Farmers Practice)	03	935.0	271150	246150
T_2: Mustard (Pusa Jagannath) with Sugarcane variety CoS-0238		20.0 (mustard) + 825.0 (sugarcane)	70000 (mustard) + 239250 (sugarcane) = 309250	271750
T_3: Onion(N-53) with Sugarcane variety CoS-0238		120.0 (onion) + 875.0 (sugarcane)	125000 (onion) + 253750 (sugarcane) = 378750	328750

Assessment of different cropping systems (rainfed) for higher returns under rainfed condition of Vindhyan region

KVK Mirzapur in Uttar Pradesh conducted on-farm trial to evaluate different cropping systems for higher returns in the rainfed areas of the district. It was found that although the total net return was maximum with the cropping system of groundnut-wheat+mustard in the row ratio of 9:1 (Rs. 117090/ha), the cropping system of Pigeonpea+pearlmillet-pea (2:1) was most economic with the maximum B:C Ratio of 5.73.

Technology Option	No. of trials	Yield (t/ha)	Net Returns (Rs. in lakh./ha)
T_1:Mixed Cultivation of crops in random pattern[1]	10	Maize-10.50q/ha Chickpea-10.50q/ha Mustard-4.50q/ha	0.75420
T_2:Groundnut-wheat + mustard (9:1)		Groundnut-25.00q/ha Wheat-22.20q.ha Mustard-9.50q/ha	1.17090
T_3:Pigeonpea + pearl millet-pea (2:1)		Pigeonpea-16.40q/ha Pearlmillet-10.50q/ha Pea-20.90q/ha	1.00600

Kusumi lac production on Flemingia semialata

KVK-II, Sitapur conducted on-farm trial to assess the Kusumi lac production on Flemingia semialata intercropped with tomato to increase the income and to assess the natural enemy population. The result of Second year reveals that income from tomato intercrop from assessed with Lac cultivation is increase i.e. Rs. 226050 compared to Farmers practice Rs. 172430. The B: C ratio of Tomato intercrop with Flemingia semialata 3.45 is better than B:C ratio of tomato monocropping system i.e. 2.80

Technology Option	No. of trials	% Pest incidence	Tomato Yield (q/ ha)	Lac Yield (q/ha)	Flemingia seed yield	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T_1: FP : Mono-cropping of tomato	10	22%	390	-	-	61,570	234000	172430	2.80
T_2: Tomato Intercropping with *Flemingia semialata* (20x20 ft)		15%	382	124	25kg	65,450	291500	226050	3.45

Assessment of suitable hormone doses with other management practices for regular bearing in mango

KVK Basti conducted on farm trial on assessment of suitable dose of hormone ie. paclobutazole for the management of alternate bearing in mango orchard. Two doses of hormone were tested ie. 1.6 ml and 3.2 ml per 10 litre of water with FYM and black polythene. From the observation, it has been concluded that the treatment of higher dose of paclobutazole (3.2 ml) alongwith application of black polythene and FYM was found superior followed by treatment with lower dose of paclobutazole (1.6 ml) + FYM in terms of yield, fruit sets and B:C Ratio.

Technology option	No. of trials	Yield (q/ha)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C ratio
T_1:200kg FYM/tree (Farmers' practice)	3	140	45000	70000	25000	1.55
T_2:1.6 ml paclobutazole/10 lit of water with soil appl.+ 200gm FYM/10 sqm area		475	55000	227500	172500	4.13
T_3:3.2 ml paclobutazole/10 lit of water with soil appl. + black polythene + 200 gm FYM/10 sqm area		505	60000	252500	192500	4.20

Integrated Pest Management (IPM)

Management of termite and white grub of potato through biopesticide

Potato is an important commercial crop of district Farrukhabad. However, there is high incidence of termite and white grub of potato causing heavy yield loss. Chmical control of these insects is less effective against these insects and polluting the environment. KVK, Farrukhabad conducted an on-farm trial to find out suitable bio agent to control these insects. The soil application of Steinernema carpocapciae @10 kg/ha before sowing gave 25.43% increase in yield over Farmer's practice by minimizing the termite and white grub population. The net return was Rs. 87600/ha. Two application of Steinernema seemae @10 kg/ha also increase the potato yield by 22.29% with net return of Rs. 83700.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C ratio
T_1: Farmer's Practice No use of bio - pesticides	5	350	-	85000	140000	55000	1.65
T_2:Steinernema seemae @10 kg/ha		428	22.29	87500	171200	83700	1.90
T_3:Steinernema carpocapciae @10 kg/ha		439	25.43	88000	175600	87600	2.00

Assessment of suitable control measure of fruit and shoot borer of okra

Okra is highly remunerative vegetable crop. Fruit and shoot borer of okra badly affect the yield and profitability of this crop. KVK Kanpur Dehat conducted on farm trial to assess best possible measure to manage this insect. Application of two spray of indoxacarb @ 0.05% after infestation at 15 days interval found most effective in managing the fruit and shoot borer of okra which gave net return of Rs. 93400/ha over farmer's practice. Four spray of NSKE @5% at 10 days interval also manage the insect and gave net return of Rs. 87680/ha.

Technology Option	No. of trials	No. of fruit/shoot affected by larvae/m^2	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C Ratio
T_1: Farmer Practice (use of 8-10 spray of cypermethrin 0.1%)	3	5	105.6	-	42000	1126720	84720	3:02
T_2 : 4 spray of NSKE @5% after infestation		7	101.0	- 4.35	34000	121200	87680	3.56
T_3 : 2 spray of indoxacarb @ 0.05% after infestation		4	107.0	1.32	35000	128400	93400	3.67

Stem borer Management in paddy (HKR-47)

Paddy is an important cereal crop of Pilibhit. However, there is high incidence of Stem borer pest resulting in yield loss. An on farm trial was conducted to assess the control measure. The assessed technology of application of fipronil 5 SC @ 1 lt/ha reduced the percentage of Insect infestation from 16.12 to 4.34 and yield was increased by 28.87 per cent.

Technology Option	No. of trials	Infestation of stem borer (%)	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1:Application of carbofuron 3G @ 25 kg/ha (Farmers Practice)	05	16.12	41.53	--	49871	60218.5	10347.0	1.20
T_2:Application of fipronil 5 SC @ 1 lt/ha		8.23	48.92	17.79	50231	70934.0	20703.0	1.41
T_3:Application of chlorantraniliprole 18.5 SC @ 150ml/ha		4.34	53.52	28.87	50561	77604.0	27043.0	1.53

Brown plant hopper management in paddy

Paddy is an important cereal crop of Pilibhit. However, there is high incidence of Brown Planthopper pest resulting in yield loss. An on farm trial was conducted to assess the control measure. The assessed technology of Application of buprofezin @ 1 lt/ha reduced the percentage of Insect infestation from 11.18 to 3.14 and yield was increased by 23.06 per cent.

Technology Option	No. of trials	Infestation of Brown Plant hopper (%)	Yield (q/h)	Yield increase (%)	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
T_1:Application of Dichlorovas @1 lt/ha (Farmers Practice)	05	12.65	44.21	--	51762	64104.5	12342.5	1.24
T_2:Application of Burprofezin 25 SC @ 1 lt/ha		6.31	52.76	19.33	52341	76502.0	24161.0	1.46
T_3:Application of Pymetrozine 50 WG @ 0.33kg/ha		3.41	54.65	23.61	53482	79242.5	25760.5	1.47

Assessment of insecticides to control white fly in blackgram

KVK Hastinapur (Meerut) has conducted "On Farm Trial for the assessment of insecticides to control white fly in Black Gram by comparing newer insecticide Imidachlorprid 17.8 % S.L @ 200 m.l./ ha with Monocrotophos @ 1000 m.l./ha 15 days interval as farmer practice along with namely Difenthuron @ 500 m.l./ ha. at 15 days interval at the time of sowing. An appraisal of data collected, Difenthuron has quite edge over the chemical insecticides in terms of insect incidence, yield potential and economic returns.

Technology Option	No. of trials	Insect incidence (%)	Yield (q/ha)	Yield increase (%)	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C Ratio
T_1: Spraying of Monocrotophos @ 1000 ml./ha 15 days interval	12	22.6	9.32	-	8200	54056	45856	6.59
T_2-Spraying of Imidachlorprid 17.8 % SL @ 200 ml/ ha at 15 days interval		8.4	11.98	28.54	7850	69484	61634	8.85
T_3- Spraying of Difenthuron @ 500ml/ ha at 15 days interval		6.2	12.20	30.90	9280	70760	61480	7.62

Integrated Management of tomato Leaf curl disease

Tomato is an important commercial crop of District Mirzapur of Uttar Pradesh. However, there is high incidence of leaf curl disease resulting in significant yield loss. KVK Mirzapur conducted on-farm trial to assess the control measures through organic means and IDM. The technology of IDM including spray of neem oil, Use of sticky traps, removal of diseased plants/weeds and spray of imidacloprid (0.05%) or dimethoate (0.05%) alternatively at 15, 25 and 45 days after transplanting proved not only most effective in reducing the incidence of the disease but also was most remunerative.

Technology Option	No. of trials	Incidence of leaf curl (%)	Yield (kg/ha)	Yield increase (%)
T_1:Farmers Practice : Spray of chemical pesticides based on the recommendations of pesticide seller	04	18	31124.00	--
T_2:Spray of neem oil (0.5%), use of yellow sticky traps (@12/ha)		11	34675.00	11.41
T_3:Spray of neem oil, Use of sticky traps, removal of diseasesd plants/weeds and spray of imidacloprid (0.05%) or dimethoate (0.05%) alternatively at 15, 25 and 45 days after transplanting		7	36788.00	18.20

Assessment of IPM approach for Stem borer and leaf folder in Paddy

Paddy is one of the important kharif crops of the district Kaushambi however the incidence of paddy stem borer and leaf folder takes a heavy loss of the crop resulting in poor yields and low returns. Further, farmers are using the insecticides which are easily available and are not aware of new molecules which are highly effective and comparatively safer. KVK kaushambi, therefore, conducted on farm trials to evaluate insecticides against stem borer and leaf folder in paddy (Oryza sativa) var.PHB-71. As indicated in table that the application of Fipronil granule @ 7.5 Kg/acre and one spray of Profenophas@2 ml/lit resulted in minimize per cent of insect Infestation of stem borer and leaf folder and highest grain yield i.e. 6720 kg/ha. With 9.2 % increase in yield. The yield was lowest in case of farmers practice i.e. use of chlorpyriphos @ 2.0 L/ha. The findings indicate that use of Fipronil @ 7.5 Kg/acre and one spray of Profenophas@2 ml/lit of water/ ha. was more effective management of stem borer and also more economical.

Technology Option	No. of trials	% insect Infestation and Percent larval mortality	Yield (kg/ha)	Yield increase (%)
T_1: Chloropyriphos @ 2.0 L/ha (FP)	4	% insect Infestation In stem borer and leaf folder Scale- (5-7) -20 Percent larval mortality Leaf folder-35.7 Percent larval mortality Stem borer-48.9	6150	--
T_2:Use of Fipronil @ 7.5 Kg/acre and one spray of Profenophas @2 ml/lit		% insect Infestation In stem borer and leaf folder Scale- (5-7)-8 Percent larval mortality Leaf folder-72.2 Percent larval mortality *Stem borer-82.6*	6720	9.2

Yellow Stem Borer management in paddy through Push-Pull technology

KVK-II, Sitapur conducted on-farm trial to assess the effect of push-pull technology on yellow stem borer management in paddy. The results reveal that Paddy intercrop with Acorus and bordered by napier grass gives higher net return 75,640 and B: C ratio 3.31:1 compared to Intercrop with only Acorus i.e 68,920 B: C ratio 3.10 and without intercrop i.e. 42770 B: C ratio 2.15.

Technology Option	No. of trials	Disease incidence (%)	Yield loss (%)	Yield (q/ha)	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
T_1: Farmers Practice	15	20.8%	19.3	48.2	19890	62660	42770	2.15
T_2: Intercrop *Acorus calamus*		5.6%	15.2	54.6 *3.36	22220	70980 *20160 = 91140	68920	3.10
T_3: Intercrop *Acorus calamus* + Border crop- Napier grass		1.5%	-	58.8 *3.67	22820	76440 *22020 = 98460	75640	3.31

Management of vectors causing leaf curl virus in tomato

An on farm trial conducted for management of vectors or pests causing and spreading leaf curl disease in tomato during rabi 2016-17 at KVK Siddharthnagar. Seed and root treatment with emidacloprid + intercropping with maize + spray of imidacloprid @ 0.5 ml/lit recorded higher fruit yield by 33.17 percent higher over farmer's practice with a markeble reduction in % infested plants.

Technology	No. of trials	Infestation/ plant	Yield (q/ha)	Yield increase (%)	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
T_1: No seed and root treatment (Farmers' practice)	06	24	320.5	-	72000	256400	184400	2.56
T_2: Seed & root treatment with emidacloprid 17.8% + inter cropping with maize + spray of emidacloprid 17.8% @ 0.5ml/lit water at 15 days interval after 45 DAP (Recommended practice)		07	426.8	33.17	75000	341440	26640	4.55

Integrated Disease Management (IDM)

Management of leaf curl disease of tomato through new molecules.

Tomato is grown in all the seasons of the district kannauj and gave high profit to the farming community. Majority of vegetable growers of district Kannauj are cultivating tomato crop. But the farmers could not get the high benefit from this crop due incidence of leaf curl disease causing very low yield of tomato and resulting up to high extent of economic losses to the cultivators. The traditional insecticides are not very much effective so the KVK Kannauj conducted to assess the new insecticides against the leaf curl diseases. Spraying of Difenthiuron 50 % WP @ 250 g / ha was found very effective in enhancing yield of tomato by 20.61% and additional net returns Rs. 31319/ha over farmers practice. Thiomethoxam @ 120 g / ha also increased tomato yield by 17.06%.

Technology Option	No. of trials	Leaf curl incidence (%)	Reduction in leaf curl incidence (%)	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1:Farmers Practices (Spray of Imidachloprid)	12	14.31	-	340.23	-	69044	101071	2.46
T_2:Two Spray of Difenthiuron 50 % WP @ 250 g/ ha		4.20	70.64	410.38	20.61	70800	134390	2.89
T_3:Two spray of Thiomethoxam @ 120 g/ha		5.69	60.24	398.28	17.05	70544	128596	2.82

Integrated management of root rot and wilt in tomato

Tomato is an important commercial crop of Aligarh. Infestation of root rot and wilt in tomato causes high yield loss. KVK Aligarh conducted an on-farm trial for integrated management of root rot and wilt in tomato. Soil treatment with Trichoderma @ 3kg/ha (nursery & main field) + seed treatment with Ridomil (3g/kg Seed) reduced the disease incidence from 27 percent to 7 percent and yield was increased by 38 per cent. The B:C ratio was 4.41 in comparison to Farmer's practice (1.39).

Technology Option	No. of trials	Disease incidence (%)	Yield (kg/ha)	Yield increase (%)	Gross cost (Rs/ha)	Gross Return (Rs/ha)	Net returns (Rs /ha)	B:C Ratio
T_1: Farmers practice (Application of imbalanced dose of pesticides)	9	27.00	297	--			142900	3.19
T_2: Soil treatment with Trichoderma @ 3kg/ha(nursery & maim field) + seed treatment with Ridomil (3g/kg Seed)		7.00	410	38.0			222000	4.41
T_3: Soil treatment with Trichoderma @ 3kg/ha (nursery & maim field) + seedling root treatment with Pseudomonas @ 10g/litre of water		12.00	380	21.8			201000	4.09

Management of bacterial leaf blight (BLB) in paddy

Paddy is an important cereal crop of India. The incidence of bacterial leaf blight (BLB) causes upto 50 % yield losses. KVK Aligarh conducted on-farm trial to assess the control measure against this disease. Spraying of streptocycline @ 16 gm + Copper oxychloride 500 gm twice at 15 days interval, reduced the disease incidence from 33.5% (Farmer practice) to 8.4 % and increase in yield by 22.86 per cent over farmer's practice.

Technology Option	No. of trials	Disease Incidence (%)	Yield (q/ha)	Yield increase (%)	Net returns (Rs /ha)	B:C Ratio
T1: Farmers practice (Spray of carbendazim @ 1.0 Kg./ h after disease appearance)	09	33.5	36.1	-	51750	2.34
T2: Spraying of Agrimycin @ 75 gm + Copper oxichloride 500 gm twice at 15 days interval		13.6	43.8	17.57	71000	2.84
T3: Spraying of streptocyclin @ 16 gm + Copper oxichloride 500 gm twice at 15 days interval		8.4	46.8	22.86	79000	3.03

Assessment of fungicides for black scurf disease of potato

Potato is a major crop of district Kannauj. The potato is affected with several diseases which reduced the yield as well as quality of potato tuber. The black scurf disease has great importance which badly affects the quality of tubers. KVK, Kannauj conducted on farm experiments to assess the fungicides against black scurf disease of potato. Seed treatment with Azoxystrobin 23 SC @ 100 ml /ha was found very effective in enhancing yield of potato by 14.65% and additional net returns Rs. 23580 /ha over farmers practice. Infected tubers were reduced from 31.17% to 10.10%. Thifluzamide (Pulsor) @ 1.25 lt. per ha seed also increased tuber yield by 10.59%.Application of Mirador (Azoxystrobin 23 SC) @ 10 ml/ ha was also found effective. These interventions may be further taken in the district under FLDs.

Technology Option	No. of trials	Germination % at 15 DAS	Infected tubers (%)	Yield (q/ha)	Gross Cost (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1:FP (carbendazim)	23 15	20.35	31.17	275.06	69119	116900	1.69
T_2:Seed treatment with Azoxystrobin SC @ 100 ml /ha.		28.25	10.10	315.36	70700	141912	2.0
T_3:Seed treatment with Thifluzamide (Pulsor) @ 1.25 lt. per ha seed		25.09	15.05	304.21	70500	136894	1.94

Assessment of suitable chemical management of false smut disease of paddy

Paddy is grown on large area in district Kanpur Dehat. Paddy crop is affected by several diseases from seedling stage to maturity stage. The false smut is major disease because the fungi affect during reproductive stage and directly reduce the yield. An OFT was conducted during to assess various chemical for mgt of the disease. Spraying of copper hydroxide was found most effective for the control of false smut disease of paddy. It reduced the infected ears /sqm from 11 to 2. The yield enhancement was 21.73% with net return of Rs. 30500/ha in comparison to framer's practice (Rs. 19700/ha).

Technology Option	No. of trials	No. of infected ears/m^2	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C Ratio
T_1:Farmer Practice (precaution measure not in practice)	3	11	46	-	35500	55200	19700	1.55
T_2:Spray of 0.2% Carbendazim at 5% ear initiation.		3	54	17.39	36400	64800	28400	1.78
T_3:Spray of 0.2% of copper hydroxide at 5% ear initiation.		2	56	21.73	36700	67200	30500	1.83

Assessment the different seed treatment fungicides against wilt in chickpea

An OFT was conducted by KVK, Chitrakoot to assess the performance of different fungicide on mortality of chick pea plants in Chitrakoot region. The KVK tested fungicides at different location and found that Vitavax power effectively reduces the mortality rate of chick plant in comparison to Trichoderma. Due to use of Vitavax power farmers can increase their productivity up to 62.24%. The farmers can use Vitavax power for seed inoculation and get maximum return because it control wilt effectively under low moisture condition of district Chitrakoot

Treatment	Affected plants /m^2 at 35 days	Plant height (cm)	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C ratio
T_1: Farmer practice (No seed treatment)	3.4	44.6	8.9	-	18200	31150	12950	1.71
T_2 : Seed treatment with Vitavax @ 2 g/kg seed	1.4	44.2	14.44	62.24	18200	50540	32340	2.77
T_3: Seed treatment with Trichoderma viridi @ 4 g/kg seed	2.2	43.2	12.54	40.89	18200	43890	25690	2.41

Assessment of different control measures of powdery mildew in vegetable pea

KVK, Chitrakoot conducted an OFT on the low productivity of Vegetable pea due to powdery mildew disease in vegetable pea the KVK assessed different fungicides. The result indicated that application of Karathane gives higher yield than wettable sulpher. The yield was 61.88% higher than farmers practice by the use of karathane and 35.84% higher when farmers used wattable sulpher in their field

Technology Option	Affected plants /m^2 at 30 days	Disease reduction (%)	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C ratio
T_1: Farmers practice (No control)	44.6	-	53.0	-	30600	79500	48900	2.59
T_2: Two foliar spray of Karathane (0.05%) at 15 days interval	44.2	96.6	85.8	61.88	36500	128700	92200	3.52
T_3:Two spray Wettable sulpher (0.2%) at 15 days interval	44.6	86.4	72.0	38.84	34700	108000	73300	3.11

Effect of bacterial blight on yield quality and income from tomato fruits

Tomato is an important commercial crop of Sultanpur. However, there is high incidence of Bacterial blight disease resulting in yield loss. KVK conducted on-farm trial to assess the control measure. The tomato crop had realized a net return of Rs. 141130 & 134400/ha as compared to the farmer practice with net returns of Rs. 79200/ha . The results indicated that the use of Seedling treatment with 0.3% copper hydraoxide & spray of Bio – insecticide (Pseudo) @ 2ml/lt. of water and Seedling treatment with 0.3% copper hydraoxide & spray of bactericide (streptomycin) @ 0.02% gave 15.38 & 20.19% increase in yield over hand weeding. The technology of Seedling treatment with 0.3% copper hydraoxide & spray of Bio – insecticide (Pseudo) @ 2ml/lt of water and Seedling treatment with 0.3% copper hydraoxide & Spray of bactericide (streptomycin) @ 0.02% reduced the percentage of disease incidence from 19 to 9 & 4 per cent respectively.

Technology Option	No. of trials	Incidence of disease (%)	Yield (q/ha)	Yield increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1 : No seedling treatment	4	19	312	--	79200	2.73
T_2: Seedling treatment with 0.3% copper hydraoxide & spray of Bio – insecticide(Pseudo) @ 2ml/lt. of water		9	360	15.38	134400	3.90
T_3: Seedling treatment with 0.3% copper hydraoxide & Spray of bactericide (streptomycin) @ 0.02%		4	375	20.19	141130	4.04

Integrated Weed Management (IWM)

Assessment of herbicides for weed management in transplanted rice

The KVK Hardoi conducted On-farm trial on weed management of paddy to find out suitable weedicides against highly aggressive and dominating weeds in paddy crop for better yield at farmers field. Weedicides Pretilachlor 6%)+ Pyrazosulfron ethyl 0.15 GR @ 10kg/ha was tested against one hand weeding. The results revealed that The highest yield was obtained 47.3 q/ha by using Pretilachlor 6%)+ Pyrazosulfron ethyl 0.15 GR @ 10kg/ha followed by 43.6 q/ha by the use of Pyrazosulfron ethyl 10% P@80gm/ha. The lowest yield 36.6 q/ha was obtained from farmers practice i.e. one hand weeding at 20 days after transplanting. The farmers were advised to use Pretilachlor 6%)+ Pyrazosulfron ethyl 0.15 GR @ 10kg/ha to manage the maximum weeds and get better return.

Technology Option	No. of ftrials	Parameter recorded		Yield (q/ha)	Yield increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C ratio
		Weed intensity / m^2	Dry weight of weeds / m^2 (g)						
T_1:Farmers Practivce (One hand weeding at 20 DAT)	4	44	44.8	36.6	-	26250	53802	27552	2.05
T_2:Pretilachlor 6%)+ Pyrazosulfron ethyl 0.15 GR @ 10kg/ha		10	12.8	47.3	29	27890	71736	43846	2.57

Efficacy of new weedicides for proper weed management in rice crop

The KVK Bijnor conducted On-farm trial on weed management of rice to find out suitable weedicides against highly aggressive and dominating weeds in rice crop for better yield at farmers field. Three weedicides were tested i.e. Pretilachlor, Oxidiargyl and Butachlor as check. The results revealed that both of the new weedicides (Pretilachlor and Oxidiargyl) control weeds efficiently as compare to butachlor. But both of those oxidiargl was found superior. The yield was increase in Oxidiargyl treated plot 29.87 percent over farmers practice. The treatment Oxidiargyl gave highest yield of 58.70 q. per ha. Yield was increased due to lack of weeds at competitive stage. The other technical data are given below:

Technology Option	No. of trials	No. of weeds/ m^2	Yield (q./ha)	Yield increase (%)	Gross Cost (Rs./ha	Net Return (Rs./ha)	B:C ratio
T_1: Butachlor 50 E.C @ 2.5 liter/ha	5	58.4	45.20	-	49505	14194	1.29
T_2: Pretilachlor 50 E.C @ 2.0 liter/ha		37.0	54.6	20.80	49730	26079	1.52
T_3: Oxidiargyl 80 W.P @ 112.5 gm/ha		30.8	58.7	29.87	49605	31569	1.64

Effective weed control in black gram through pre and post emergence weedicide

KVK Ghaziabad conducted on-farm trial to assess the effect of different weedicides on weed control and net return in black gram. The application of Pendamethaline @ 3.3 lit./ha (03 days after sowing pre-emergence) and Emizathyper 10 % SL @ 250 ml/ha (25 days after sowing post-emergence) had realized a net return of Rs. 57550 and 59650 /ha as compared to the farmer' practice with net returns of Rs. 52300/ha.

Technology Option	No. of trials	No. of Weeds/m^2	Yield (q/ha)	Net Returns (Rs./ha)	B:C ratio
T_1: Manual Weeding	04	18	10.8	52300	4.2
T_2 :Application of Pendamethaline @ 3.3 lit./ha (03 days after sowing pre-emergence)		11	11.8	57550	4.3
T_3 :Application of Emizathyper 10 % SL @ 250 ml/ha (25days after sowing post-emergence)		05	12.2	59650	4.4

Performance of new weedicides for weed management in wheat crop

KVK Bijnor conducted on farm trial on weed management of wheat to find out suitable weedicides against highly aggressive and dominating weeds in wheat crop for increasing yield percentage at farmer's field. Three weedicides were tested i.e. Salfosulfuron 75% + Metsulfuron 5% (Ready mix) @ 40 gm/ha, Mesosulfuron methyl 3 % + Idosulfuron methyl 0.6 % (Ready mix) @ 400 gm/ha and Isoproturon as check. The results revealed that both of the new weedicides (Salfosulfuron 75% + Metsulfuron 5% (Ready mix) @ 40 gm/ha, and Mesosulfuron methyl 3 % + Idosulfuron methyl 0.6 % (Ready mix) @ 400 gm/ha) weeds control efficiently as comparison to Isoproturon. The yield was increase in Salfosulfuron 75% + Metsulfuron 5% treated plot 17.94 percent over farmers practice. Yield was increased due to lack of weeds. The treatment Salfosulfuron 75% + Metsulfuron 5% gave highest yield of 52.6 q. per ha.

Technology Option	No. of trials	No. of weeds/m^2	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs/ha)	Net return (Rs/ha)	B:C ratio
T_1: Isoproturon 75 W.P @ 1.5 kg/ha	04	16.8	44.6	-	45807	40493	1.88
T_2: Salfosulfuron 75% + Metsulfuron 5% (Ready mix) @ 40 gm / ha		1.4	52.6	17.94	46307	55473	2.20
T_3 : Mesosulfuron methyl 3 % + Idosulfuron methyl 0.6 % (Ready mix) @ 400 gm/ha		1.6	51.4	15.25	46407	53051	2.14

Assessment of weedicides for effective weed management in black gram

KVK Ghaziabad conducted on-farm trial conducted to assess the effect of different weedicides on weed control and net return in black gram. The application of Pendamethaline @ 3.3 lit./ha (03 days after sowing pre-emergence) and Emizathyper 10 % SL @ 250 ml/ha (25 days after sowing post-emergence) had realized a net return of Rs. 57550 and 59650 /ha as compared to the farmer' practice with net returns of Rs. 52300/ha.

Technology Option	No. of trials	No. of Weeds/m^2	Yield (q/ha)	Net Returns (Rs./ha)	B:C Ratio
T_1 : Manual Weeding	04	18	10.8	52300	4.2
T_2 :Application of Pendamethaline @ 3.3 lit./ha (03 days after sowing pre-emergence)		11	11.8	57550	4.3
T_3 :Application of Emizathyper 10 % SL @ 250 ml/ha (25days after sowing post-emergence)		05	12.2	59650	4.4

Spray of post emergence herbicides (PoE) for control of grasses & broad leaf weeds for higher grain yield of paddy

KVK Ambedkar Nagar conducted trial on post emergence herbicide application in rice and found that spray of Bispyribac sodium @ 250 ml/ha + Almix @ 20 g/ha at 30 to 45 days of transplanting showed less no. of weeds and 7 per cent higher grain yield than farmer practice i.e. spray of butachlor @ 3.0 lit/ha after 15 days of transplanting.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1: Spray of butachlor @ 3lit/ha. after 15 days of transplanting	02	43.5	-	24098	1.6
T_2: Spray of Bispyribac sodium@ 250ml/ha + Almix @ 20g/ha at 30 to 45 days of transplanting		46.8	7.0	33550	2.0

Efficacy of new herbicides for controlling of weeds in paddy

KVK Balrampur conducted on farm trial on to assess the efficacy of new herbicides for controlling of weeds in paddy. The result indicated that application of Pretilachlor 6.0% + Pyrazosulphuron 0.15gm @ 61.5 gm ai/ha (Pre-emergence) mixing with sand just after planting of paddy was given more yield (38.75 qt/ha) over farmer practice. The maximum weed count and weed dry weight was found in farmers' practice. Net profit (Rs. 26125) and B:C ratio (2.58) were observed in T3 over farmer practice. It is recommended that farmer should applying Pritilachlore 6.0% + Pyrazosulphuron 0.15gm @ 61.5 gm ai/ha (Pre-emergence) mixing with sand just after planting of paddy is capable to controlling maximum number of weeds in paddy.

Technology option	No. of trials	No. of weeds /m^2	Weed dry weight (g/m^2)	Yield (q/ha)	Net Return (Rs./ha)	B:C Ratio
T_1:One hand weeding at 25 DAT	3	32	20.50	28.45	16795	2.15
T_2:Use of Bispyribac sodium salt 10 EC @ 25 gm ai/ha(Post- emergence at 25 DAT)		24	13.25	32.50	20550	2.32
T_3:Pretilachlor 6.0% + Pyrazosulphuron 0.15gm @ 61.5 gm ai/ha (Pre-emergence) mixing with sand just after planting of paddy		14	6.35	38.75	26125	2.58

Management of Phalaris minor in Z.T sown in wheat

Wheat crop was affected due to Phalaris minor weeds. KVK Chandauli conducted OFT on wheat crop for the management of Phalaris minor. Weedicide sulphosulphuron + metsulphosulphuron was found more effective to control the weed infestation in wheat crop with increase in yield up to 32.85 % upto farmers' practice.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1:Technology of sown to hand weeding (Farmers' Practice)	05	26.50	-	21325	1.20
T_2:Sulphosulphuron @33gm. ai/ha as 30 DAS (Recommended practice)		30.60	24.89	30460	1.70
T_3:Sulphosulphuron + metsulphosulphuron ethyle @40 ai/ha at 30 DAS		32.55	32.85	33612	1.85

Performance of post emergence herbicide Imazathyper on yield of groundnut

KVK Barabanki of Uttar Pradesh took up on an on farm trial on chemical weed management in kharif Groundnut. The results indicated that use of post emergence herbicide Imazathyper @ 150 g /ha gave 26.8 q/ha groundnut yield and was higher than farmers' practice (21.9 q/ha). The recommended technology increased the crop yield up to 18.28% than the two hand weeding treatment.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1:Two times hand weeding (Farmers Practice)	06	21.9	--	57150	2.58
T_2:Imazathyper @ 150g/ha spray		26.8	18.28	78520	3.74

Integrated Farming System (IFS)

Six species culture system of fish farming for optimum production.

An OFT was conducted on farmers field by KVK Chitrakoot to assess the yield performance of fishes under 06 spp. culture system in seasonal ponds. The result indicated that farmers can get higher yield after stocking six spp. combination (IMC+CC) in seasonal pond i.e. 17.03 q/ha in 09 month period. This is better than 03 spp. culture system.

Technology Option	Initial weight (g)	Weight gain in gm (quarterly) Oct.	Jan.	Apr.	Production (q/ha)	B:C ratio
T_1 : Farmers practice (3 species culture)	1.1	80.0	133.50	464.50	13.96	2.56
T_2: 6 species culture (IMC+CC)	1.2	103.15	160.00	567.50	17.03	3.15

Resource Conservation

Effect of laser leveling (1 Year before leveled) on yield & plant survival of wheat under sodic condition

KVK, Kalakankar, Pratapgarh of Uttar Pradesh took up on-farm trial on laser leveling (1 Year before leveled) on yield & plant survival of wheat under sodi soil condition. The results indicate that the Cultivation of Wheat in laser leveled field (1 year before levelled) gave 15.23 per cent increase in yield over farmers practice Cultivation of Wheat in non-levelled field.

Technology Option	No.of trials	Yield (qt./ha)	Yield increase (%)	Gross Cost (Rs./ha)	Gross Return (Rs/ha)	Net Return (Rs./ha)	B:C Ratio
T_1:Cultivation of Wheat in non-levelled field (FP)	3	30.2	-	22880	47680	24800	2.00
T_2: Cultivation of Wheat in laser leveled field (1 year before levelled)		34.8	15.23	26340	60480	34140	2.20

Improved trench method planting of sugarcane

To increase yield and income of sugarcane growers KVK, Saharanpur conducted on-farm trial on different methods of sugarcane planting. The improved trench planting methods of sugarcane row to row at 120 cm spacing with two row parallel in one furrow and place between two row use as inter crop of mung bean results are given bellow

Treatments	Yield (q/ha)		Yield increase (%)	No. of mealable cane ($x10^3$/ha)	Weight/cane		Net Return (Rs./ha)	B:C Ratio
	S. Cane	Mung			(kg)	% change		
T_1:Planting sugarcane at 75 cm row spacing (FP)	-	-	-	146	0.500	-	136000	2.47
T_2:Trench method 100 cm	1190	5.5	36.00	125	0.970	51.1	269500	3.75

Intercropping under sugarcane wheat cropping system

Sugarcane is a major crop in the Bijnor district about 70 % of cropping area are covered by sugarcane. Due to continuous follow of sugarcane - wheat cropping system and delayed sowing of both crops the productivity of these crops are very low. During the year farmers feel financial crises, due improper cash payment of sugarcane by sugar factories, long duration of sugarcane crop, etc. Keeping in mind those facts KVK, Nagina, Bijnor tested three intercropping system i.e. Sugarcane + Potato, Sugarcane + Lentil, Sugarcane + Mustard and sugarcane sole as check. The results revealed that all the intercrops gave higher net return as comparison to sole cropping.

Technology Option	No. of trials	Intercrop yield (q/ha)	Cane Yield (q/ha)	CEY (q/ha)	Gross Return (Rs/ha)	Net Return (Rs./ha)	B:C Ratio
T_1:Farmers Practice (sugarcane sole)	03	-	1100	1100	123989	184011	2.48
T_2:Sugarcane + Potato		150	1214	1642	173619	286301	2.65
T_3:Sugarcane + Lentil		10.7	1050	1260	144643	208207	2.44
T_3:Sugarcane + Mustard		9.6	1080	1234	144460	201140	2.39

Establishment method of Direct seeded of rice through drum seeder or ZT machine

KVK Pilkhi, Mau conducted on-farm trial on various establishment methods in rice under direct seeded rice condition through drum seeder or through ZT machine. High cost of production and labour scarcity during peak hours under transplanted rice lower the profitable margin in the existing farmers practice. Direct seeding of rice through ZT machine resulted in highest B:C ratio of 1.86 and net return (Rs. 27917) because of lowest cost of production with marginal yield difference of 4.98 percent.

Technology Option	No. of trials	Yield (q/ha)	% Increase over FP	Cost of cultivation (Rs/ha)	Gross return (Rs/ha)	Net Returns (Rs/ha)	B:C Ratio
T_1:ransplanted rice (Farmers Practice)	05	44.25	-	39000	65047	26047	1.67
T_2:Direct seeded rice through drum seeder		42.80	(-) 1.53	35500	62475	26975	1.76
T_3:Direct seeded rice through ZT machine		41.10	(-) 4.98	32500	60417	27917	1.86

Assessment of suitable planting technique of summer maize in summer season in respect to yield and water requirement

Summer maize is growing on 30000 ha area of district Kannauj gave high profit to the farming community. Majority of vegetable growers of district Kannauj are producing summer maize. But the farmers could not get the high benefit from

this crop due to low production and High water demand of hybrid maize in summer. The yield and water demand of the crop is depending on the planting techniques. The farmers are adopting the flat bed method of planting. KVK Kannauj conducted on-farm trial to assess bed and furrow method and ridge and furrow planting in summer maize production. The results revealed that Bed and furrow planting gave highest yield 71.25 q/ha with net return of Rs. 70893 and cost benefit ratio is 3.2 over farmers practice. The Ridge and furrow planting was also found suitable to grow with 68.27q/ ha yield and net gain of Rs. 64692 in comparison to farmer's practice (Rs. 56764/ha). The total irrigation hours in bed and furrow method was 84.27 which was 32.5% less than farmer's practice (125.04 hrs).

Technology Option	No. of trials	Soil depth at planting (cm)	Plant count (no/ha)	No of irrigations (Total Hrs)	Crop height at 30 DAS	Yield (q/ha)	Methodology
T_1:Farmers practice (Flat planting)	21	11	81769	8 (125:04)	33	63.63	Maize variety DKC-9108 Power was sown at 45X20 cm spacing in the field through seed drill. Irrigation was provided through
T_2:Bed and furrow planting		19	79333	9 [84:27 (32.5%)]	39	71.25 (12.0 %)	Seeds of same variety were dibbled in two rows at 60 X 20 cm spacing on broad beds of 75 cm width. Irrigations were provided through furrows both the sides parallel to beds i.e. bed-furrow method.
R_3:Ridge and furrow planting		26	78762	9 [101:15 (19 %)	36	68.27 (7.3 %)	Seeds of variety were dibbled at 20 cm spacing on ridges spaced at 60 cm apart. Irrigations were provided through furrows both the sides parallel to ridges i.e. ridge-furrow method.

Economics

Technology Option	Yield (q/ha)	Gross Cost (Rs/ha)	Gross Returns (Rs/ha)	Net Return (Rs/ha)	Additional profit (Rs/ha)	B:C Ratio
Farmers practice (Flat planting)	63.63	35500	92264	56764	-	2.6
Bed and furrow planting	71.25	32420	103313	70893	14129	3.2
Ridge and furrow planting	68.27	34300	98992	64692	7928	2.9

Value Addition

Assessment of nutritional status of farm women through blended wheat flour with gram, soya , jowar and bazara

KVK Kanpur Dehat conducted on farm trial to assess the nutritional status of farm women through fortified flour.Results indicated that in respect to sensory evaluation (color, texture, aroma, appearance, palatability) fortification of wheat flour 65% + 15% Gram + 10%Jowar + 5% soyabean+5% bajara flour was found better than T2- Fortified wheat flour (75% wheat + 20% Gram + 5% soyabean).In respect to increase in weight on the basis of body weight recorded after 90 days and 180 days of consumption of fortified wheat flour , average increase in weight of farm women observed was 600 gm to 2000 gm. Treatment T2 was found more acceptable than T3. Treatment T3 was not accepted by the farm women cause of change in color and taste due to fortification by bajara.

Technology assessed/Refined	Result
T_1 :Farmers practice (wheat flour)	Normal Nutritional status
T_2:Fortified wheat flour (75% wheat + 20% Gram + 5% soyabean)	Good health and nutritional status
T_3: Fortified wheat floor (65% wheat + 15% Gram + 10%Jowar + 5% soyabean+5% bajara)	Better health and nutritional status of farm women

Assessment of efficiency of solar dryer for drying of Vegetables

KVK-II, Sitapur conducted on-farm trial on Assessment of efficiency of solar dryer for drying of different leafy and other vegetables during Rabi 2016-17. The observation recorded reveals that Use of solar dryer increases drying efficacy Fast and proper drying with visually enriched color and crisp, clean and hygienic drying, suitable for powder and soup making & packaging and reduces time 50% compared to open sun drying method

Technology Option	No. of trials	Drying efficiency in days	Increase efficiency (%)	Farmers reaction and Feedback
T_1: Open sun drying	10	4-5	-	Degraded Color and infestation of foreign object, not suitable for powder making
T_2: Use of Solar dryer for drying off season vegetables		2-2.5	50	Fast and Proper drying with visually enriched color and crisp, clean and hygiene drying, suitable for powder and soup making & packaging

Household food security

Assessment of house holds food security through nutritional garden

Five units of kitchen garden were assessed by KVK Meerut at different locations in comparison to often in practice. Planned kitchen garden was found better in respect of production, total days of availability of green vegetables and general health. Production was 71 % higher and availability is 245 days in comparison to 65 days in farmer practice.

Technology Option	No. of trials	Yield (kg/100 sqm)	Yield Increase (%)	Performance indicators		Gross Cost (Rs/ha)	Gross Returns (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
				Indicator	Performance				
T_1-Production of some leafy and cucurbitaceous vegetables only (Farmers Practice)	10	70	--	Availability of green vegetables General health Disease occurrence	65 days poor Comparatively more	300	700	400	2.3
T_2-Enhance household food security through Nutritional Garden throughout the year		120	71	Availability of green vegetables General health Disease occurrence	245 days Comparatively good Comparatively less	450	2400	1950	5.3

Different vegetables as supplement of nutrition in daily diet

Vegetables are important source of nutrition in the daily diet of people in the villages. So KVK Pilibhit established the nutrition garden was at the farmers' field to ensure supply of vegetables as the source of rich diet throughout the year. The aim of the OFT was improving nutritional status of the farm families and vegetable production as per requirement by the farm families and to enhance vegetable intake in the daily diet of the farm families.

Technology Option	No. of trials	Area (ha)	Yield (q/ha)	% Increase yield	Gross Cost (Rs/ha)	Gross Returns (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1:Farmers Practice	05	0.05	12	--	354	600	246	1.69
T_2:Production of seasonal Vegetables (Pumpkin, Bottle gourd, sponge gourd, okra, cowpea, brinjal, round gourd)			25	108.33	1155	2500	1345	2.16

Drudgery Reduction

Assessment of drudgery by using revolving stool

KVK Rampur conducted trail on drudgery reduction by using revolving stool during milking of animal and find it acceptability by scoring 80% acceptability score and making milking easy.

Technology Option	No. of trials	Acceptability Percent	Average of output (Milk) lit/hr
T_1:Farmers Practice – use of wooden peedha	05	0	2.3
T_2:Use of revolving stool		80	10.32

Increasing work efficiency by revolving stool while milking an animal

Dairy farming has always been a traditional component of rural life in India. Farm women are engaged in milking the animals twice in a day for at least 10-15 minutes once. Women have been performing this activity in squatting posture causing pain in lover back, legs, knees and feet. Lower legs become heavy and stiff due to accumulation of blood in lower extremities. OFT was conducted by introducing revolving stool for milking an animal in order to reduce the drudgery occurred during the milking process. For this 05 farm women were provided revolving stool to analysis the stress factor, work output, tool factor and field acceptability. Result revealed that use of revolving stool decreased bio-mechanical and physiological fatigue and also reduced physical stress by minimizing the back pain, pain occurred in leg, knees and feet as 80% farm women were able to maintain comfortable posture whereas in 60% cases they synchronized the movement of animal. It is highly acceptable among farm women.

Effect of rotating wheel hoe on weed control and increase working capacity and reducing drudgery of farm women

Weeding operation is a major problem for farmwomen. Majority of the farm women do weed control using hand tools like khurpi, sickle etc. Timely weeding is very essential for a good yield. This can only be achieved by using mechanical weeding, which performs simultaneously job of weeding and hoeing. It can reduce the time spent on weeding (man hours) cost, weeding and drudgery involved in manual weeding. So KVK Ghazipur has conducted trial on "Drudgery reduction of farmwomen through improved weeder in vegetable crop". The results indicated that the use of rotating wheel hoe has increased 50% working capacity and also saved time in 800 sqm (0.08ha) and Rs. 200/- saving in 800 sqm (0.08ha) over hand weeding in same area.

Technology option	No of trials	Weeding area(sqm)/ day (8 hours)	No of labour (800 sqm area)	Time saving/ Increase working capacity	Saving in Rs.(800 sqm /0.08ha)
T_1 :Farmers Practice (using in khurpi)	03	400.00 (0.04ha)	2	-	-
T_2: Recommended practice (using rotating wheel hoe)		800.00 (0.08ha)	1	50%	200/-

Assessment of increase in efficiency & reduction in drudgery through hanging type grain cleaner with sack holder

KVK-II, sitapur conducted on-farm trial on Assessment of increase in efficiency & reduction in drudgery through hanging type grain cleaner with sack holder during Rabi 2016-17. The observation recorded reveals that use of hanging type grain cleaner with sack holder increase work efficiency 161kg/Hr reduces Man days 3.92 and Labor cost 1023 compared to traditional sieve method.

Technology Option	No. of trials	Work efficiency (output in kg/ hr)	Increase efficiency/ Hr	Man days	Labor Cost (Rs)
T_1: Use of traditional sieve	10	55kg/hr	-	3.92	1023
T_2: Use of hanging type grain cleaner with sack holder		216kg/Hr	161kg/Hr	1.0	261

Storage Technique

Mangement of incidence of insects in stored dehydrated Mango Slices treated

KVK, Unnao conducted on farm trial to manage the incidence of pest infestation in stored dehydrated Mango. For this purpose slices were treated with 0.1 Per cent KMS (Potassium Meta bi sulphite) solution. Total 20 families were selected and in each family 30 samples having 100 gm dehydrated Mango Slices in each sample were kept for trial as T1, T2 and T3. Every month occurrence of insects in dehydrated Mango Slices was measured and damage percent was calculated which is presented in the table. The data mentioned in above table indicates that during storage of dehydrated Mango Slices no occurrence of insects was found in any tested sample up to 3 months of storage. Whereas in case of dehydrated Mango Slices treated with KMS (Potassium Meta bi sulphite) solution and packed in Poly bags no occurrence of insects were found up to month of March that is after 10 month of storage. This technology was found economic and acceptable by the farm women.

Month	No of Trial	Farmers Practice (No Treatment)		Treatment of Fresh Mango Slices with 0.1 % KMS Solution		T2 + Packing in Poly Bags	
		Damage %	Colour Developed	Damage %	Colour Developed	Damage %	Colour Developed
June	20	-	Light Brown	-	Off White	-	Off White
July		-	Light Brown	-	Off White	-	Off White
August		-	Brown	-	Off White	-	Off White
September		7	Brown	-	Off White	-	Off White
October		10	Dark Brown	-	Light Brown	-	Off White
November		18	Blackish	-	Light Brown	-	Off White
December		24	Blackish	3	Light Brown	-	Off White
January		32	Black	5	Light Brown	-	Off White
February		42	Black	8	Light Brown	-	Off White
March		52	Black	10	Light Brown	-	Off White

Agro-Forestry Management

Assessment of Improved clones of poplar (PP-5, S7C8)

KVK Pilibhit conducted on-farm trial to find out appropriate clone to enhance the poplar productivity. The assessed clone of S7C8 was found to be best with highest growth parameters (diameter, height) and litter fall in one year.

Technology Option	No. of trials	Diameter (cm)	Increased diameter (%)	Height (m)	Increase height (%)	Litter fall (t/ha)	Increased litter Fall (%)
T_1: Farmers practice – G-48	05	8.67	--	16.28	--	1.62	--
T_2: PP-5		9.81	13.15	17.91	10.01	2.43	50.00
T_3: S7C8		10.54	21.57	20.23	25.03	3.68	127.16

Composite Fish Culture)

Effectiveness of stoking of fingerlings

K.V.K., Balrampur conducted On Farm trial on to assess the effectiveness of stocking of fingerlings in proper ratio. The results indicated that maximum body weight gain (0.82kg/year), yield (20.50qt/ha), net profit (Rs. 81250) and benefit cost ratio (1.12) were observed in stocking of fingerlings in proper ratio over farmer practice. The fish farmers are much interested in stocking of fingerlings in proper ratio along with Indian and exotic carps due to it provide maximum yield and profit.

Technology option	No. of trials	Av. Body weight gain (kg)	Production (q/ha)	Net Return (Rs/ha)	B:C Ratio
T_1: Stocking of fingerlings in improper ratio (Farmers' practice)	3	0.51	18.51	64025	0.85
T_2: Stocking of fingerlings in proper ratio (Catla 15%, Rohu 15%, Nain 15% Silver carp 15% Grass carp 20% & Common carp 20%) (Recommended practice)		0.82	20.50	81250	1.12

Eichhornia weed management in fish pond using chemical weedicide 2,4-D-Sodium salt

KVK, Haidergarh, Barabanki took up on farm trial on chemical weedicide on Eichhornia weed management in fish pond at various place .The results on effect of weedicide 2,4-D-Sodium salt on Eichhornia weed control and yield of fish is 5.75 q/ha while with use of 2,4-D Sodium salt 27.50 q/ha and B:C ratio 0.81 with farmer practice and with 2,4-D-Sodium salt use.

Technology Option	No. of trials	Yield (t/ha)	B:C ratio
T_1: Hand picking (Farmers' practice)	5	5.75	0.81
T_2: 2,4-D-Sodium salt spraying @ 3.0 kg/ha (Recommended practice)		27.50	5.07

Mechanization

Effect of sowing techniques on sugarcane production

The farmers of the district are using the only conventional technique of sugarcane plantation ie. By using ridger to make furrow and manual placing the sets in furrow since a long time. But they not aware of other planting techniques of the sugarcane due to non-availability of machines like trencher or other planter. To overcome from this problem an OFT was conducted by KVK, Baghpat at the farmer's field to demonstrate the effect different planting technique on the productivity of sugarcane crop. For these 3 farmers with three replications was selected along with three treatments. The results of the trial show the increase in productivity as well as reduction of insect and pest due to solarization of fallow land between the rows. The observations were made in respect of cost of cultivation, field capacity, field efficiency and yield of sugarcane. The crop was planting on 22 to 30 March, 2016 and the same was harvested on 20 Jan. to 17 Feb,.2017 and supplied to sugar mill.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs/ha)	Gross Returns (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1:Planting of sugarcane by ridger after harrowing (Farmers Practice)	3	570	-	106940	176700	69760	1.65
T_2:Planting of sugarcane by ridger after plugging and subsequent rotavator		720	26.31	116690	223200	106510	1.91
T_3:Planting of sugarcane by Trencher after ploughing and subsequent harrowing		821	44.03	127780	2545100	126730	1.99

Wheat sowing with ferti seed drill

KVK Ambedkar Nagar conducted on farm trial on wheat sowing with ferti seed drill. The depth of sowing 4 cm showed maximum yield. Sowing of wheat by ferti-seed-drill at depth of sowing 4 cm showed higher grain yield i.e. 16.7 per cent higher yield than farmers' practice.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Net Return (Rs/ha)	B:C Ratio
T_1:Broadcasting of wheat seed (Farmers' practice)	05	47.3	--	39200	2.21
T_2:Sowing of wheat by ferti-seed-drill at depth of sowing 4cm		55.2	16.7	50400	2.56

TECHNOLOGY ASSESSMENT UNDER LIVESTOCKS

Animal Nutrition Management

Supplementation of calcium after deworming in buffaloes

KVK Farrukhabad conducted trail to find out suitable control measure for heavy parasitic infestation and deficiency of calcium on dairy animals as the recommended practice parasitic infestation and calcium with vitamin D3 to the desired level. The technology was find tuned by including dairy animals.

Technology Option	No. of trials	Milk yield lt. /day / animal	Yield increase (%)	Gross Cost (Rs/ha)	Gross Returns (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1: Farmers Practice (low level Calcium feeding)	5	5.5	-	190.4	220	29.60	1.15
T_2:Calium Syrp (with vit. D3) @100ml/day/animal		6.3	14.5	218.4	252	33.60	1.5
T_3: T2+Deworming with fenbendazole		6.6	20.0	228.25	264	35.75	1.6

Enhance milk Production through balance feeding & deworming

KVK Farrukhabad conducted trail to find out suitable low milk production due to imbalance feeding & deworming. The technology recommended was find tuned by including Cow/Buffalo for the imbalance feeding.

Technology Option	No. of trials	Milk yield ltr./day/ animal	Yield increase (%)	Gross Cost (Rs/ha)	Gross Returns (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1: Farmer practice (no use of min.mix& improper green feeding	5	5.2	-	182.5	208	25.5	1.3
T_2:Agrininforte (mineral mix. @50gm/day/animal+30gm Lauhari salt.		6.2	19.2	216.3	248	31.70	1.14
$_3$:T2+Dewormer (Evermetin @ 1Bolus for the 3 months.		6.5	25.0	225	260	35.00	1.15

Role of balance concentrate feed supplements in buffaloes

KVK Balrampur conducted On Farm trial to assess the performance of balance concentrate feed supplements in Buffaloes. The results showed that buffaloes feded wheat straw (10 kg) along with 04 kg balance concentrate mixture and daily grazing maximum milk production (6.6 lit. /day) over farmer practice. Net profit (Rs. 106.28/day/animal) and benefit cost ratio (2.16) were also higher in recommended practice. The buffalo reares are much convinced with feeding of balance concentrate mixture prepared through locally available materials. This practice is now practically and widely adopted by live-stock rears.

Technology option	No. of trials	Av. Milk yield (lit /day/animal)	Net profit (Rs/ day/animal)	B:C Ratio
T_1: 10 kg wheat straw +1kg chunni &bran +Grazing (Farmers' practice)	6	4.4	34.10	1.34
T_2: 10 kg wheat straw +4 Kg balance concentrate mixture(prepared through locally available materials) + Grazing		6.6	106.28	2.16

Enhancement of milk production in buffalo through use of bypass fat in the feed

KVK, Haidergarh , Barabanki conducted trial to feeding on by pass fat for enhancing milk yield of lactating buffalo 100gm by pass fat/day per animal was given during assessment period and found 8.7 percent milk increase in trial as compared to farmers practice.

Treatment	No. of animals	Milk yield Lt./day	Yield increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	B:C Ratio
T_1: No use of bypass protein (Farmers' Practice)	5	8.00	-	54.0	240	4.44
T_2: Feeding of bypass protein @100 g /d / animal		8.70	8.7	70.0	258	3.69

Assessment of suitable Probiotics in buffaloes.

The result indicate that probiotics bolus feeding per day increase 15.71% milk and conception rate 66%was found in comparison to FP and biotic feeding. Physical appearance, milk yield and conception rate of probiotic feeding was found higher than F.P.

Technology option	No. of trials	No. of animal	Starting milk yield (lt. per day/animal	Milk yield during trail (lt.) per day/animal	% increased Milk	Conception Rate (%)	Cost per animal per day (Rs)
T_1: Gur (Farmers' Practice)	3	3	6.0	6.5	8.33	33	7
T_2: Probiotic(bacteria base with vitamin and trace minerals)		3	7.0	8.10	15.71	66	10

Enhancement of milk production & digestibility through Urea molasses mineral block (UMMB) in buffalo

Use of 325gm UMMB/animal/day for 3 months produced 21.87% more milk yield over farmer practice. In respect to net return farmer gets Rs. 42.00 as additional income/day/ animal against Rs.18.0/-additional investment

Technology Option	No. of trials	Yield (Milk/Day/Animal)	B:C Ratio
T_1: No use of mineral mixture occasionally use of seasonal green fodder & crop residue supplements wheat flour & Mustard cake (Farmers' practice)	5	7.45	1.51
T_2: Locally available material made Urea Molasses Block 38kg Molasses+10 kg Urea+2 kg mineral mixture + 40 kg wheat bran + 10 kg bentonide / cement / lime + 1 kg common salt + 20g vitamin (Veta blend) (Farmers practice)		9.49	1.67

Assessment of GTH hormone in dairy animals to get higher conceive rate in dairy anima

Krishi Vigyan Kendra Sohna, Siddharthnagar conducted on farm trial to find out the suitable technology for getting higher conception rate for increase the milk production. Assessed technology GTH 2ml after 75 days from calving, mineral mixture 50 g/day up to 90 days from calving and deworming of animals at 40 days after calving gave 25.81% higher milk production over farmers practice. Technology recorded 80 percent conceived rate in buffaloes while in farmers practice it was only 40 percent.

Technology	No. of trial	No. of conceived animals	Milk production / day	Increased milk (%)	Gross return (Rs/day)	Net return (Rs/day)	B:C Ratio
T_1: No use of GTH & mineral mixture (Farmers' practice)	5	2	6.2	-	248	103	1.70
T_2: GTH 2ml after 75 days from calving, mineral mixture 50 g/day up to 90 days from calving and deworming	5	4	7.8	25.81	312	152	1.95

Feed & Fodder Management

Assess the suitable variety of oat for maximum fodder production.

KVK, Gonda (UP) conducted on-farm trial to assess the suitable variety of Oat for maximum fodder production under Rabi season. The old variety of oat i.e. Kent and Berseem is growing by farmers. In this trial variety JHO- 99-2 of Oat was found better over old variety due to its thickness of stem succulent nature and no. of tillers was more in variety JHO-99-2 than old variety Kent.

Technology Option	No. of trials	No. of Cutting	Yield (q/ha)
T_1: Farmer practice- Sowing of old variety - Kent	5	2-3	450
T_2: Sowing of high yielding variety – JHO-99-2		2-3	532

Assessment of suitable varieties of Barley for animal feed grain

KVK Ambedkar Nagar assess suitable varieties of Barley for animal feed grain. Among the variety of Barley –Narendra Barley- 943 gave better yield for animal feed grain. Narendra Barley- 943 given better yield & easy to processing because of less husk for animal feed grain

Technology Option	No. of trials	Yield (q/ha)	Increase in yield (%)	Gross cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C Ratio
T_1: Local variety of scented Barley (Farmers Practice)	5	24.2	-	28345	36300	7955	1.28
T_2: Barley-NDB-1445 (Recommended Practice)		27.3	12.80	29260	40960	55425	1.34
T_3: Barley-NDB-943 (Huskless Variety)		32.4	33.88	29687	50820	11273	1.71

Evaluation of Breed

Assessment of suitable breeds for higher egg Production through backyard poultry

Krishi Vigyan Kendra Parwaha Auraiya conducted an OFT on Backyard Poultry Management for Income generation at household level in rural families. Under this programme 5 farm woman who were rearing local breed were selected from Parwaha, Kutubpur and Fateh Singh ka Purwa, Bhagyanagar, Auraiya and provided 20 Chicks (CARI Priya) to each farm women. It was found that the CARI Priya breed stared laying of egg after 140-145 days old at regular whereas local Breed were started laying of egg after 180 days at 15 -18 days intervals. It was found that the CARI Priya breed lays 205 eggs/ hen in nine months whereas local Breed were lays 70 eggs/ hen in nine month. It was also found that the net return in CARI Priya is Rs. 3689/- whereas local breed Rs. 1974/ per Unit.

Evaluation of Suitable breeds for higher egg Production through Backyard Poultry

Treatment	No. of Farmer	No. of Chicks given/ farmer	Mortality rate (%)	Average live chicks (Productive Unit Size)	Average Weight of Chicks (gm)					Average egg lays/ chicks (9 months)	Average egg lays/ Unit (9 months	Weight of Egg (gms)
					After 2 week	After 7 week	After 12 week	After 15 week	After 20 week			
T_1	05	-	50	12	150	1030	1225	1570	1723	70	840	75-79
T_2	05	20	37	12	90	854	1045	1325	1506	205	2023	45-58

Production cost/ Unit (Rs)	Gross Returns (Rs)	Net Returns(Rs)	BCR
6426	8400	1974	1.30
6426	10115	3689	1.59

Assessment of safe drug for control of internal parasites and timely colostrum feeding

The rate of pre-natal mortality of calves is very high due to improper feeding of colostrums preferably after drop of placenta and heavy infestation of endo-parasites. An OFT for the said purpose was devised by KVK, Fatehpur. The results revealed that Timely feeding of colostrums ad-lib with in two hours of calving and proper deworming at interval of 30 days is a profitable practice as it helps to control internal parasites and feeding of colostrum and milk to calves helps to develop immunity, resulting in better growth.

Technology Option	Result
T_1 : Farmers practice (No proper feeding of colostrum and untimely deworming)	Poor health of calves-less body weight 18-20 kg, high mortality rate due to heavy parasitic infestation
T_2: Feeding colostrum within two hours of calving, feeding milk up to 90 days and deworming as per schedule Ist deworming at 8-10 days bandy kind syp. 2nd deworming after 30 days valbazen one tab . 3rd deworming after 60 days Fenbendazole one tab. 4th deworming after 90 days Panacur/Distodin.	Good health proper body weight 20.0 kg- 25.0 kg, Proper growth of calves, no mortality till 6 month age.

Effect of dewormer and proper feeding of colostrums in goat

KVK, Hamirpur in U.P. conducted a on- farm- trial on presence of worms load in goats. application of menthi seeds improves worm infection only up to 20 % while use of oxyclozadine salt improved 80% & use of morantel citrated up to 70% . both salt also improved the body growth and reduced kid mortality.

Technology Option	No. of Trials	Worms Presence after Trial	% Change in Parameter
T_1 : Feeding of menthe Seeds @ 50gram/goat.	4	80 % Infected	20%
T_2 : Feeding of Oxyclozadine tab. @ 200 Mg./ 13 kg Body wt.		20 % Infected	80%
T_3 Feeding of Morantel Citrate Tab @ 119 Mg./ 20 kg Body wt.		30 % Infected	70%

Production & Management

Management of infertility in crossbreed heifers

KVK Hamirpur conducted OFT on Management of infertility in crossbreed heifers. From the above study on management practice for removing the infertility in crossbreed heifers, it was revealed that application of 1.5kg balance cattle feed/day/heifers+60gm mineral mixture+deworming intervals was found quite effective in Management of infertility in crossbreed heifers

Technology Option	No. of trails	Parameter recorded			Cost of Treat. (Rs)	Gross Cost (Rs)	Gross Return (Rs)	Net Return (Rs)	B:C Ratio
		Percent of infertility	Body weight (kg)	Age of conceive (Month)					
T_1 : Feeding of 500gm concentrate/dy/heifers (Farmers Practice)	5	26	212	33	2230	22250	45750	23500	2.00
T_2 :1.5kg balance cattle feed/day/heifers+60gm mineral mixture +deworming intervals		0	234	22	7250	72230	68700	41400	2.58

Effect of deworming and mineral mixture and cleaning of udder with potassium permagnet on milk production

KVK Ghazipur conducted on farm trial to find out suitable technique to increase milk yield and control measure of mastitis in cattle (crossbreed) at present recommended practice could not increase milk yield and control mastitis up to desired level.

Technology option	No of trials	Occurrence of heat after parturitation (days)	Conception after parturitation (days)	Mastitis control (%)	Milk yield lit/day/animal	Addl. milk yield in lit.
T_1 : Without use of mineral mixture and dewormer	05	180	210	-	5.3	-
T_2 : Use of mineral mixture & dewormer		85	85	-	6.18	0.88
T_3: Cleaning of udder with KMnO4		-	-	70	-	-

On Farm Trials

OFT on resource conservation in maize: Kannauj

OFT on Paddy: Sultanpur

OFT on wheat: Raebareli

OFT on IPM in brinjal: Siddarthnagar

Wheat var. DBW-17, HD 2967 : Varanasi

OFT on Tomato: auraiya

Back yard poultry farming (Broiler) for maximum income during hot humid condition

KVK, Kaushambi, U.P., conducted trial to find out suitable control measure for coocidiosis disease in broiler birds under hot humid condition. As the recommended practice anticoccidial drug Powder Supercox @30 gm /25 lit of water used for 24 hours for 3 days after regular 7 day interval to reduce the disease condition. The technology recommended was fine tuned by used application of lime powder dusting control of coccidiosis disease. One thing also farmer does not know about FCR, means farmers completed in 37 -45 days and got avg. body wt. 1.5kg after consuming 2.4kg feed/ broiler. While T2condition farmer completed in 40-45 days and got 1.7kg after consumed 2.2kg/bird. In Aug. –Sept 2016, when the THI (temp. 33.92° C, 35.62°C and humidity 93.2%, 69.41% -max. And min, respectively) were more than 75% caused stress and moist condition suitable for bacterial condition- increased mortality. Thus the trial for more yield broiler production under hot humid condition shown good impact on its farming. Also avg. Bwt increase and decrease FCR, mortality % and disease condition.

Technology Assessed	Technology	Parameters Recorded	Gross Cost (Rs.)	Gross Return (Rs.)	Net Return (Rs.)	B:C ratio
T_1 : Farmers Practices	No use any specific drug	Avg. BWt.-1.5kg FCR-2.4 Diseased %-38 Harvested birds- 31@ Rs. 96/ kg	3920	4964	1044	1.2
T_2 : Demo	Anti coccidian drug powder Supercox @ 30gm/ 25 lit water and used for 24 hours for 3 days after 7 days regular interval	Avg. BWt.- 1.7 kg FCR-2.2 Diseased %-4 Harvested birds- 48@ Rs. 96/kg	4440	8333	3893	2.0

Effect of dual purpose breed and feed supplements on productivity and mortality in backyard poultry

KVK-II, Sitapur conducted on-farm trial to assess the measures for control of mortality and enhancing high productivity in backyard poultry farming through dual purpose breed and feed supplements. In compare to farmers practice (Rs 6294), net return in recommended practice is Rs 10371 per year.

Technology Option	No. of trials	Body weight/ 20 week (kg)	Disease incidence (%)	Gross Cost (Rs.)	Gross Return (Rs.)	Net Return (Rs.)	B:C Ratio
T_1 : Local breeds and no use of supplementary feed	10	1.5	30%	3076	9170	6294	2.98
T_2 :Use of dual purpose breed (Aseel 20 chicks) and supplementary feed, 30 gm/bird/day		1.95	5%	4539	14910	10371	3.28

Performance of Back Yard Poultry Farming in traditional system of farming.

KVK Ambedkar Nagar conducted on farm trial to assess the performance of Back Yard Poultry Farming in traditional system of farming.. In back yard poultry farming system Croiler Poultry birds gain better body weight with locally available feed ingredients prepared feed. Croiler Poultry birds gain better body weight with locally available feed ingredients prepared feed with fewer incidences of infectious diseases and give more profit than broiler poultry birds.

Technology Option	No. of trials/ Farmers	Av. Body weight gain in 45 days (kg)	Diseases incidence (%)	Feed cost/ weight gain ratio per kg	Gross cost (Feed + medicine)/ bird	Gross Return/ Bird (Rs.)	B:C Ratio
T_1 : Rear Broiler on well managed housing system, required hygienic condition along with costly industrial made feed.	2 (80 Croiler poultry birds/ farmer)	1.98	Incidence of gombhoro Coccidiosis diseases	Rs. 78/Kg.	Rs.154.44	287.1	1.87
T_2 : Rear Croiler Back Yard Poultry Farming System with locally available feed ingredients prepared feed- by wheat grain, yellow maize, Rice bran, till cake, fishmeal Calcium grit etc.		2.27	Coccidiosis in very less extent	Rs.71/Kg.	Rs.167.50	447.19	2.678

(4) EXTENSION PROGRAMMES

A large number of extension activities were organized by KVKs of Uttar Pradesh. The major activities like advisory service (11799), diagnostic visits (6051), field days (625), group discussions (523), kisan gosthies (1348.), film shows (390), self help groups (220), kisan mela (347), exhibitions (247), scientist visit (10804), plant/animal health camps (90), farm science clubs (136), ex-trainees meet (120), farmers' seminars (68), method demonstrations (526), celebrations of important days (181), special days celebration (114.), exposure visits (6462) and other activities. (2721) with the participation of 875934 farmers and 24567 extension personnel were performed. 41520 Number of other extension activities viz use of electronic media, extension literature, newspaper coverage, popular articles, animal health camp, radio & TV talks were performed by KVKs. Kisan Mobile advisory services were given by KVKs with 1411527 SMSs to 2466511 farmers. Voice messages (16013) were delivered to all registered farmers. By sending text and voice messages by mobile has enabled the KVKs to reach the unreached farmers in distant and remotely located areas.

Table 4.1: Extension activities conducted in KVKs of Uttar Pradesh

Activities	No. of programmes	No. of farmers	No. of Extn. Personnel	Total
Advisory Services	11799	183199	1554	184753
Diagnostic visits	6051	26656	1152	27808
Field Day	625	23479	2323	25802
Group discussions	523	10889	619	11508
Kisan Ghosthi	1348	146836	3591	150427
Film Show	390	12852	389	13241
Self -help groups	220	5415	227	5642
Kisan Mela	347	178754	5372	184126
Exhibition	247	118036	3225	121261
Scientists' visit to farmers field	10804	69122	1349	70471
Plant/animal health camps	90	5429	239	5668
Farm Science Club	136	2523	122	2645
Ex-trainees Sammelan	120	3830	159	3989
Farmers' seminar/workshop	68	5555	440	5995
Method Demonstrations	526	6086	324	6410
Celebration of important days	181	16109	791	16900
Special day celebration	114	9835	727	10562
Exposure visits	134	6228	234	6462
Others	2721	45101	1730	46831
Total	**36444**	**875934**	**24567**	**900501**

Table 4.2: Other extension activities conducted in KVKs of Uttar Pradesh

Activities	Number	No. of KVKs
Electronic Media (CD./DVD)	96	19
Extension Literature	28850	42
News paper coverage	3771	61
Popular articles	1627	49
Radio Talks	2592	40
TV Talks	402	43
Animal health amps (Animals Treated	3729	44
Others	453	39
Total	**41520**	**--**

Table 4.3: Mobile Advisory Services

No. of Calls (Voice)	No. of Messages (Text)	No. of farmers Covered	Type of messages					
			Crop	Livestock	Weather	Marketing	Awar-Eness	Other Enterprise
16013	1411527	2466511	9751	933	688	2295	4518	22126

4.4 Other extension programmes

4.4.1 Soil/Water/Plant/Manure samples analysis

In all, 69370 samples of soils, water plant, manures and others were analyzed by 63 KVKs. Total 69370 samples were collected from 937 villages and 75096 farmers in Uttar Pradesh.

4.4.2 Scientific Advisory Committee Meetings (SACs)

Scientific Advisory Committee meetings were organized by 33 KVKs in U.P. It is one of the important platform to obtain the suggestions from different stakeholders towards designing realistic action plan of KVKs. Participatory planning is the main feature of KVK system for enhancing crop production and productivity towards fulfilling the needs of the farmers.

4.4.3 Technology week celebrations

In Uttar Pradesh, 1129 activities were organized by KVKs by benefiting 66870 farmers & distribution of 234.00 q seeds, bio-fertilizers and bio-products 659.00 q to 627 farmers. In the technology week, various types of activities were organized viz., gosthies (207), lectures (441), exhibition (40), film show (100), Fair (22), farm visits (194), diagnostic practicals (125), distribution of literature (10112), distribution of planting materials (54153), distribution of fingerlings, distribution of livestock specimen (12).

4.4.4 Newsletters

In Uttar Pradesh, 20 KVKs published newsletters and developed 40 issues for distribution to the farmers, other stakeholders and institutions. ICAR-ATARI, Kanpur has also published three volumes of Newsletters during the period under report.

4.4.5 Publications

In total 235 research papers 3041 technical bulletins, 104 technical reports and 264 other publications were developed in Uttar Pradesh.

4.5.6 HRD activities organized by Directorate of Extension and ZPD, Zone-IV

Eight training programmes were organized by CSAUAT, Kanpur, SVPUAT, Meerut each, in which 13 and 18. KVK experts were participated respectively. Such programmes were organized at the University level to provide technological backstopping in frontier areas of the technologies. Similarly, ICAR-ATARI, Kanpur organized 25 training programmes and 33 workshop/meetings at zonal level. All 81 KVKs have benefitted by these programmes. KVKs may take technological support from ICAR research institutes for experimenting new technologies at field level.

4.6.7 Rain water harvesting & micro irrigation system

In total, 19 trainings and 13 demonstrations were conducted 6547 farmers and 208 officials visited the system under the zone in context to rain water harvesting and micro irrigation system.

Extension Activities

Kharif gosthi at collectrate: Kannauj

Parthenium removal week: Bareilly

Kisan mela at Gorakhpur: Gorakhpur-II

International women Day celebration: Unnao

Kisan Mela at Gonda

Kisan Mela : Sitapur II

Pradhanmantri Fasal Bima Yojna

Kisan Sammelan PMFBY: Etah

Kisan Sammelan PMFBY: Kannauj

Kisan Sammelan PMFBY: Sant Ravidas Nagar

Kisan Sammelan PMFBY: Gonda

Kisan Sammelan PMFBY: Bareilly

Kisan Sammelan PMFBY: Ghazipur

Jai Kisan Jai Vigyan Diwas

Kannauj

Bareilly

lalitpur

Etah

Azamgarh

Basti

Gonda

Sitapur II

Soil Health Day

Kannauj

Etah

Mirzapur

Bareilly

Ambedkarnagar

Azamgarh

Soil Health Day

Chandauli

Faizabad

Gorakhpur

Gonda

Sultanpur

Field day

Field day on wheat: Hardoi

Field day on sesamum: Lalitpur

Field day on mustard: Etah

Field day on chickpea var. GNG 1581: Unnao

Field day on sesamum: Pratapgarh

Field day on Paddy: Sitapur II

Swachha Bahrat Mission

Hardoi

Kannauj

Sitapur-I

Kaushambi

Bageshwar

Bareilly

Baghpat

Sultanpur

(5) SEED & PLANTING MATERIAL PRODUCTION

5.1 Seed Production

Seed production is one of the important activity of KVKs. They undertake quality seed production which may play a greater role in enhancing production and productivity of different crops. During the year 2016-17, KVKs of Uttar Pradesh produced 12171.89 q seed including cereals (10768.41 q), oilseeds (413.13 q), pulses (585.94 q), vegetables (5.21 q), commercial crops (353.63 q), spices (11.02 q) and fodder (34.55 q).

Table 5.1: Physical achievement of seed production (U.P.)

Enterprise	Quantity (q)	Value (Rs. in lakh)
Cereals	10768.41	163.57
Oilseeds	413.13	17.82
Pulses	585.94	42.45
Vegetables	5.21	0.74
Commercial	353.63	1.01
Spices	11.02	0.83
Fodder	34.55	2.88
Total	**12171.89**	**229.31**

5.1.1 Cereals

The seed (q) of important cereal crops produced paddy (4532.65), wheat (6112.19), barley (42.14), bajra (35.35), etc. Important varieties of paddy in seed production programme included PS-1121, Pusa Sungandha-3, 5, Danteshwari, Kaveri, NDR-359, BPT 5204, Pusa 1509, 1121, NDR-3112, 8501, CSR-30, 36, 43, NDR-2008, Sarwana Subwan, , MTU 7029, Jalmagan, Kala Namak, , PS-6, 2511, PNR-519, Pant-12, P-834, S-4, 1460, VL Dhan 154, Sarju 52, Improved Basmati-1, etc. The important wheat varieties included PBW 343, 502, 550, 590,621, DBW-14, DBW-17, PBW-527, PBW-154,, PBW-596, NW1014, Malviya-234, K-307, 7903, 9423, 9107, KRL-210, HD-2687,2643, 2733, 2851, 2932,2967, 2985, 4717, GW-366, WH-147, VL-738, Naina, GW-273, DBW-39, etc. The other crop varieties included Maize- Vivek 35, Sankul Makka, VL Ambar popcorn; Bajra- JB-1; Oat- Kent, VL Chua-44; Finger Millet- VL Mandua-315. The detailed crop wise data is given in table 3.1.

Table 5.1.1: Seed production of cereal crops (U.P.)

Enterprise	Quantity (q)	Value (Rs. in lakh)
Wheat	6112.19	100.50
Paddy	4532.65	61.72
Maize	16.00	0.18
Jower	20.00	0.00
Bajra	35.35	0.46
Barley	42.14	0.69
Others	10.08	0.03
Total	**10768.41**	**163.58**

5.1.2 Oilseeds

The KVKs of the zone produced seed 413.13 of oilseeds. The important oilseed crops like Sesame (41.67), mustard (363.95 q), linseed (1.53 q), and toria (5.81 q) were taken up under seed production programme. The important varieties of mustard selected for seed production were Tata MU-441, Proagro-5222,Pusa Sarso-27, CS-56, NDR-8501, Urvashi, Pusa Mahak , NRCDRM-2, Dhanya-555, Pusa Mustard-26, M28, PYS1, etc; Toria- PT-303, etc; Til- TKG-306, Shekhar, Tarun, etc; linseed- Shekhar; Ground nut VLGN-1; Soyebean PS 1092.

Table 5.1.2: Seed production of oilseed crops (U.P.)

Oilseeds	Quantity (q)	Value (Rs. in lakh)
Mustard	363.95	12.46
Toria	5.81	0.59
Linseed	1.53	0.14
Sesame	41.67	4.63
Others	0.17	0.00
Total	**413.13**	**17.82**

5.1.3 Pulses

The total quantity of pulses seed production was 585.94 q. The seed production programme on pulses were taken up on chick pea (KGD-1168,KWR-108, DCP-92-3, Uday,Avrodhi, BG-1053, P.-1103, RSG-888, Pusa 663, Pusa 1108, PG 186), pigeon pea (N.A-1, Sampada, VL Arhar 1), field pea (KPMR-400, KPMR-522, Kashi Udai), lentil (DPL-62, Narendra Masoor-1, VL Masoor 103, 125, 133, PL-8), urd bean (Shekhar-1,2, Azad-1, Azad-3, PU-31,35), mungbean (IPM-02-03, PDM-139, Samrat, Pant Moong 5), Cowpea (Pant lobia 1) and Soybean (VL soya 65, VLS 47, VLS 63). Details are given in Table 3.3.

Table 5.1.3: Seed production of pulse crops (U.P.)

Pulses	Quantity (q)	Value (Rs. in lakh)
Pigeon pea	98.11	6.46
Lentil	140.64	12.75
Moongbean	3.63	0.49
Field pea	88.61	5.56
Chick pea	153.01	15.63
Urdbean	101.21	1.49
Rajmash	0.73	0.07
Total	**585.94**	**42.45**

5.1.4 Vegetables

The KVKs produced 5.21q of seeds of vegetables. KVKs tried to help the farmers by producing seeds of important varieties of different vegetables. The important crops were viz. vegetable pea (AP-1, Kashi Udai, K.Nandini, Vivek Matar 10, 11, G-10, Arkel, VLM 42 Azad Pea-3), okra (VL Bhindi 2), tomato (NDS 585 US-618 ,NDT-3,120), brinjal (Type 3, Sungrow Brin-143), Cauliflower (Pusa Safed), chilli (S-78, Azad chilli), Cabbage (Golden Acre, NHCB-505, Pusa Mukta), veg.rai (Badsahi), radish (Dunagiri), cucumber (Barsati, Saira), bottle guard (Kashi Bahar, Manjari), bitter guard (Chaman) and pumpkin (Arka chandan).

Table 5.1.4: Seed production of vegetable crops (U.P.)

Vegetables	Quantity (q)	Value (Rs. in lakh)
Vegetable Pea	3.79	0.42
Okra	0.4	0.08
French bean	0.345	0.01
Onion	0.21	0.04
Chilli	0.465	0.19
Total	**5.21**	**0.74**

5.1.5 Spices

The total quantity of spices seeds produced was 11.02. The seeds of different spices were produced viz. turmeric (Megha-1, Swarna, Pant Pitabh), garlic (Agrifound Parwati), coriander (Pant Dhaniya-1) and ginger (Rio-de-janeiro). The detail spice wise data is given in table.

Table 5.1.5: Seed production of spices crops (U.P.)

Spices	Quantity (q)	Value (Rs. in lakh)
Turmeric	8.79	0.20
Coriander	1.23	0.24
Garlic	1.00	0.40
Total	**11.02**	**0.84**

5.1.6 Fodder and Fibre crops

The seed of fodder and fibre crops to the tune of 34.55 q was produced. In the Uttar Padesh Jowar, Barseem, Dhaincha, and other fodder crops produced seed of 7.9, 0.64, 8.5, and 17.51 q respectively.

Table 5.1.6: Seed production of fodder & fibre crops (U.P.)

Fodder & Fibre crops	Quantity (q)	Value (Rs. in lakh)
Jower	7.90	2.18
Berseem	0.64	0.08
Dhaincha	8.50	0.34
Other	17.51	0.28
Total	**34.55**	**2.88**

5.1.7 Commercial crops

Mainly two commercial crops potato and sugarcane were taken by KVKs of Uttar Pradesh. The seed production of potato (331.79 q) and sugarcane (21.84q) was recorded. The important varieties i.e. Kufri Surya, Kufri Sutlaj, K- Anand, K-Pukhraj , K-Kanchan, K- Sinduri of potato selected for seed production and sugarcane varieties were COSE-1434, COSE-5125, COSE-5451, COSE-96436, CoS-7250, CoPant-99214, 97222.

Table 5.1.7: Seed production of commercial crops (U.P.)

Commercial	Quantity (q)	Value (Rs. in lakh)
Potato	331.79	0.68
Sugarcane	21.84	0.33
Total	**353.63**	**1.01**

5.2. Planting Material Production

The planting material/sapling production of vegetables, fruits, ornamentals, forestry, medicinal & other plants developed by KVKs. During this year KVKs produced planting materials including vegetable seedlings (1753225), fruit saplings (43651) & ornamental (133113), forestry (16522), medicinal & aromatic plants (3850), etc.

Table 5.2: Physical achievement of planting material production (U.P.)

Enterprise	Quantity (No.)	Value (Rs. in lakh)
Vegetable	1753225	4.03
Fruits	43651	3.75
Ornamental	133113	1.32
Medicinal & Aromatic	3850	0.05
Forestry/plantation	16522	0.75
Fodder	172910	1.18
Total	**2123271**	**11.08**

5.2.1 Production of vegetables seedlings

KVKs produced large number of vegetable seedlings (1753225) of brinjal, chilli, tomato, cabbage, cauliflower, broccoli, capsicum, onion, cucumber and summer squash etc. Quality seedlings made available to the farmers for enhancing their profitability and livelihood. The detail of vegetable crops with quantity of seedlings produced are given in table.

Table 5.2.1: Produciton of vegetables seedlings in (U.P.)

Vegetable seedlings	Quantity (No.)	Value (Rs. in lakh)
Brinjal	182154	0.62
Chilli	246429	0.77
Tomato	341552	0.87
Cabbage	39750	0.16
Cauliflower	110210	0.36
Broccoli	3740	0.02
Capsicum	400	0.00
Onion	820665	1.11
Cucumber	1245	0.01
Bottle gourd	5552	0.05
Bitter gourd	938	0.03
Sponge gourd	450	0.00
Pumpkin	130	0.00
Mushroom	10	0.02
Total	**1753225**	**4.02**

5.2.2 Production of Fruit Saplings

The total fruit saplings were 43651 produced by the KVKs of Uttar Prades. Different fruit varieties have taken for different crops i.e. mango (Dashehari,Chausa ,Amrapali ,Chausa, Dashari, Lagada, Ramkela); aonla (Kanchan, NA-6,7,10, Chakaiya); guava (L-49, Lalit , Sweta, Allahabad Safeda); lemon (Kagzhi Lime,); papaya (Honey Dew, Pusa Delicious, Rachi Dwarf, Red lady, Koorg honey dew , Pusananha, Madhu, Arka Prabhat); bael (CISH B-1,2, Etava Kagji, NB-5, NB-7); pomegranate (Dholka); jackfruit (Seeded); The detail of fruit saplings produced is given in table.

Table 5.2.2: Produciton of fruit seedlings in (U.P.)

Fruit seedlings	Quantity (No.)	Value (Rs. in lakh)
Aonla	2947	0.46
Litchi	339	0.14
Mango	6121	0.51
Papaya	17917	1.18
Guava	4187	0.87
Jack fruit	27	0.01
Beal	1234	0.10
Citrus	650	0.05
Lemon	1133	0.19
Mausammi	8	0.00
Karonda	1628	0.16
Pomegranate	83	0.00
Custard apple	12	0.00
Jamun	3000	0.06
Peach	100	0.00
Others	4265	0.02
Total	**43651**	**3.75**

5.2.3 Production of ornamental, forestry medicinal & other plant saplings

KVKs of this zone produced 2123271 forestry, ornamental, medicinal and aromatic plants. Forestry saplings included Shisham (Deshi), teak (local), poplar (G-48, Uday, S7C8), neem (Deshi), eucalyptus (local), Cajurina, etc. Ornamental plants such as rose (Kalkatia, Desi), marigold (Puas Narangi, Pusa Basanti, Indian Chief), calendula, crotan, poppy, sweet william, etc. This zone also produced lemon grass(Pragati , Chiharit. The details are given in table.

Table 5.2.3: Produciton of ornamental, forestry medicinal & other plant saplings in (U.P.)

Seedlings of ornamental/forestry etc	Quantity (No.)	Value (Rs. in lakh)
Ornamental		
Marigold	47388	0.09
Chrysanthmum	3825	0.03
Rose	30800	0.94
Gudhal	136	0.01
Crotan	119	0.02
Calandula	14218	0.03
Vervina	2200	0.00
Baugain villia	263	0.03
Durenta Golden	583	0.02
Harshingar	57	0.00
Glardia	2508	0.00
Ficus benajamina	2	0.00
Red erration	16	0.00
Poppy	4700	0.01
Other ornamental	10056	0.03
Ashok	310	0.01
Others	15932	0.09
Total	**133113**	**1.32**
Fodder		
Napier	167910	1.18
Para	5000	0.00
Total	**172910**	**1.18**

Seedlings of ornamental/forestry etc	Quantity (No.)	Value (Rs. in lakh)
Medicinal & Aromatic		
Lemon Grass	900	0.01
Aswagandha	24	0.00
Satawar	1500	0.03
Mahogani	0	0.00
Turmeric	500	0.00
Others	926	0.01
Total	**3850**	**0.05**
Forestry/plantation		
Poplar	1400	0.00
Arjun	110	0.00
Neem	359	0.02
Teak	1000	0.10
Eucalyptus	6857	0.03
Saguan	6486	0.57
Seasum	150	0.00
Cajurina	80	0.00
Other forestry	80	0.02
Total	**16522**	**0.75**
Grand Total	**2123271**	**11.08**

5.2.4 Production of Bio-Products

The KVKs of Uttar Pradesh produced 139922.8 kg of bio-products. It included vermi compost (110595.80 kg), NADEP compost (27150.00 kg). Besides, KVKs also produced 936.00 kg bio pesticides. The details are given in table.

Table 5.2.4: Production of bio-products in U.P.

Bio-product	Quantity (Kg)	Value (Rs. in lakh)
Vermicompost	110595.8	2.02
Nadep compos	27150	0.18
Other	160	0.18
Total	**137905.8**	2.39
Beauveriabassiana	253	0.33
Metarrhizium anisoplae	23	0.03
Botanicals	660	0.86
Total	**936**	1.22

Bio-product	Quantity (Kg)	Value (Rs. in lakh)
Trichoderma harzianum	50	0.00
Total	**50**	**0.00**
Honey	130	0.02
Vermiculture	5	0.02
Worms	486	1.47
Verms	410	0.04
Total	**1031**	**1.54**
Grand Total	**139922.8**	**5.15**

5.2.5 Livestock & Fingerling Production

KVKs of Uttar Pradesh also produced 347 goat kids (Barbari), 2621 Broiler, 26 piglets (Large White Yorkshire), fingerlings (1079000). The amount of Rs 11.38 lakh was collected from the produce. The details are given in table.

Table 5.2.5: Production of livestock & fingerlings (U.P.)

Livestock	Number	Value (Rs. in lakh)
Cows	88	0.89
Buffaloes	8	0.00
Calves	17	0.60
Goat	347	2.31
Others	6	0.24
Total	**466**	**4.04**
Broilers	2621	2.98
Duals (broiler & layer)	20	0.02
Others	480	0.72
Total	**3121**	**3.72**
Piglets	26	0.78
Total	**26**	**0.78**
Indian carp	1079000	1.02
Exotic carp	303	0.19
Others	1604	0.12
Total	**1080907**	**1.33**
Grand Total	**1082580**	**11.38**

(6) CASE STUDIES AND SUCCESS STORIES

6.1 Village adopted for survey of technology: Bijnor

Situation analysis/ Problem statements:- Technology (Variety) HD-3059 is developed by the IARI New Delhi and released during 2013. It has medium dwarf plant stature (Plant Height 93 cm) , 121 days seed to seed maturity. Quality wise it has displayed thermo- tolerance as reflected by minimum yield loss under very late sown condition.It has high protein content, high sedimentation value and good bread, biscuit and chapatti making qualities.

Plan, Implement and Support:- The area under wheat is about 118,000 ha in district Bijnor, out of that about 70,000 ha area is under late sown condition due to Sugarcane – Wheat cropping system. Commonly grown late sown wheat varieties are PBW-226, DBW -16, PBW-373, and PBW-590. VarietyHD-3059 was introduced and demonstrated by KVK Bijnor during Rabi 2014-15 at 05 farmer's field through OFT and 25 farmers field during 2015-16 through FLD.

Output:- The average yield at Farmers field was 45.30qt per ha (50.00 qt. maximum yield per ha.) with cost of cultivation of Rs. 39272.00per ha. The average net profit per ha was recorded Rs. 54635.50 per ha. Due to medium-dwarf nature the

lodging in HD-3059 is less (0-4% in comparison to DBW-16 (18-25%). Maturing with 141-149 day crop duration, bold grained variety that possesses high degree of resistant against yellow rust and leaf blight (Yellow rust and blight incidence in HD-3059 is 0-5%, while it is about 15-22% in DBW-16).

Outcome:- This technology may be capable for increasing seed replacement ratio in district with extra net return. Due to higher demand of seeds of this variety emerged an entrepreneurship programme of seed production at farmer's field for better income.

Impact:- The area under this variety has now spread to more than 5500 ha in just three year and successfully 100% area of PBW-373 was replaced in district by this variety. Farmers are all satisfied with the yield of this variety and also claim that it is free from most of the disease. This variety increased seed replacement rate about 20 to 30 % in operational area of KVK and also emerged entrepreneurs of seed production of this variety.The successful farmer is Sri Jabar Singh Village – Mandewala, Block – Kotwali.

6.2 Wheat Variety DBW-88 for more profit

Situation analysis/ Problem statements:- Technology (Variety) DBW-88 is developed by the IIWR, Karnal and released during 2014. It has medium dwarf plant stature (Plant Height 97 cm) , 143 days seed to seed maturity. Quality wise it has displayed elasticity for sowing time thereby suitable for varying planting dates. It has higher protein content, resistant to yellow and brown rust.

Plan, Implement and Support:- The area under wheat is about 118,000 ha in district Bijnor, out of that about 50,000 ha area is under timely sown condition due to Rice – Wheat cropping system. Commonly grown timely sown wheat varieties are PBW-550, DBW -17, PBW-621, HD-2967 and HD-2851. Variety DBW-88 was introduced and demonstrated by KVK Bijnor during Rabi 2015-16 at 05 farmer's field through OFT and 10 farmers field during 2016-17 through FLD.

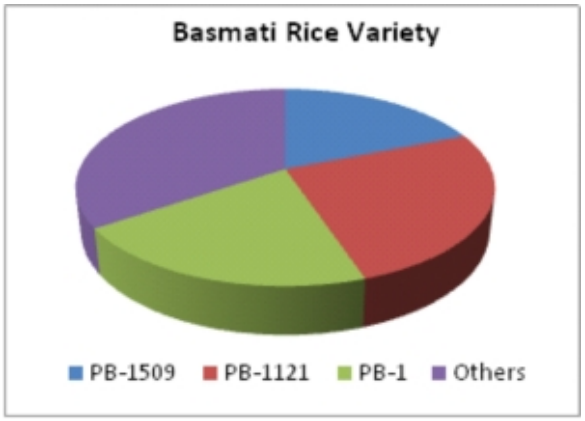
Output:- The average yield at Farmers field was 54.29qt per ha (62.75 qt. maximum yield per ha.) with cost of cultivation of Rs. 44680.00 per ha. The average net profit per ha was recorded Rs. 81898.50 per ha. Due to medium-dwarf nature the lodging in DBW-88 is less (0-3% in comparison to PBW-550 (7-10%). Maturing with 144-150 day crop duration, bold grained variety that possesses high degree of resistant against yellow and brown rust (Yellow and brown rust incidence in DBW-88 is none while it is about 9-14% in PBW-550).

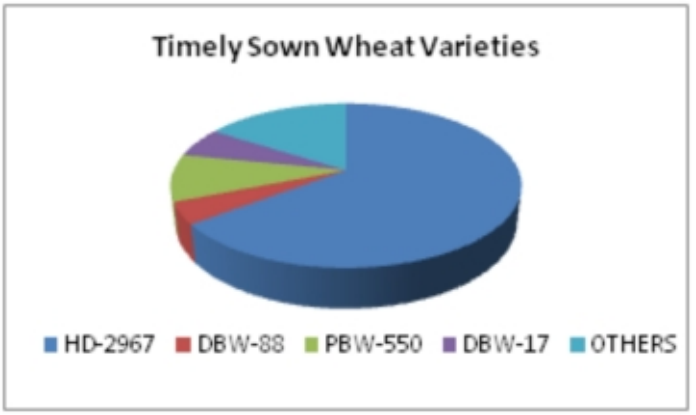
Outcome:- This technology may be capable for increasing seed replacement ratio in district with extra net return. Due to higher demand of seeds of this variety emerged an entrepreneurship programme of seed production at farmer's field for better income.

Impact:- The area under this variety has now spread to more than 2550 ha in just two year.Farmers are all satisfied with the yield of this variety and also claim that it is free from most of the disease. This variety increased seed replacement rate about 15 to 25 % in operational area of KVK and also emerged entrepreneurs of seed production of this variety.The successful farmer is Sri Dharmendra Kumar Village – Pawati, Block – Haldaur.

Impact of evaluated, demonstrated and introduced technologies in district

Technology	Yield (qt/ha)	Net Return (Rs/ha)	Additional Net return (Rs./ha)	Area (ha.)
Basmati Rice				
PB-1509	54.01	101915.00	48010.00	5500
Wheat				
HD-2967	54.25	73356.00	24344.00	28500
HD-3059	46.20	63100.00	25820.00	5500
DBW-71	38.60	48870.00	11590.00	2000
DBW-88	49.16	54059.00	6359.00	2550
DBW-90	45.10	50437.50	15277.50	3200





6.3 Doubling the farmers income through introduction of high yielding sugarcane variety Co-0238: Saharanpur

Situation analysis/ Problem statements:- District Saharanpur covered sugarcane area about 79634.00 ha. Farmers are growing sugarcane varieties CoSa 767, CoSa 8436, Coj-64 etc. Cosa 8432 variety is susceptible to diseases and Cosa 8436, Coj-64 are low yielding varieties. So that yield, income of crop is effected by this practices. To over come these problems KVK Saharanpur in 2014 introduce newly released sugarcane variety Co-0238. Considering the better possibilities of Sugarcane production in suitable conditions by providing sufficient training to the farmers by Krishi Vigyan Kendra, Saharanpur (UP) and also generate double income to the farmers through this technology. KVK Initiated the Varietal demonstraton on sugarcane production from Bedvi village through Shri. Sudhir Kumar. His successful production and its net income motivate to others farmers.

Plan, Implement and Support:- KVK Saharanpur try to make them aware regarding scientific cultivation of sugarcane production through variety Co.0238 from 2014. KVK provided technical support(Trainings, Demonstrations & Exposure visits) to the farmers with coordination of Sugarcane deptt. also for spreading the technology among the farmers.

Output:- Saharanpur KVK introduced newly released sugarcane variety Co-0238. KVK conducted demonstrations in different villages from 2014 to 2016 and continuously focused through demonstrations, trainings & gosthies to popularization in the district Saharanpur. Resulting the area of Co-0238 variety increasing in the district and with in three years it covered 43006.00 ha out of 79634.00 ha of the total area of the sugarcane cultivation.

Outcome:- Co.0238 variety was released in 2008 and was demonstration started by KVK during 2014 at different farmers field. The average yield at farmers field was recorded 1375.00 q/ha with cost of cultivation of Rs. 151,960/-. The average gross profit per ha was recorded Rs. 4,12,500/- and the average net profit per ha. was recorded Rs. 260,540/-. The area under this variety has now spread to more than 43006 ha in just two years. The successful farmer is Sri. Sudhir Kumar Village – Bedvi, Block- Sarsawa, District - Saharanpur. Presently more than 71% farmers are growing this variety.

Impact:- The farmers of adjoining distt. Impressed by the successful Co.0238 variety sugarcane production in Saharanpur district, also willing to join this successful technology and now taking technical guidance and assistance from KVK (Plant Breeding). Around 32-40 % increasing rate of farmers are joining each year, and also joint awareness among sugar mill and line sugarcane deptt. Resulting the area of Co-0238 variety increasing in the district and with in three years it covered 43006.00 ha out of 79634.00 ha of the total area of the sugarcane cultivation.

The details of area expansion are given below:

S. No.	Year	Initial intervention			Horizontal spread		
		No. of villages	No. of farmers	Area (ha)	No. of villages	No. of farmers	Area (ha)
1.	2014 Sep-Oct sowing	01	25	10	-	-	-
2.	2015 Feb-March	12	300	187	25	315	178
3.	2015 late sown	23	932	740	77	7280	2143
4.	2015 Sep-Oct sowing	25	1230	953	152	7550	9050
5.	2016 Feb-March	45	2325	1540	450	28245	21078
6.	2016 late sown	87	5437	3204	557	49533	43006

KVK Scientist visit at farmer's field

Exposure visit at farmer's field

6.4 Entrepreneurship development in rural areas through White button Mushroom production.

Situation analysis/ Problem statements:- During the period of September to March month having temperature between 10°c to 25°c and humidity 70% to 90% in Saharanpur district. Considering the better possibilities of White Button mushroom production in suitable conditions by providing sufficient training to the farmers by Krishi Vigyan Kendra, Saharanpur (UP) and also generate employment to the farmers through these Training Camps from 2008. KVK Initiated the White Button Mushroom production unit from Madnuki village through Shri. Harpal Singh and Sri Satyavir Singh. His successful production and its net income motivates others too.

Plan, Implement and Support:- KVK Saharanpur try to make them aware regarding scientific cultivation of white button mushroom from 2008. KVK provided technical support on Preparation of huts for maintaining suitable temperature & humidity, compost preparation, spawning, casing, picking and other practices time to time.

Output:- During the year 2016-17, 91 farmers from different 21 villages motivated from Madnuki production growth and accepted these production techniques.White Button Mushroom produced 432175 kg from 92920 bags of compost and earned huge profit of 210.66 lakh by these farmers. Setup of 51 Mushroom production units , 3 Compost pasteurization tunnels (capacity of 20 Ton each) and 2 Air-conditioned chambers in Madnuki village. which is now popular name by Mushroom village MADNUKI of Saharanpur district. The Mushroom Utpadan Sangh is setup to provide proper market for these producers and also solve their queries through proper discussions. Their Medicinal and Nutritional benefits are promoting through print media, chopals and other means to attract more customers.

Outcome:- White Button Mushroom production generates youth employment in their own village and adopted this technique with agriculture as side production. Around 1500 persons are employed through these productions and lead better family annual income. Around 5 to 32 Quintals mushroom produced each day and enable the farmers to supply it nearby Districts and States also.

Impact:- The farmers of Western UP Impressed by the successful mushroom production in Saharanpur district, also willing to join this production unit and now taking technical guidance and assistance from KVK (Plant Protection dept.). Around 5-10 % increasing rate of farmers are joining each year, and also joint awareness among women are observed.

Year wise Production of white button Mushroom in Distt Saharanpur

Year	Village (N0)	Unit (No)	Bags (No)	Production (kg)	Total Income (Lac)	Cost of cultivation (lac)	Net revenue generated (Lac)	CB ratio
2011-12	6	23	18205	88690	88.69	26.60	62.09	3.3
2012-13	8	29	22250	110862	77.60	27.71	49.89	2.8
2013-14	9	65	57110	269952	175.46	62.09	113.37	2.8
2014-15	13	72	67050	319285	191.57	76.62	114.95	2.5
2015-16	16	80	92800	422175	204.66	99.75	104.90	2.0
2016-17	21	91	92920	432175	210.66	101.23	109.43	2.1

Sri M.P. Agarwal, IAS, Commissioner Saharanpur Division, SRE visited at mushroom production unit

6.5 A shift from low income to high income through Oil Seed -Groundnut ultivation: Shahjanpur

Situation analysis/ Problem statements:- Consumption of oil in human food is very important for growth and development of body and groundnut is richer source of oil and traditionally essential part of Indian food habit. Even the farmers of district Shahjahanpur were cultivated traditionally. The average yield of groundnut is very low due to various valid reasons.

Plan, Implement and Support:- To increase the area and productivity of oil seed - Groundnut cultivation the scientist of KVK motivated farmers for cultivating the crop in both seasons i.e. kharif and zaid. There are 50 farmers from 20 villages 05 blocks of Shahjahanpur district forwarded for groundnut in kharif season, While, 50 farmers cultivated Groundnut in Zaid Season under oilseed cluster demonstration with supervision of KVK scientists and provided them package of practices right from the seed treatment, nutritional management, weed management and irrigation method.

Output:- The farmers who followed wheat/paddy-sugarcane-ratoon in past and they were not able to procure even their input cost easily. Groundnut produced on an average 14.37 q/ha in demonstration plots while 6.97 q/ha in farmers practice. The yields were increase over farmers' practice 106.20 per cent. The yield gapes were recorded in groundnut 24.37 per cent in case of yield gap-I while, 51.50 per cent in case yield gap-II. Groundnut Crop was obtained more yield 66.3 per cent and 41.3 per cent at district level and state level, respectively.

Outcome:- The farmers got relatively higher net return in Groundnut i.e. Rs 50635/ha by adopting improved technology of Groundnut cultivation than the Rs. 13135 per ha by using traditional technology in past years and this is at near four time fold from local practice return. The Net Return was 285 per more recorded in case CFLD demonstration fields. The B:C ratio was recorded higher 2.78 in adopting practices than the local practice 1.52. On an average per capita consume 19 kg oil/year while, presently per capita availability is 8 kg so, that much oil production will be sufficient to ensober oil need of the human.

Impact:- Finally, it is concluded that the technology of cluster oil seed production technology highly impacted on yield, socio-economic status of the farmers of district Shahjahanpur. Farmers of the district will increase more area in kharif and Zaid oil seeds crops - Groundnut during next cropping season. It also recorded improvement in soil health and environment and increase the productivity of the land.

6.6 Enhancing household food security through kitchen gardening: Baghpat

Situation analysis/ Problem statements:- Adequate nutrition is very important during all the stage of life, as healthy life can not be sustained without adequate nourishment. Deficiency diseases caused by micro nutritive is one of the serious problem. Nutritional deficiency are most prevalent in rural areas where the habitual diet lacks variety and people can not afford to diversify their dies and unable to include fruit and vegetables in their diet. The sustainable solution to their problem lies in the improvement and diversification of household diet by growing kitchen gardening.

Plan, Implement and Support:- OFT (On Farm Trial titled enhancing household food security through nutritional kitchen garden with two treatment growing cucurbits and few green leafy vegetables as T1 (women farmer's practice) in addition to growing seasonal fruits and vegetables as T2,was conducted in five locations of district Baghpat was conducted by Home Science unit of KVK, Baghpat with an aim to get fruits and vegetables throughout the year as to combat or mitigate malnutrition.

Output:- Result revealed that the growing seasonal fruits and vegetables during rabi, Kharif and zaid provided fresh vegetables almost 315 days i.e. almost throughout the year as compare to the farmer practice i.e. for 128 days only. As far as production in concerned in T2, 405 kg vegetables and fruits were obtained in a year where as in T1 it was only 85 kg. The cost of expenditure in T2 was Rs. 2505 which was higher than the cost of T1 i.e. Rs. 1050. But interesting phenomena is that C:B ratio is again more noticeable and almost higher in T2 than T1. It is 1:2.28 in T1 where as 1:4.8 in T2 along with 406.25% increase in yield in T2 over farmer's practice. Apart from that improvement in general health and comparatively less incidence of diseases like common cold and anemia was reported with reduction of Rs. 1090 annually on family expense on fruits and vegetables.

Outcome Impact:- Total 84 number of families have been adopting kitchen gardening practices as recommended practice (T2) in 7 seven villages of district Baghpat. Thus, combating with malnutrition by bringing improvement in general health.

6.7 Increase of income by Chilly farming: Bulandshahar

Situation analysis/ Problem statements:- In district Bulandshahr there are majority of small and marginal farmers involved in Agriculture. It is really difficult to improve the falling socio- economic status of these farmers due to lack of resources required for farming. Diversification in agriculture is a big demand of today. Everybody who is involved in agriculture need to break the trend and step forward to raise the level of living.

Plan, Implement and Support:- Taking such points under consideration 4 years ago one such marginal farmer named Shri - Raj kumar s/o Sri- Amar Singh Vill – Baral , Bulandshahr village which falls under NCR region hence facilitated by good market, being one of the adopted village of KVK, Bulandshahr, started cultivation of green chilly in 2011 very small area (0.08 ha.). He contacted KVK scientists and attained trainings and demonstrations on chilly cultivation, like production technology, improved high yielding varieties, seed treatment, IPM practises and other such aspects.

Output:- In 2012 after regular visits of KVK Scientists he increased the area up to 0.20 ha and acquired yield of 120.8 quintals / ha with net profit of Rs 131955.00. Similarly, the next year 2016again expanded area up to 0.50 ha and flourished yield of 145.0q / ha with net profit of Rs 190000.00 . At present time his crop is still there in the field and the area is 0.50 ha.

The details of cultivation is given below:

Year	Area (ha)	Yield q/ha	Gross Income	Cost of cultivation	Net income
2011	0.08	102.5	169125	85630	83495
2012	0.20	120.8	223480	91525	131955
2013	0.40	132.6	264000	98500	165500
2014	0.50	135.8	278000	103350	174650
2015	0.50	140.0	294000	111550	182450
2016	0.50	145.0	305000	115000	190000

6.8 Increase of income by Bee Keeping: Mau

Situation analysis/Problem statements:- Sri Ashok Maura aged 38 year is one of the poor resource farmer. He lives with his 6 number of family. Previously he was practicing agricultural crop with goat farming. He could not able to manage feed and essential household commodities for his family. He lived in thatch house.

Plan, Implement and Support:- Sri Maurya came in contact with SMS (Plant Protection) during need based survey of the village for the purpose of conducting training programme for the practicing farmers in year 2009. It was found that the village covered by forest and vicinity farmers grown oilseed and vegetable crops. Due to small size of land holding, resource poor and ecological situation Sri Maurya was advised for adopting bee keeping to utilize very precious forest area and agricultural crops. Initially he refused to start beekeeping due to fear with rearing of honey bee. After continuous persuasion and training given to him on bee keeping he agreed to adopt this venture. Then a bee box with honey bee colonies given to him under FLD. After one year he satisfied and taken 20 bee box on finance with the help of KVK.

Output:- He earns Rs 3200.00 from each box/ year. Now he has 700 bee box. From this now he has able given good education to his children in spite of manages house hold commodities to his family. At present he has a brick house of two rooms.

Outcome:- After getting good return from bee keeping he added in farming system. These enterprises are not only the good source of good income but also generating the employment to the farmers.

Impact:- Sri Maurya is an example for other resource poor farmers in village. Many farmers are visited his bee keeping unit and start the bee keeping. Inspired from this venture all the villagers of his village engaged in bee keeping and always contracted to KVK' scientist about bee keeping.

6.9 Keeping the brown plant hopper at bay: Mau

Situation analysis/ Problem statements:- Mr. Maharaj Rai is an organic farmer living in village Thalaipur of Mau district, in state of Uttar Pradesh. His farm escaped unaffected while his neighbours' fields suffered total crop losses as a result of the attack of the brown plant hoppers (Nilaparvata lugens, or BPH) in 2012-13.

Plan, Implement and Support:- For several years, Mr. Rai has been interested in organic farming, with the assistance of KVK, Pilkhi, Mau, he tried following the System of Rice Intensification (SRI) method. He transplanted his seedlings (variety: HUR-105) in July, 2008, paying special attention to the spacing between them. He added 5 tons of farmyard manures to his one acre field, and 200kg of azolla after 15 days of transplantation. He also sprayed Amrit Jal, organic input traditionally used by the Mr. Rai from several year, prepared by fermenting of cow urine, sugarcane's juice, neem leaves and curds in earthen pot. These inputs proved their value by providing strength and greater resistance to the crop. This was clear after heavy rains and floods of first fort night, September 2008. in addition everyone in the village witnessed with curiosity and surprise how all adjacent fields became severely affected by the brown plant hopper, while they were hardly visible in the SRI plot.

Output:- Mr. Rai decided to document the difference between his and his neighbours' fields, receiving help of SMS plant Protection of KVK, Mau. The first observation referred to the spacing between seedlings: planted at 10X15 cm distance, there was no spacing between row and hills when the conventional crop reached its maximum tillering phase. Furthermore, the liberal application of urea favoured a lush vegetative growth. This not only encourage the incidence of brown plant hopper, but it also contributed to the crop's lodging after the heavy rains. Concerned with the attack of BPH, and following advice of a pesticides dealer, Mr Rai's neighbours sprayed a synthetic pyrethroid, to no avail.

Outcome:- There were no clear difference in the populations of the natural enemies of BPH and other pest recorded in the SRI plot and in the conventional farms. While the first one reported spider, myrid bugs, beetles and wasps, the conventional farms were devoid of natural enemies. The wider spacing adopted during transplantation (25 cmX20 cm) and the consequent free air movement between two hills and rows, even after the maximum tillering phase, together with the presence of natural enemies, helped the plant resist the invasion and multiplication of BPH. Furthermore, the use of organic inputs such as azolla and amrit jal clearly meant the plant could offer greater resistance.

Impact:- All village farmers were surprised to see the extraordinary tolerance of SRI rice plants, while the rice grown all around it succumbed to the pest. While the conventional could not harvest a single grain from their fields, the organic farmer, despite his field being flooded by the rains, harvested an equivalent of 30qt/ha. This made the farmers nearby clearly aware of the advantage of SRI and of organic farming when facing a severe pest incidence and unfavourable weather conditions. During the 2013-14 season, naturally more than 25 farmers decided to try a different approach.

6.10 Hybrid Tomato provided a new source of income: Siddharthnagar

Situation analysis/Problem statements:- Krishi Vigyan Kendra, Sohna Siddharthnagar is eastablished in 1992 under leond Tal Area Development Society in the Chairsmanship of Late Shri Bhanu Pratap Singh, Ex Governer of Karnataka State and Ex State minister of Agriculture. He initiated the scientists of KVK to grow hybrid vegetables like Tomato, Brinjal, Cauliflower and Cucerbities in nearby areas of KVK. At that time the hybrid vegetable seed not available in the district. He talked to Dr. Man Mohan Akhtavar, the chief of Indo American seed company Bangalore and he provided the hybrid seed of vegetable crops. In year 1994, the nursaries of hybrid vegetable were grown in KVK farm and distributed to the farmer under FLD programme. The programme were very successful at KVK farm and farmers field and farmers were fully convienced to the hybrid tomato cultivation.

Plan, Implement and Support:- In 1995, the KVK provided the seeds of hybrid tomato to the nearby 25 farmers for 10 ha land, and also trained them to cultivate the hybrid tomato successfully and time to time farmers field visited and technical advisory services provided them.

Output:- Hybrid tomato cultivation was started nearby kvk farmers by 10 ha lands and ets area gradually increases year wise in all 14 blocks of the district. KVK head quater is situated in Block Bhanwapur and in this Block highest area covered under hybrid tomato cultivation (about 150 ha) followed by Khuniyaon, Jogia and Uska block. The total area under hybrid tomato cultivation is about 550 ha in the district.

Outcome:- In the district about 1250 farmers grow hybrid vegetables and KVk scientist collected the following information from one farmers of each block which is shown in following table:

Sl. No.	Farmers name	Block	q/ha	Expenditure (Rs./ha)	Gross income (Rs/ha)	Net income (Rs./ha)
1.	Ram Das Maurya	Bhanawapur	610	116000	366000	250000
2.	Ram Kishor Chaudhary	Khuniyaon	540	108000	324000	216000
3.	Brijesh Bahadur Singh	Mithwal	525	107000	315000	208000
4.	Munna Singh	Itwa	450	950000	279000	189000
5.	Haider Alam	Bharhni	465	90000	279000	189000
6.	Ram chandra chaudhary	Shouhratgarh	580	105000	348000	243000
7.	Harish chandra Mishra	Naugarah	550	110000	330000	220000
8.	Atal Vihari	Bansi	570	112000	342000	230000
9.	Om Prakash Gupta	Domariganj	470	102000	282000	180000
10.	Sant Ram	Uska	520	110000	312000	202000
11.	Luxam Chaudhary	Birdpur	565	120000	229000	219000
12.	Sri ram Kesh	Jogia	540	112000	324000	212000
13.	Rajendra Pandey	Khesaraha	480	90000	288000	198000
14.	Shiv Sankar Pandey	Loten	475	95000	285000	190000
	Total		**524**	**1051420**	**314400**	**209428**

It is shown from above table that the average net income is Rs. 209428/ha. The maximum yield was recorded 610 Qtl./ha by Shri Ram Das Maurya with the net income Rs. 250000/ha followed by Ram Chandra Chaudhary e.i. 580 qtl./ha and Rs. 243000/ha. The lowest yield was found 450 qtl./ha with the net income Rs. 175000/ha.

Impact:- The hybrid tomato cultiver have been socially and economically sound. Now they mostly using bike, T.V. and having Pakka house. Their childran studying in good school and colleges. The farmers are realizing that the vegetable farming can be used to get more returns from unit area of land in comperision to cereals and other crops.

6.11 Candle making for Income Generation: Kannauj

Situation analysis/ Problem statements:- Smt. Pushpa Kushwaha living in Pachpukhra village of Jalalabad District-Kannauj came in contact of KVK in 2011 during a training programme and showed her interest to start small scale income generating activity to support livelihood of her family.

Plan, Implement and Support:- KVK scientist demonstrated candle making technology and also helped her in purchase of raw materials. Candle making mould was issued to her from Krishi Vigyan Kendra itself so that she can start her work with minimum investment. She started candle making in the month of October for sale in Deepawali.

Output:- In about one month of working for three hours a day she produced 480 large packets and 288 small packets of candle out of 60 Kg paraffin wax. She sold large packets of Rs 14,480 @Rs.30 and small packets Rs. 8,640 @Rs.30. In total she earned Rs. 23,040 out of investment of Rs.13, 736. This way she earned net profit of Rs9, 304 in one month.

Economoics of candle making

Material	Paraffin wax	Oil Color	Thread roll	Fuel	Labour	Packing	Total
Cost(Rs.)	4800	100	100	1200	6000	1536	13736

Packet Size	No. of candle /kg.	No. of candles /60 kg.	Packets prepared	Rate/packet (Rs.)	Income(Rs.)
Small(20 candles)	48	5760	288	30	8640
Large(6 Candles)	96	2880	480	30	14480
Total	144	8640	768	-	23040

Outcome:- From candle making she gained her own earning which raised her self-confidence and status of family in society. Since then every year in the month of September and October she prepares candle and sell it in market. She is now having her own bank account and save money for any emergency.

Impact:- After getting success in this work she is now planning to start some other seasonal activity for income in rest of the year. She has also been trained by KVK in Mushroom cultivation, Fabric bag making, Masala processing etc.


Rural women in candle making programme

6.12 Performance of lentil variety L-4594 under cluster FLD : Lakhimpur kheri

Situation analysis/ Problem statements:- In Lakhimpur kheri farmers are generally prefer small seeded varieties of lentil. L-4594 variety which is released in 2008 has the crop duration of 120-128 days and productivity of 18 q/ha. Lentil covers about 19672 ha area with production of 20540quintal and productivity of 20.44 q/ha in the district.

Plan, Implement and Support:- Farmers do not know about varietal name usually buy the seed from private shop or their own grain as seed. Sometimes the seed not replaced, they also said that we have brought varieties five to six years ago from kisan mela or any place .Now the varieties which are released also have tolerance against wilt and rust.

Output:- On that basis KVK Lakhimpur kheri has brought the lentil seed(L4594) from NSC and demonstrated at farmers field comprises 63 farmers covers area of 16 ha. The villages comprises wereBehta,Baharganj Bakhari, Dokarpur, Chintapurwa, Mahmadpur, Pipraudhan, Bhatpurwa, Bijouli, Madrahi and Lahorinagar.

(2015-16)

Crop demonstrated	Farmers variety	Existing yield(q/ha)	No. of Farmers (area in ha)	Avg.Yield obtained (q/ha)	Variety demonstrated	Farmers existing plot(Gross cost)
Lentil	PL-4	9.8	63 (16)	10.99	L-4594	23560

Gross return	Net return	B:C ratio	Demonstration plot(Gross cost)	Gross return	Net return	B:C ratio
71540	47980	3.03	26075	82425	56350	3.16

Outcome:- Performance of lentil variety L-4594 at farmers field is quite good as compared to variety PL-4 (farmer variety).Farmers had also fetches good price for their produce in the market. This variety has yield potential of 18 q/ha .At the farmers field yield ranges between 8.0 to 15.0 q/ha and also suited in this system.

Impact: - Lentil variety L-4594 has shown superiority over farmer variety PL-4 to the tune of 12.14% in term of yield and now this variety covers about 85% area among other varieties in village Behta of block lakhimpur.

6.13 Manual Groundnut Decorticator Refinement for high capacity and less grain damage: Etah

Situation analysis/ Problem statements:- In Etah area under ground nut cultivation is about 2350 ha. Farmers were facing problems in decorticating of ground nut because at the time of sowing of ground nut large amount of ground nut is required to be decorticated. The farmers of local region had no option of preparing seeds except to break the groundnut pod by pressing it by hand fingers which is really very tedious, time taking and whole family members' engagement work. A farmer who planned to grow groundnut crops in large area was compelled to prepare groundnut seeds, needs weeks together. To make this work easy two Groundnut decorticators have been evaluated over farmers practice.

Plan, Implement and Support:- CIAE Manual Groundnut Decorticator has been refined at KVK, Awagarh, Etah with inclined concave opening instead of horizontal concave opening.

Output:- In inclined opening grain damage was 2% however in horizontal opening it was 7% and in farmers' practice (pressing of pod by hand) it was 0.5%. Decorticating capacity has been increased up to 548% over farmers' practice.

Performance of Groundnut Decorticators for separation of groundnut kernels from pods over farmers' practice.

Technology option	Decorticating capacity(KgPod/hr)	Grain damage (%)	Decorticating cost (Rs /qt.)
CIAE Groundnut decorticator with horizontal concave opening	108	8	18.20
Refined Groundnut decorticator with inclined concave opening	108	2	18.20
Farmers' practice (Pressing by hand)	16.20	0.5	117.50

Outcome:- Five farmers Sri Devendra Singh, Sri Sammi Khan, Sri Rakesh Kumar, Sri Darshan Pal and Sri Pramod Kumar of village Nagla Fateh have started custom hiring services of Refined groundnut decorticator for decorticating of groundnut and earning Rs15000 to Rs25000 per year from single Groundnut decorticator mainly in sowing time of groundnut in Febraury,March and July.

Impact:- One manufacturer M/S Gandhi Workshop at Awagarh has started manufacturing of Refined groundnut decorticator for small scale production and in a year 2015-16. About 82 Groundnut decorticator have been produced and sold at the cost of Rs. 3250 per machine.

Inclined concave opening (Refined Groundnut decorticator)

6.14 Ensuring better Profits in agriculture by diversifying the associated enterprises: Mirzapur

Situation analysis/ Problem statements:- Shri Seeta Ram Singh of Village- Nadihar in block Rajgarh of district Mirzapur was an ordinary farmer a few months ago. He came in contact with the activities of BHU-Krishi Vigyan Kendra and with improved technological knowhow; he is now considered a progressive farmer of the area. On the advice of the scientists of the KVK, he adopted diversifying his venture with associating more enterprises with it. He came out of the traditional cultivation of rice-wheat prevalent in the region and started incorporating more type of crops including pulses, oilseeds, vegetables (for the local market), fruits including lemon and fig. As he started making this idea operational, he started witnessing almost stabilized profits, thus, reducing the risks from a single enterprise. Also, he increased his income by identifying the relative economic potential of each enterprise and allocating inputs to them on this basis.Now, he has become the satellite farmer of KVK and has set an example before the youth of the region to return to technologically strong agriculture for better profits. He is a regular visitor of Farmers fair of Northern Indian parts including, those held in GBPUA&T, Pantnagar, IARI, New Delhi, IIVR, Varanasi, NDUA&T, Kumarganj, Faizabad and CSAUA&T, Kanpur.

Plan, Implement and Support:- Regular Monitoring of implementation of the recommendations and based on that, newer technological input is provided by the KVK.

Output:- Stabilization and increase in the profits from agriculture and associated enterprises

Comparative Economic analysis of traditional vs. improved mode of farming:

Particulars	Income (Rs.) in Traditional Farming	Particulars	Income (Rs.) in Improved Farming	Increase in Net profits (%)
Rice+Wheat	1,11,000.00	Rice+Wheat+Oilseeds +Pulses+Vegetables+Fruits	1,52,000.00	153.51
Total Income	1,11,000.00	Total Income	1,52,000.00	
Total Expenditure	88,325.00	Total Expenditure	94,516.00	
Net profit	22,675.00	Net Profit	57,484.00	

Outcome:- Stabilization of profits and considerable increase in the income

Impact:- Motivation for the farmers of the region to adopt new technological advances in agriculture.

6.15 NDR-8501 becoming popular in farmers' for their yielding trait: Ghazipur

Situation analysis/Problem statements:- Mr. Sanjay Singh, village Khajurgaon, Post:Indore block:Mardah, district:Ghazipur, a farmer who was selected for this demonstration. He was earlier involved with local variety of mustard Pusa Bold or Varuna. These varieties were low in yield

Plan, Implement and Support:- KVK Ghazipur tries to make them aware regarding scientific cultivation of mustard. That starts from land preparation to harvesting. This KVK has encouraged the farmer for soil testing and on the basis of that farmer was advised for balanced dose of chemical fertilizer with high yielding varieties Pusa Tarak. That was sown on 01-11-2016 with line sowing and fertilizer application was done with basal application in which half dose of nitrogen full dose of SSP and full dose of MOP as recommended. Rest nitrogen used after first irrigation.

Output:- Mr. Sanjay Singh adopted the the balanced dose of chemical, fertilizer (N:P:K:S::150:40:40:30) kg/ha in mustard crop as per suggestion of KVK's scientist for his 0.25ha land. His local yield was 3.85 qt with recommended technology. His yield increased by 33.76% with yield 5.15 qt. The economical gain in terms of per unit expenditure gross income, net return and BCR are recorded. Rs 6975, Rs. 18857, Rs. 11882 and 2.70 correspondingly.

Outcome:- Mustard crop is the major oilseed crop of the district. KVK Ghazipur conducted 322 demonstrations in 87 villages during 2004-05 to 2016-17 in an area of 89 ha at farmers' field with using HYV NDR-8501, Pusa Tarak and balanced dose of chemical fertilizer (N:P:K:S::150:40:40:30) kg/ha. This variety has been disseminated in 170 villages of the district in area of approximately 900ha. The outcome of this demonstration motivated the farming communities to replace their old varieties, non-descriptive varieties. Mr. Sanjay Singh is very happy on improvement in their income, livelihood and set forth example for others.

Impact:- Mr. Sanjay Singh is becoming one of the progressive and learned farmers for others with regards to popularization of Pusa Tarak. This technology helps him for livelihood, empowerment and make him enthusiastic regards oilseed production. He is one of the progressive farmer after a becoming a part of KVK activities and get their effectiveness for his own development. Mr. Sanjay Singh is very happy with this improved production and management technology and set forth example for other farmers of the district.

A farmers with KVK's scientist

Mustard Crop Pusa Tarak

6.16 Varietal replacement with IPM strategies in chickpea for Productivity enhancement: Ghazipur

Situation analysis/ Problem statements:- Ghazipur district comes under Eastern Plain Zone. The soil is alluvial type and fertile because of low level of floods continuously replenish the soil. This makes agriculture the most important profession of the people. The major existing farming system/enterprises are cereals + vegetables/fruits, pulses + coarse cereals, pulses + cereals, etc. Rice-wheat cropping system is pre-dominant. Ghazipur has a humid sub-tropical climate with large variation between summer and winter temperature. Summers are long from early April to October with intervening monsoon season. Cold waves from the Himalayan region cause temperature to deep across the city from December to February. The temperature ranges between 320C to 460C in the summer and -10C to 150C in winter. The average annual rainfall is 1110mm. Fog is common in the winter while hot dry winds called loo blow in the summer.

Chickpea is a major pulse crop of Rabi season. Chickpea area under cultivation is about 4218 thousands ha with a production of 3887 metric tons in district Ghazipur of Uttar Pradesh, however its average productivity is 9.22 q/ha (District Sankhyikiya Patrika 2013-14, http://www.ghazipur.nic.in). The biotic stresses such as Gram pod borer, Gram semiloper, Termite, Wilt, Collar rot, Black rot, Stem rot, Ascochyta blight and Botrytis grey are responsible for low yield of chickpea. Among these biotic stresses, the gram pod borer is a major pest accounting for 21 per cent yield losses and 50-60 per cent pod damage in the crop. To combat the causes of yield erosion in chickpea, KVK Ghazipur assessed IPM strategies in chickpea under real farmer's conditions.

Plan, Implement and Support:- Thirty seven trials in an area of 15 ha on varietal replacement with IPM strategies in chickpea were conducted during 2016-17 in district Ghazipur. The HYV GNG 1581 with different IPM strategies i.e. proper tillage, line sowing seed treatment with Carbendazim 50% WP @2g/kg seed for management of collar rot, Profenophas 50%EC @ 2litre/ha at 50% flowering and Spinosad 45% SP @150ml/ha at 50% pod filling were comprised under the trial. Mostly the crop was sown in the first and second week of November according to previous crop harvest. Eleven villages of six blocks were covered by the demonstration. Participating farmers were trained by the KVK experts on what to do and what not to do. Observations and data were recorded and analyzed.

Output:- There was less insect-pests infestation of plant/m2 and pod/plant with application of IPM strategies in chickpea. The average 42.50 per cent affected plant/m2 and 35.50 per cent affected pod/plant minimized with use of IPM strategies during technology assessed period. The highest yield was recorded 24 q/ha and minimum yield was 16q/ha. On the basis of thirty seven farmers, average yield was 20.22 q/ha as compare to existing practices (15.79.00 q/ha) and thereby recorded average yield advantages 28.06 per cent more over farmers practices. Economic returns as a function of grain yield and maximum sale price of chickpea was Rs4000/q. The economic analysis reveals that the

average gross returns Rs 80880/ha was recorded under trials as compared to farmers practices (Rs 63160/ha) and net returns of Rs 55380/ha recorded with use of IPM strategies as compare to farmers practices (Rs 39460/ha). The 3.17 benefit cost ratio was received under demonstrated plots while 2.66 BCR was under farmers' practices. The overall results shows that the chickpea variety GNG 1581 have more potential to produce higher yield if sown either timely or mid late conditions. A climatic condition was most favorable during crop growth period (season 2016-17) for higher production.

Outcome:- The maximum yield and net returns under varietal replacement of chickpea with integrated pest management strategies is quite encouraging to partner farmers as well as neighboring farmers of cluster villages. The partner farmers and neighboring farmers were fully convinced with HYVs of chickpea and use in their cultivation practices.

Economic analysis:

Year	Cost of cultivation (Rs./ha)		Gross return (Rs./ha)		Net return (Rs./ha)		BCR	
	Demo.	Farmers practice	Demo.	Farmers practice	Demo.	Farmers practice	Demo.	Farmers practice
2016-17	25500	23700	80880	63160	55380	39460	3.17	2.66

Impact:- The partner farmers and neighboring farmers were fully convinced with HYVs of chickpea and use in their cultivation practices. Farmers becoming aware about precautionary pest management practices. Farmer's confidence improved with KVK scientist to have face-to face discussion and facilitated sharing of knowledge with experiences. Farmers convinced about technology and appreciated. Encouraged the farmers to act their farm work in a more systematic and specific manner. Farmers are reducing plant protection input costs and providing various environmental benefits.

Technological performance:

Year	Particulars	No. of trials	Average Demo. Yield (q/ha)	Average farmers' practice yield (q/ha)	Per cent increase in yield	%affected plant/m^2 minimized by IPM strategies	%affected pod/plant minimized by IPM strategies
2016-17	Line sowing HYV GNG 1581, seed treatment with Carbendazim @ 2gm/kg of seed, Profenophas 50%EC @ 2litre/ha at 50% flowering and Spinosad 45% SP @150ml/ha at 50% pod filling	37	20.22	15.79	20.22	42.50	35.50

6.17 Adoption of ICM technologies enhances the yield of Sesame crop: Kaushambi

Situation analysis/ Problem statements:- Sesame is an important oilseed crop in kharif season of district Kaushambi. The total area under this crop is near about 3025 ha. with 3.30 q./ha productivity. The average productivity of the crop is very low due to the Improper cultivation practices provided by the farmers. The major factors of the production i.e. soil, quality seed and balance nutrient management. If these factors of production of these particular crop taking into the consideration certainly the productivity of the crop can be increased. Keeping these views KVK conducted field demonstration of sesame during 2014-15 and 2015-16.

Plan, Implement and Support:- Krishi vigyan Kendra Kaushambi conducted the front line demonstration during kharif 2015 and 2016 on Nutrient Management (Use of sulphur @20kg/ha) in Sesame crop. The total area under th demonstration was 20 ha. with 44 farmers field. Newly improved variety RT 346 was taken in the demonstration that has good yield and oil content. Some of the specific characters of this variety are given below-

Specific characteristic	Performance/Yield/disease Management (q/ha)	Quality photographs
• 82-86 days crop • Oil contant 49-51% Resistant to leaf curl disease • Plant Height 100-105 cm having 2.3 branches / plant • Capsule are hairy, compact long & having yield potential of 8.0q/ha	• Setting of capsule from bottom to top in the branches having to maximum capsule comparative to check plot • No disease occoured during the crop period. Only minor attack of leaf folder insects which was controlled by spray profenophos @ 2.25 l/ha. • Yield 7.4Q/ha	 Critical input-seed, chemical, sulphur, insecticide and regular monitoring of demo field by KVK scientists

Output:- The performance of the technology were very encouraging. The yield was observed in demo plot was 7.4q/ha compared to check 5.20q/ha. The total cost of cultivation was Rs 17800/- in RT-346 and Rs 13820 in check plot with net profit if Rs 41400 at demo and Rs 27780 at local field respectively.

Outcome:- Adoption of recommended package and practices for cultivation of sesame crop and awareness about the package of practices time to time to the farmers are given by KVK scientist. Farmers also show their knee interest about the programme and many farmers were agreed that use of sulphur under nutrient management may be the reason for higher yield of sesame.

Impact:- With the adoption of ICM technologies farmers are encouraged to obtain additional return in the sesame cultivation. The migration from the village has reduced and employment generation has been created. Thirty man days were created/ha for sesame cultivation at village level. This technology is spread neighboring five villages and 54 farmers were adopted. Innovative Farmers Groups have been developed with the participation of the farmers who are helping each other for cultivation of crop at their own level.

KVK Scientist showing the specific character, pod formation in Sesame variety RT-346 to Director, ICAR-ATARI under cluster demonstration of oilseed

6.18 जैव खाद एवं उर्वरकों के प्रयोग से बढ़ा गन्ना उत्पादन : सीतापुर

स्थिति विश्लेषणः— सीतापुर जिला मुख्यालय से करीब 25 किमी दूर उत्तर पूरब दिशा में बिसवां ब्लॉक के बखरिया गाँव में रहने वाले सफल किसान अब्दुल हादी (47 वर्ष) पलहे प्रचलित पारंपरिक ज्ञान के आधार पर ही गन्ने की खेती करते थे, जैसे ही उन्होंने वैज्ञानिक सलाह और अपने पारम्परिक ज्ञान के मेल से खेती शुरू की, सफलता हाथ लगी। हादी सफल उदाहरण हैं कि वैज्ञानिक सलाह कैसे खेती को मुनाफे के व्यवसाय में बदल सकती है। हादी अब मानने लगे है कि किसानों को बुआई के लिये अच्छे बीज का चयन करना चाहिये। कमजोर बीज नहीं बोना चाहिये इससे उत्पादन घटता है। गन्ने की बुआई गहराई में करनी चाहिये इससे जब गन्ना बड़ा हो जाता है तो पलटता नहीं है। गन्ना अगर पलट गया तो भी उत्पादन घट जाता है। किसान कई बार इन छोटी—छोटी बातों पर ध्यान नहीं देते हैं जिससे उत्पादन घट जाता है। फसल कोई भी हो अगर उसकी बुआई सही समय पर और सही विधि से की जाए और फसल को सही समय पर खाद—पानी दिया जाए तो जाहिर सी बात है, पैदावार अच्छी होगी।

योजना, कार्यान्वयन एवं सहायताः— अब्दुल के पास कुल 14 एकड़ जमीन है, जिसमें से 12 एकड़ में वो गन्ने की खेती करते हैं अब्दुल पिछले करीब दो वर्षों से धीरे—धीरे रासायनिक खाद का इस्तेमाल जैविक खाद उपयोग कर घटा रहे हैं, वर्ष 2012—13 में 100 प्रतिशत रासायनिक खाद का इस्तेमाल किया था। किन्तु कृषि विज्ञान केन्द्र कटिया के वैज्ञानिकों द्वारा अग्रमि पक्ति पदर्शन एवं निरंन्तर प्रोत्साहन से जैविक खाद एवं जैव उर्वरक तकनीक अपनाकर अगले वर्ष (वर्ष 2013—14 में) 50 प्रतिशत रासायनिक और 50 प्रतिशत जैविक खाद का इस्तेमाल किया तथा उत्पादन भी बढ़ा।

परिणामः— तीन वर्षो से निरंतर जैविक खाद प्रयोग करने से विगत वर्श 2015—16 में 2950 कुन्तल गन्ने का रिकार्ड उत्पादन हुआ। 2012—13 के मुकाबले 2013—15 एवं 2014—15 में खाद, कीटनाशक, मजदूरी, सब कुछ महंगा हो गया था उसके बावजूद प्रति एकड़ खर्चा 50 हजार रुपए की बचत हुयी। वर्ष 2014—15 में कृषि विज्ञान केन्द्र कटिया में एक प्रतियोगिता कराई गयी थी, जिसमें करीब 70 किसानों ने भाग लिया था। इस प्रतियोगिता में अब्दुल हादी को प्रथम अवार्ड मिला। अब्दुल अब धीरे—धीरे पूरी तरह से रासायनिक खादों व कीटनाशकों का इस्तेमाल करना बन्द कर रहे हैं। वो रासायनिक खद की जगह जैविक खाद का इस्तेमाल करते हैं, जिसे वो खुद अपने घर पर तैयार करते हैं।

निष्कर्षः— अपनी खेती में हमेशा कुछ नया करने के जुनून ने अब्दुल हादी को सफल किसानों की श्रेणी में लाकर खड़ा कर दिया है। हादी ने औसत से चार गुना गन्ने का उत्पादन कर एक नया रिकार्ड बना दिया है। इसके लिये वो अब तक कई अवार्ड भी जीत चुके हैं।

प्रभावः— गन्ना उत्पादन के लिए राज्य स्तर पर द्वतीय पुरूस्कार प्राप्त करने के साथ ही जिला स्तर पर प्रथम पुरुस्कार के विजेता बने। अब्दुल हादी को वर्ष 2016—17 में गन्ना प्रजनन संस्थान कोयंबटूर तमिलनाडु में आयोजित दो दिवसीय राष्ट्रीय किसान मेले में कृषि वैज्ञानिकों द्वारा बेस्ट शुगर केन फार्मर अवार्ड से सम्मानित किया गया। यह पुरस्कार भारतीय कृषि अनुसंधान परिषद द्वारा गन्ने की अच्छी पैदावार के लिए किसानों को दिया जाता है। गन्ना फसल के प्रति हादी का समर्पण सराहनीय है। अब्दुल हादी अपने गन्ने की आपूर्ति बिसवां चीनी मिल को करते हैं। सेक्सरिया चीनी मिल बिसवां ने गत पेराई सत्र में पूरे प्रदेश में चीनी रिकवरी में प्रथम हासिल किया था। अब्दुल हादी गन्ने के साथ—साथ अब सहफसली के रूप में मक्का, अरहर, गेहू, मूंगफली, उर्द, मूंग, भिण्डी, लोबिया, एवं सरसों की फसल लेकर अतिरिक्त आय प्राप्त कर रहें है।

6.19 कृषक गठ जोड़ बनी सफलता की कुंजी रू फैजाबाद

स्थिति विष्लेषणः— जनपद अल्मोड़ा (उत्तराखण्ड) के हवालबाग विकासखण्ड में अल्मोड़ा दौलाघट मार्ग पर एक गांव चौना है जो समुद्र तल से लगभग 1200 मीटर की ऊचाई पर स्थित है। गॉव में करीब..190 मवासे है जिमें आजिविका का मुख्य साधन कृषि है। गांव पर्वतीय क्षेत्र के ज्यादातर अन्य गांवों की तरह इस गांव की भी कृषि वर्षा आधारित है। यद्यपि कुछ कृषक नजदीक से बह रही नदी से पानी खीचकर अच्छी खेती भी करते है। इसी गांव के एक निवासी है श्री पूरन सिंह बोरा पुत्र स्व श्री अमर सिंह बोरा। लगभग 60 वर्षीय बोरा जिनके पास कुल 36 नाली भूमि है, खेती से पूर्व देहरादून में प्राईवेट पोल्ट्री फार्म में कार्य करते थे, जो उन्हें रास नही आ रहा था। अतः देहरादून से वर्ष 2002 में गांव आ गये और अन्य ग्राम वासियों की भॉति परम्परा गत कृषि करने लगे। पर्वतीय क्षेत्रों की विभिन्न फसलें जैसे चैती धान, मडुवा,मादिरा, भट्ट गहत, गेहूँ, मसूर आदि फसलों से उन्हें बहुत कठिन परिश्रम के बाद भी उचित लाभ नही मिल रहा था अतः धीरे—धीरे उनका मन कृशि से हटने लगा था। इसी दौरान दूरदर्शन ,कृषि गोष्ठी, समाचार पत्र इत्यादि से उन्हे जानकारी मिली कि बेमौसमी सब्जी उत्पादन, जैविक कृषि आदि से वो उन्नत खेती कर सकते है। चूँकि उन्हें परम्परागत खेती से लाभ नही मिल रहा था और वो स्वयं भी कुछ नया करना चाहते थे जिससे समाज में उनकी पहचान बने। अतः बेमौसमी सब्जी उत्पादन उन्हें उपयुक्त विकल्प लगा।

योजना, कार्यान्वयन एवं सहायताः— वर्ष 2008—2009 में सरकार द्वारा चलाये जा रहे कृषक महोत्सव के दौरान वे कृषि विज्ञान केन्द्र के वैज्ञानिकों कृशि एवं उद्यान विभाग के अधिकारियों के सम्पर्क में आये और उनसे अपनी इच्छा व्यक्त की। वैज्ञानिकों और अधिकारी वर्ग से उन्हें सकारात्मक सहयोग का आश्वासन मिला और विभागीय अधिकारियों से उन्होने वर्मी कम्पोस्ट यूनिट, पॉलीहाउस, उन्नत यंत्र पर दिये जा रहे अनुदान के बारे में जानकारी ली और सर्वप्रथम अपने प्रक्षेत्र में अनुदान का लाभ उठाते हुए वर्मीकम्पोस्ट यूनिट लगाये। तत्पश्चात उद्यान विभाग के सहयोग से एक पॉलीहाउस लगाये वैज्ञानिकों से बढ़ते सम्पर्क और उन्नत खेती ने उनकी खेती के प्रति रूझान एक बार पुनः बढ़ा। वैज्ञानिकों के सलाहनुसार आज वो टमाटर, शिमला मिर्च, मैरो, खीरा, लौकी, कद्दू , मटर, प्याज, लहसून आदि की खेती कर रहे हैं।

परिणामः— पर्वतीय क्षेत्र में जाड़ों में पानी की समस्या को दृश्टिगत रखते हुए आपने जल संरक्षण टैक बनवाया जिससे वो टपक सिंचाई द्वारा सब्जी मटर, प्याज, धनियॉ, लहसून आदि की सिंचाई करते है। आपके पूरे प्रक्षेत्र में रासायनिक उर्वरक एवं पौध सुरक्षा रसायन का प्रयोग निशेध है। दूसरे शब्दों में कहा जाये तो आप पूर्णतया जैविक खेती करते है। पहले जहॉ तकनीकी जानकारी के अभाव में श्री बोरा टमाटर ,शिमला मिर्च,फ्रासबीन, मैरो, खीरा, लौकी, मटर, प्याज की परम्परागत/ स्थानीय प्रजाति का प्रयोग करते थे जिससे कम उपज मिलता था। वही कृशि विज्ञान केन्द्र के वैज्ञानिकों के सलाह पर नवीनतम विकसित प्रजातियों का प्रयोग करना प्रारम्भ किये जिससे पैदावार में 2—2.5 गुना वृद्धि हो गयी। आप सब्जियों में अच्छी तरह से सड़ी गोबर की खाद एवं वर्मी कम्पोस्ट खाद का प्रयोग करते है। सब्जी को कीट—रोग से बचाने हेतु आपने एक अपनी परम्परागत तकनीक ईजाद कर रखी है जिसके अन्तर्गत स्थानीय वनस्पति बिच्छू घास (न्तजपबं कपवपबं), बकैन (डमसपं मकंतंबी) की पत्तियों को गोमूत्र में मिलाकर एक घोल तैयार रखते है और आवश्यकतानुसार उसका प्रयोग करते है। आप वाश्पीकरण विधि से गोमूत्र का अर्क तैयार कर पंतजलि को आपूर्ति करते है जिससे इनकी निरन्तर आय होती रहती है।

निष्कर्षः— श्री बोरा के बगीचे में 5—6 आडू (रैडजोन) के पेड़ है जिससे भी उन्हें प्रतिवर्ष आय होती है। आप अपने प्रक्षेत्र पर विभिन्न औषधीय एवं सगन्ध पौध जैसे ब्राम्ही , अश्वगंधा, वक्ष, गिलोय, निर्गुण्डी, तुलसी इत्यादि लगा रखे है और भ्रमण करने वाले ग्रामीण व अन्य अतिथियों को इसके होने वाले लाभ के बारे में बताते है। आप बताते है कि प्रतिदिन निर्गुण्डी के पौध/ टहनी से यज्ञ/ हवन करते है, जिससे पूरा वातावरण शुद्ध रहता है और कीट—रोग का न्यूनतम प्रकोप होता है। आपके पास दो गाय एवं 2 बछड़े भी है जिनसे शुद्ध दूध मिलता है। इसके घरेलू प्रयोग के पश्चात 2—3 लीटर दूध का प्रति दिन विक्रय भी करते है जो आय के निरन्तरता में मदद करती हे। आप के0वी0के0 , कृषि एवं उद्यान विभाग के प्रशिक्षण तथा गोष्ठियों में भाग लेते रहते है और कृषि की नयी—नयी विधाओं के जानकारी हेतु सदैव उत्सुक रहते है। विगत वर्ष आपको आत्मा परियोजना, अल्मोड़ा से प्रगतिशील कृषक के रूप में सम्मानित किया गया है। आप यह भी बताते है कि प्रारम्भ में 2—3 वर्षो मे उन्हें विपणन की समस्या आयी और वो स्थानीय बाजार में दुकान इत्यादि में सब्जी रखवा कर विक्रय किये। इससे दुकान वाला ज्यादा आय ले लेता और उन्हें कम मिलता। परन्तु अब वो कही नही जाते और अपनी शर्तो पर स्थानीय बाजार के दुकान वाले एवं अल्मोड़ा में आसानी से विपणन हो जाता हैं। श्री बोरा बताते हे कि सब्जी, फल, दूध, गोमूत्र के अर्क आदि से प्रति वर्ष उन्हे लगभग रू. 1.00 लाख की आमदनी हो जाती है। और उन्हें कहीं जाना भी नहीं पड़ता है।

प्रभावः— वर्तमान में श्री बोरा का अपने गॉव व समाज में एक अलग पहचान व ऊँचा स्थान है। वे दूसरे कृषकों को भी नई तकनीक अपनाने को प्रेरित करते रहते है। इसके अतरिक्त अपने अनुभव व कृषि के क्षेत्र में दक्षता के चलते अन्य कृषकों द्वारा पूछे गये कृषि संबंधी समस्याओं का निराकरण भी करते है। इस तरह वो क्षेत्र में ''कृषि विज्ञान केन्द्र'' के रूप में भी जाने जाते है।

6.20 गाय पालन— अतिरिक्त आय का माध्यमरू कानपुर देहात

स्थिति विष्लेषणः— खेती के साथ कृषकों की अतिरिक्त आय का बहुत अच्छा माध्यम है। शहर के पास होने पर दुग्ध उत्पादन की महत्ता और बढ़ जाती है।

योजना, कार्यान्वयन एवं सहायताः— श्री सन्तोष कुमार ने गाय पालन वर्ष 10—11 में प्रारम्भ किया । श्री सन्तोष के0वी0के0, दलीप नगर वैज्ञानिकों द्वारा प्रशिक्षणों में दी गयी जानकरी व उनके सम्पर्क में आकर प्रभावित हुये व गौशाला प्रारम्भ की।

परिणामः— श्री सन्तोष को गौशाला से अतिरिक्त आय प्राप्त करने का माध्यम प्राप्त हुआ तथा गौशाला से प्राप्त गोबर से खाद बना कर जैविक खेती का कार्य प्रारम्भ किया है जोकि बहुत उपयोगी है।

निष्कर्षः— श्री कुमार अच्छी खेती के साथ ही गाय पालन करके अतिरिक्त लगभग रू0 100000.00 प्राप्त कर रहे है। जिससे उनकी सामाजिक व आर्थिक स्तर में बढ़ोत्तरी हुयी है।

प्रभावः— कृषक गोष्ठियो, प्रशिक्षणों, किसान मेलों, समाचार पत्रों आदि के माध्यम से संकर गायों के पालन व रख—रखाव का प्रचार प्रसार किया जा रहा है।

6.21 सब्जी उत्पादन— अतिरिक्त आय का माध्यमरू कानपुर देहात

स्थिति विष्लेषणः— खेती के साथ अतिरिक्त आय व पारिवारिक जरूरतों को पूर्ण करने के लिये सब्जी उत्पादन बहुत अच्छा माध्यम है। सब्जी उत्पादन के माध्यम से वर्ष भर ताजी व गुणवत्तायुक्त सब्जियों की उपलब्धता के साथ अतिरिक्त आय प्राप्त करने का अच्छा साधन है।

योजना, कार्यान्वयन एवं सहायताः— श्री अजय कुमार ने वर्ष 2010 में के0वी0के0, दलीप नगर के वैज्ञानिकों के सम्पर्क में आये तथा श्री कुमार ने केन्द्र के उद्यान वैज्ञानिक से नई—2 कृषि तकनीकों की जानकरी प्राप्त की व प्रभावित हो कर सब्जी उत्पादन का कार्य प्रारम्भ किया।

परिणामः— इसके माध्यम ये वर्ष भर सब्जियो की उपब्धता के साथ कानपुर नगर के समीप होने व बाजार उपलब्ध होने के कारण नकद आय प्राप्त करने का अच्छा माध्यम प्राप्त हुआ।

निष्कर्षः— सब्जी उत्पादन से श्री अजय कुमार को वर्ष में रू0 3—4 लाख की अतिरिक्त आया प्राप्त हो जाती जिससे उनके सामाजिक व आर्थिक स्तर में बढ़ोत्तरी हुयी है।

प्रभावः— कृषक गोष्ठियो, प्रशिक्षणों, किसान मेलों, समाचार पत्रों आदि के माध्यम से प्रचार प्रसार किया जा रहा है।

Chapter 4

Technical Achievements

State: Uttarakhand

(1) TRAINING PROGRAMMES

KVKs organized 959 training courses with the participation of 20304 farmers, farm women, rural youths and extension functionaries. The farmers and farm women were represented in a proportion of 45.49% and 54.51.% respectively. In all 18436 farmers and farm women and 1112 rural youths were provided skill training in different enterprises. Similarly, 736 extension personnel were also trained in different areas.

Table 1: Physical achievement of training programmes (UK)

Clientele	Courses	Male	Female	Total
Farmers & Farm women	847	8284	10172	18456
Rural Youths	61	501	611	1112
Extension Functionaries	51	450	286	736
Total	**959**	**9235**	**11069**	**20304**

1.1 Farmers and Farm Women

Total of 847 courses were conducted by KVKs of the Uttarakhand with the participation of 18456 farmers and farm women. Maximum courses (156) and participants (3559) were related to horticulture. The other areas of trainings were crop production (94 courses and 1941 participants); livestock production management (111 courses and 2538 participants); women empowerment (130 courses and 2682 participants); and soil health and fertility management (91) courses and 1916 participants).

Table 1.1 : Training of farmers and farm women (UK)

Clientele	Courses	Male	Female	Total
Crop Production	94	1010	931	1941
Horticulture	156	1630	1929	3559
Soil Health & Fertility Management	91	1204	712	1916
Livestock Production & Management	111	1176	1362	2538
Home Science/ Women empowerment	130	197	2485	2682
Agril. Engineering	19	93	271	364
Plant Protection	135	1968	1260	3228
Fisheries	14	265	30	295
Capacity Building & Group Dynamics	43	503	389	892
Agro forestry	54	238	803	1041
Total	**847**	**8284**	**10172**	**18456**

1.1.1 Crop Production

With respect to crop production, 94 training courses were organized in Uttarakhand with the participation of 1941 farmers and farm women. Integrated crop management related 20 courses were organized in which 379 farmers and farm women participated; followed by 21 courses on weed management, 2 on resource conservation technologies 4 courses on seed production and with the participation of 433, 50 and 78 farmers and farm women respectively. The other important areas like cropping systems, crop diversification, integrated farming, integrated nutrient management, nursery management, production of organic inputs, etc. were also taken up.

Table 1.1.1: Training programmes related to crop production (UK)

Area of training	Courses	Total
Weed Management	21	433
Resource Conservation Technologies	2	50
Cropping Systems	10	217
Crop Diversification	3	60
Integrated Farming	2	40
Seed production	4	78
Nursery management	3	52
Integrated Crop Management	20	379
Integrated nutrient Management	13	281
Production of organic inputs	6	114
Others	10	237
Total	**94**	**1941**

1.1.2 Horticulture

Training on production technologies of vegetables, fruits, ornamental plants, plantation crops, tuber crops, spices and medicinal plants were organized. 110 courses on vegetables involving 2597 and 36 courses on fruit with the participation of 746 were held. Similarly, in case of ornamental plants, organization of 05 courses with participation of 122 persons was ensured. In the area spices and medicinal & other crops 3 and 2 courses were organized with participation of 58 and 36 farmers and farm women.

Table 1.1.2 : Training on horticulture including sponsored (UK)

Area of training	Courses	Total
A) Vegetable Crops		
Production of low volume and high value crops	10	243
Off-season vegetables	29	605
Nursery raising	15	331
Exotic vegetables	4	141
Export potential vegetables	1	30
Protective cultivation	30	817
Others	21	430
Total (A)	110	2597
B) Fruits		
Training and Pruning	4	80
Layout and Management of Orchards	8	183
Cultivation of Fruit	6	130
Management of young plants/orchards	3	65
Rejuvenation of old orchards	6	116
Plant propagation techniques	4	83
Others	5	89
Total (B)	36	746
C) Ornamental Plants		
Nursery Management	1	23
Management of potted plants	1	20
Propagation techniques of Ornamental Plants	1	20
Others	2	59
Total (C)	5	122
F) Spices		
Production & Management technology	3	58
Total (F)	3	58
G) Medicinal and Aromatic Plants		
Production and management technology	2	36
Total (G)	2	36
Grand Total (A -G)	**156**	**3559**

1.1.3 Soil Health and Fertility Management

Total of 91 courses were attended by 1916 participants. The courses in the area of soil fertility management (22), integrated nutrient management (26), soil & water testing (10), production & use of organic inputs (12), balanced use of fertilizer (2), etc. were organized with the objectives to create awareness, knowledge and skill among farmers to address various issues.

Table 1.1.3: Training on soil health and fertility management (UK)

Area of training	Courses	Total
Soil fertility management	22	466
Integrated water management	4	120
Integrated nutrient management	26	534
Production and use of organic inputs	12	250
Micro nutrient deficiency in crops	5	102
Nutrient use efficiency	9	187
Balance use of fertilizer	2	40
Soil & water testing	10	195
others	1	22
Total	**91**	**1916**

1.1.4 Livestock Production Management

All together 111 courses were organized with the participation of 2538 participants. The courses related to dairy management (36) were organized with the participation of 737 cattle owners. Feed & fodder technology (24) was second preferred programme attended by 547 participants. Disease management, animal nutrition, poultry, quality animal products, etc were other priority areas.

Table 1.1.4: Training on livestock production and management (UK)

Area of training	Courses	Total
Dairy management	36	737
Poultry management	18	531
Animal nutrition management	5	104
Disease management	16	362
Feed & fodder technologies	24	547
Production of quality animal products	1	20
Others	11	237
Total	**111**	**2538**

1.1.5 Women Empowerment

A range of courses (130) related to women empowerment were organized with the participation of 2682 farm women. Value addition courses (40) were attended by highest number of farm women (824), followed by courses on household food security by kitchen gardening (16) attended by 313 participants, Location specific drudgery reduction technologies (10) attended by 189 farm women, etc. The farm women also showed interest in courses like storage losses, women & child care, rural craft, developing high nutrient efficient diet, drudgery reduction, diet related courses, etc. were also conducted.

Table 1.1.5: Training on Home Science/Women Empowerment (UK)

Area of training	Courses	Total
Household food security by kitchen gardening	16	313
Design and development of low/minimum cost diet	5	97
Development of high nutrient efficiency diet	4	90
Minimization of nutrient loss in processing	4	85
Processing & cooking	1	21
Gender mainstreaming through SHGs	7	148

Storage loss minimization techniques	5	111
Value addition	40	824
Women empowerment	1	20
Location specific drudgery reduction technologies	10	189
Rural crafts	6	123
Women and child care	7	152
Others	24	509
Total	**130**	**2682**

1.1.6 Agricultural Engineering

Total of 19 courses in various aspects related to farm machinery, implements and its maintenance, post harvest and value addition were organized by KVKs, benefiting 364. farmers and farm women. Maximum courses on repair & maintenance of farm machinery & implements (4) were organized benefiting 82 persons. Newer areas like installation and maintenance of micro irrigation system, use of plastics, small tools, etc. were also taken up in training programmes.

Table 1.1.6: Training on agricultural engineering (UK)

Area of training	Courses	Total
Farm machinery & its maintenance	4	82
Installation and maintenance of micro irrigation system s	4	66
Others	11	216
Total	**19**	**364**

1.1.7 Plant Protection

Under Plant Protection total 135 courses were organized with the participation of 3228 persons. The highlights of these programmes and others each courses were on IDM (25), IPM (87), bio control of pests and diseases (9).

Table 1.1.7: Training on plant protection (UK)

Area of training	Courses	Total
Integrated pest management	87	2149
Integrated disease management	25	539
Bio-control of pests and diseases	9	189
Others	14	351
Total	**135**	**3228**

1.1.8 Fish Production

The courses on integrated fish farming (5) and composite fish culture (5) were mainly organized with the participation of 108 and 103 persons. Overall 14 courses attracted participation of 295 persons.

Table 1.1.8: Training on fish production (UK)

Area of training	Courses	Total
Integrated fish farming	5	108
Carp fry and fingerling rearing	2	44
Composite fish culture	5	103
Fish processing and value addition	2	40
Total	**14**	**295**

1.1.9 Capacity Building and Group Dynamics

43 courses were organized benefiting 892 persons. The topics covered in the programmes included leadership development, group dynamics, SHGs, entrepreneurship development, WTO & IPR, etc.

Table 1.1.9: Training on capacity building and group dynamics (UK)

Area of training	Courses	Total
Group dynamics	2	40
Formation and management of SHGs	8	179
Mobilization of social capital	2	40
Entrepreneurial development of farmers/youths	7	149
WTO and IPR issues	2	40
Others	22	444
Total	**43**	**892**

1.1.10 Agro-forestry

In this area, 54 courses were organized benefiting 1041 farmers. The topics covered in the programmes included production technology, nursery management, integrated farming systems, etc.

Table 1.1.10: Training on agro-forestry (UK)

Area of training	Courses	Total
Production technologies	23	405
Nursery management	6	118
Integrated farming systems	16	361
Others	9	157
Total	**54**	**1041**

1.2 Training of Rural Youths

Total of 61 courses involving 1112 persons were conducted. The highest participation was attracted towards the programmes like seed production (4), nursery management of horticultural crops (01), vermi culture (01), mushroom production (07). Other courses viz protected cultivation, commercial fruit production, planting material production, bee keeping, value addition, rural crafts, dairying, poultry, etc were preferred by the youth. Similarly, livestock and fisheries, crop production and management and post harvest management related programmes were also organized.

Table 1.2: Training on Rural youths (UK)

Area of training	Courses	Total
Nursery Management of Horticulture crops	1	10
Training and pruning of orchards	1	22
Protected cultivation of vegetable crops	2	44
Integrated farming	1	20
Seed production	4	40
Planting material production	1	10
Vermi-culture	1	10
Mushroom Production	7	126
Bee-keeping	2	25
Value addition	9	179
Small scale processing	2	42
Post Harvest Technology	3	67
Rural Crafts	2	35
Production of quality animal products	1	20
Dairying	2	31
Sheep and goat rearing	2	50
Poultry production	5	68
Composite fish culture	2	51
Other	13	262
Total	**61**	**1112**

1.3 Training of extension personnel

51 courses involving 736 extension personnel were organized in the by the KVKs of Uttarakhand. Major areas in which extension personnel were trained were women & child care (07), integrated pest management (03), INM (04), production of organic inputs (02).

Table 1.3: Training for extension personnel (UK)

Area of training	Courses	Total
Productivity enhancement in field crops	2	38
Integrated Pest Management	3	35
Integrated Nutrient management	4	69
Protected cultivation technology	3	29
Production and use of organic inputs	2	31
Women and Child care	7	180
Low cost and nutrient efficient diet designing	1	20
Management in farm animals	2	22
Other	27	312
Total	**51**	**736**

(2) FRONTLINE DEMONSTRATIONS

Eight KVKs of Uttarakhand conducted total 1483 demonstrations covering the area of 114.80 ha on different pulses crops.

2.1 FLD on pulses

Pigeonpea: KVK Champawat and Pithauragarh organized30 demonstrations in 3 ha area on pigeonpea variety UPAS 120 and PLA 1. The average yield of demonstration was 10.85 q/h which was 29.17% higher over local checks. The net return was observed Rs. 56490/ha with cost benefit ratio of 4.09.

Blackgram: The three KVKs conducted 300 demonstrations on varietal evaluation and IPM in 22.50 ha area. An average yield of 6.26 q/ha was reported in demonstrations against 4.56 q/ha in local checks. The The net return was Rs. 37.26/ha with cost benefit ratio of 2.41. The highest yield was obtained under varietal evaluation (7.55 q/ha) with Pant Urd 35 in Champawat district.

Lentil: The seven KVKs conducted 939 demonstration on varietal evaluation, ICM and IPM in 80.80 ha area. The average yield of demonstration was 7.98 q/h which was 29.57 % higher over local checks. The net return was observed Rs. 31839/ha with cost benefit ratio of 3.31. The variety PL 8 gave highest yield (9.18 q/ha) in Almorha followed by VLM 103 (7.76 q/ha) in district Pithaurgarh.

Horsegram: Three KVKs laid out 214 demonstrations on 8.50 ha area for varietal evaluation. The average yield of demonstration was 8.13 q/h which was 30.26 % higher over local checks (6.24 q/ha). The variety VLG 15 gave highest yield (9.85 q/ha) in Champawat followed by VLG 19 (8.20 q/ha) in district Almorha.

Table 2.1: Thematic area wise physical achievement of FLD on pulses (UK)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase
Pegenpea (2)	Varietal	30	3.00	10.85	8.40	29.17
Total		**30**	**3.00**	**10.85**	**8.40**	**29.17**
Blackgram (03)	IPM	15	0.50	6.50	4.60	41.3
	Varietal	285	22.00	6.03	4.53	33.15
Total		**300**	**22.50**	**6.26**	**4.56**	**37.26**
Horsegram (3)	Varietal	214	8.50	8.13	6.24	30.26
Total		**214**	**8.50**	**8.13**	**6.24**	30.26
Lentil (7)	ICM	55	23.00	8.60	6.30	36.51
	IPM	44	4.00	5.80	4.70	23.40
	Varietal	840	53.80	9.55	7.48	27.60
Total		**939**	**80.80**	**7.98**	**6.16**	29.57
	Grand Total	**1483**	**114.80**	**-**	**-**	**-**

2.2 FLD on Oilseeds

Eight KVKs of Uttarakhand conducted a total of 471 demonstrations covering the area of 28.47 ha on different oilseed crops.

Soybean: Six KVKs laid out 305 demonstrations on various interventions like IPM, weed management and varietal evaluation in 12.53 ha area. The average yield was 14.60 q/ha which was 26.95 % higher over farmer's practice (11.50 q/ha). The INM + variety PS 1092 resulted yield of 21.60 q/ha at Champawat followed by variety VLS 47 (15.85 q/ha) at Almorha.

Sesamum: KVK Haridwar conducted 12 demonstration on 3 ha area with average yield of 7.15 q/ha which was 27.9 % higher over local check (5.0 q/ha). The net return was Rs. 18932/ ha with of 1.9.

Mustard: Three KVKs conducted 90 demonstrations on 11.16 ha area with average yield of 17.93 q/ha which was 36.32% higher over local check (13.15 q/ha) resulted in to net return of Rs. 44146/ha with cost benefit ratio of 2.87.

Toria: KVK Rudraprayag and Pauri conducted 64 demonstration on 1.78 ha area with average yield of 7.0 q/ha which was 40% higher over local check (5.0 q/ha). The net return was Rs. 14125/ ha with of 2.45.

Table 2.2: Thematic area wise physical achievement of FLD on oilseeds (UK)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Soyabean (06)	IPM	60	3.00	14.25	11.75	21.00
	IWM	25	1.00	14.60	11.80	23.73
	Varietal	220	8.53	14.96	10.96	36.50
	Total	**305**	**12.53**	**14.60**	**11.50**	**26.95**
Sesamum (01)	ICM	12	3.00	7.15	5.59	27.90
	Total	12	3.00	7.15	5.59	27.90
Mustard (05)	ICM	20	4.00	21.81	12.81	70.25
	INM	20	4.00	17.15	15.05	10.60
	IPM	10	0.66	23.5	16.50	29.78
	Varietal	40	2.50	9.26	7.80	18.72
	Total	**90**	**11.16**	**17.93**	**13.15**	**36.32**
Toria (3)	INM	15	1.00	7.90	5.50	43.64
	IPM	20	0.20	6.10	4.50	35.56
	Varietal	29	0.58	-	-	-
	Total	**64**	**1.78**	**7.00**	**5.00**	**40.00**
	Grand Total	**471**	**28.47**	-	-	-

2.3 FLD on Cereals and Millets

Paddy: 283 demonstrations were laid out in an area of 20.16 ha by seven KVKs. Average yield in demonstrations varied between 36.37 to 52.42 q/ha under different thematic areas showing an increase of 25.72 to 40.32 % with average productivity of 46.46 q/ha. The yield gain obtained was 31.33%.

Wheat: Seven KVKs conducted 377 demonstrations on 26.3 ha area on timely and late sown wheat with varietal, IDM, IPM and ICM interventions. An average yield of 36.15 q/ha was reported showing an increase of 25.10 % over local check. The net return was reported Rs 45725/ha.

Millets: Seven KVKs conducted 305 demonstrations on millets.. The barnyard millet resulted yield of 12.35 q/ha and5 KVKs taken finger millet demonstrations with yield of 14.18 q/ha. The yield advantage was ranges between 22 to 48.91 % over local checks. 98 demonstrations on amranth showed yield levels of 9.0 q/ha against 7.04 q/ha of local checks showing increase of 27.90%.

Mandua : KVK Champawat conducted 94 demonstrations on 2 ha area with variety VLM 324 which yielded 14.8 q/ha against 11.95 q/ha in local check with increase of 24 % higher.

Table 2.3 : Thematic area wise physical achievement of FLD on Cereals & Millets (UK)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase
Cereals						
Paddy (7)	IPM	20	1.66	52.42	39.97	31.14
	ICM	26	6.50	50.58	40.23	25.72
	Varietal	237	12.00	36.37	25.92	40.32
	Total	**283**	**20.16**	**46.46**	**35.38**	**31.33**
Wheat (7)	ICM	40	4.00	52.76	41.53	27.04
	IDM	40	4.00	12.40	10.10	22.70
	IPM	20	1.32	49.55	40.55	22.19
	Varietal	277	16.98	29.88	23.40	27.69
	Total	**377**	**26.30**	**36.15**	**28.90**	**25.10**
Mandua (1)	Varietal	94	2.00	14.80	11.95	24.00
	Total	**94**	**2.00**	**14.80**	**11.95**	**24.00**
Maize (2)	Varietal	54	2.50	812.00	632.00	23.60
	Total	**54**	**2.50**	**812.00**	**632.00**	**23.60**
	G. Total (Cereal)	**808**	**50.96**	**-**	**-**	-
Millet Crops						
Barnyard Millet (2)	IPM	28	0.50	13.70	9.20	48.91
	Varlietal	44	3.50	11.00	8.00	37.50
	Total	**72**	**4.00**	**12.35**	**8.60**	**43.60**
Finger Millet (5)	Varietal	109	7.10	13.97	10.63	31.40
	IPM	26	0.50	14.40	10.7	34.57
	Total	**135**	**7.60**	**14.18**	**10.67**	**32.99**
Amaranth (3)	Varietal	73	1.60	9.85	8.07	22.00
	IPM	25	1.00	8.15	6.00	35.83
	Total	**98**	**2.60**	**9.00**	**7.04**	27.90
Total (Millet)		**305**	**14.20**	**-**	**-**	**-**

2.4 FLD on Vegetables

A total of 890 demonstrations were carried out in vegetable crops on 21.57 ha area. Higher yield gains ranging between 12.94 to 85.82 % was obtained in different thematic areas.

The average yield levels tomato (385.97 q/ha), frenchbean (98.12 q/ha), brinjal (239 q/ha), vegetable pea (174.50 q/ha), capsicum (117.29 q/ha), onion (253 q/ha), cabbage (288.15 q/ha), cauliflower (400 q/ha), summer squash (260 q/ha), Brocolii (280 q/ha) spinach (180 q/ha) and radish (280 q/ha) were reported in demonstrations.

Table 2.4: Thematic area wise physical achievement of FLD on Vegetables (UK)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo (q/ha)	Local Check (q/ha)	% Increase
Tomato (06)	IDM	43	0.30	318.5	223.00	42.83
	ICM	45	3.15	492.42	265.00	85.82
	Varietal	71	1.55	347.00	222.50	55.96
	Total	**159**	**5.00**	**385.97**	**236.83**	**62.97**
Frenchbean (3)	Varietal	30	1.20	72.00	50.00	44.00
	ICM	6	0.15	124.24	110.00	12.94
	Total	**36**	**1.35**	**98.12**	**80.00**	**22.65**
Brinjal (02)	Varietal	11	0.22	230.00	180.00	27.77
	ICM	25	0.10	248.00	180.00	37.77
	Total	**36**	**0.32**	**239.00**	**180.00**	**32.78**
Vegetable pea(07)	ICM	25	50.00	199.00	138.00	44.20
	Varietal	177	4.10	150.00	102.17	46.82
	Total	**202**	**9.10**	**174.50**	**120.08**	**45.32**
Onion (03)	ICM	40	0.70	251.00	187.50	33.87
	IDM	32	0.30	255.00	185.00	37.84
	Varietal	73	0.50	-	-	-
	Total	**145**	**1.50**	**253.00**	**186.25**	**35.84**

Campsicum (04)	ICM	8	0.25	115.36	101.00	14.22
	IDM	12	0.10	-	-	-
	RCT	20	0.20	104.00	68.00	52.94
	Varietal	33	0.46	132.50	92.00	44.02
	Total	**73**	**1.01**	**117.29**	**87.00**	**34.81**
Cabbage (4)	ICM	**11**	**0.70**	**378.94**	**314.00**	**20.68**
	IPM	12	0.20	255.50	198.50	28.71
	Varietal	20	0.50	230.00	200.00	15.00
	Total	**43**	**1.40**	**288.15**	**237.50**	**21.32**
Cauliflower (02)	ICM	5	0.50	501.5	408.00	22.91
	INM	15	0.25	298.50	250.00	19.40
	Total	**20**	**0.75**	**400.00**	**329.00**	**21.58**
Summer squash (01)	VE	23	**0.37**	**260.00**	**190.00**	**36.84**
Broccoli (01)	ICM	5	0.50	280.50	204.00	37.50
Spinach (01)	VE	48	0.10	180.00	124.00	33.30
Radish (01)	VE	100	0.17	280.00	120.00	57.14
Grand Total		**890**	**21.57**	-	-	-

2.5 FLD on Fruits

The demonstrations on ICM in Guava (10) showed yield of 175 q/ha in demonstrations over 106.70 q/ha in local check with difference of 64.15 %.

Table 2.5: FLD on Fruits (UK)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Mango (01)	IPM	10	1.00	-	-	-
Crucifers (01)	IPM	10	0.66	598.12	510	17.27
Guava (01)	ICM	10	1.00	175.00	106.70	64.15
Criendar (01)	VE	10	1.00	70.00	60.00	46.80
Total		**40**	**3.66**	**-**	**-**	**-**

2.6 FLD on Spices

Total sixty demonstrations were conducted by three different KVKs in VE, IDM and ICM interventions. In case of ginger there was a increase of 20.38% as compared to local check 65 q/ha while in case of turmeric there was a increase in production 169.97 q/ha as compared to local check 127.27q/ha.

Table 2.6: FLD on Spices (UK)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Turmeric (2)	ICM	20	0.50	199.95	164.55	21.51
	VE	27	0.40	140.00	90.00	55.55
	Total	**47**	**0.90**	**169.97**	**127.27**	**33.55**
Ginger	IDM	13	0.50	78.25	65.00	20.38
Total Spice Crops		**60**	**1.40**	**-**	**-**	**-**

2.7 FLD on Commercial crops

Demonstrations were laid out on IPM in potato on 1.50 ha area by KVK Pauri and Pithauragarh recorded average yield of 180.25 q/ha over local check (144q/ha) showed percentage gain of 25.17 %. Potato demonstrations were laid in hill areas. The net profit of Rs. 105225 per ha from potato were realized.

Table 2.7: FLD on Commercial crop (UK)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Potato (15)	IPM	40	1.50	180.25	144.00	25.17
Total		**40**	**1.50**	**180.25**	**144.00**	**25.17**

2.8 FLD on fodder crops

Five KVKs conducted 161 demonstrations on different oat, sorghum, maize and barseem crops in an area of 8 ha. The barseem yielded 547.78 q/ha over local check 304.22 q/ha which was 80.06% higher over local check while in sorghum and maize the demonstration yield was 1042.5 q/ ha and 812.0 q/ha which was 61.50 and 23.60 % higher over local check respectively.

Table 2.8: FLD on Fodder (UK)

Crop/ No. of KVKs	Thematic Area	No. of Farmers	Area (ha)	Demo Yield (q/ha)	Check Yield (q/ha)	% Increase in yield
Berseem (3)	VE	72	4.00	547.78	304.22	80.06
	Total	**72**	**4.00**	**547.78**	**304.22**	**80.06**
Oat (2)	VE	15	0.50	-	-	-
	Total	**15**	**0.50**	**-**	**-**	-
Jowar (1)	VE	20	1.00	1042.50	645.50	61.50
	Grand Total	**107**	**5.50**			

2.9 FLD conducted on livestock

A total of 735 demonstrations were laid out on enhancing milk yield, disease management, nutrition management & Dairy in cattle and buffalo etc., 50 demonstrations were conducted on poultry farming and 17 demonstrations were conducted as composite fish culture.

Table 2.9: FLD on livestock (UK)

Category/No. of KVKs	No. of Farmers	No. of Units/Area
Cattle (04)	258	464
Cattle Calf (01)	32	7
Buffalo (01)	32	7
Sheep & Goat (7)	66	85
Buffalo Calf (02)	82	98
Vaccination (1)	157	400
Composite fish culture (3)	17	17
Poultry	50	54
Dairy	41	32
Total	**735**	**1164**

2.10 FLD on Hybrid crops

Four KVKs of Uttarakhand conducted 104 demonstrations on hybrid varieties of different crops in 4.05 ha of land.

Hybrid Cereals: Four KVKs conducted demonstrations on paddy and maize hybrids in 34 farmer's field in an area of 8 ha. The average demonstration yield of paddy (73.45 q/ha) was observed in demonstrated fields. Percentage yield increase of 47.35 % higher over local check.

Hybrid Vegetables: Demonstrations were conducted by 2 KVKs at 80 farmers' fields in an area of 1.05 ha on cabbage, capsicum, tomato, summer squash and brinjal.Summer squash resulted 260 q/ha yield followed by tomato resulted 240 q/ ha.The percentage yield increase was 36.84 and 43.62 q/ha over local check.

Table 2.10: FLD on Hybrid crops (UK)

Crop	KVK Name	Technology Demonstrated	Hybrid Variety	No. Of Farmers	Area (ha)	Demo Yield	Check	% increase in yield
Cereal crop	Champawat	Hybrid	-	20	2.00	62.30	51.80	21.00
Cereal crop	Deradun	ICM	Arize- 6129	4	1.00	84.60	48.70	73.70
			Total	**24**	**3.00**	**73.45**	**50.25**	**47.35**
Tomato	Pathaoragarh	Cropping system	Shahanshah, Himsona	5	0.15	151.33	128.00	18.23
Tomato	Chamoli	Varietal	Hy.Himsohna	24	0.40	330.00	195.00	69.00
			Total	**29**	**0.55**	**240.67**	**161.50**	**43.62**
Capsicum	Chamoli	Varietal	Hy. Bharat	11	0.26	160.00	110.00	45.45
			Total	**11**	**0.26**	**160.00**	**110.00**	**45.45**
Brinjal	Chamoli	Varietal	Hy. Chaya	11	0.22	230.00	180.00	27.77
Summer squash	Chamoli	Varietal	Hy. Sunny house	23	0.37	260.00	190.00	36.84
			Total	**34**	**0.59**	**245.00**	**185.00**	**32.31**
Cabbage	Pathaoragarh	Cropping system	Krishna, Indam Radha	6	0.20	169.38	142.00	14.60
			Total	**6**	**0.20**	**169.38**	**142.00**	**14.60**
			G Total	**75**	**4.05**	**177.70**	**129.75**	**36.95**

2.11 FLD on other enterprises

Four KVKs demonstrated mushroom production and value addition at 20 farmers fields covering 35 no. units area.

Table 2.11: FLD on Other Enterprises (UK)

Category	No. of KVKs	No. of Farmer	No. of units
Pleurotous Mushroom	01	10	10
Oyster Mushroom	2	5	25
Value Addition	01	5	-
Total	**4**	**20**	**20**

2.12 FLD on Kitchen Gardening

112 demonstrations laid out at 112 farmers field for nutritional gardens for proper availability of fresh vegetables to the nutritional security of the family.

Table 2.12: FLD on Kitchen Gardening (UK)

Name of the technology demonstrated	No. of Farmer	Area (sq m)
Kitchen Gardening	26	139.10
House hold nutritional security	26	153.77
Growing seasonal fruits and vegetable	60	290.53
Total	**112**	**583.4**

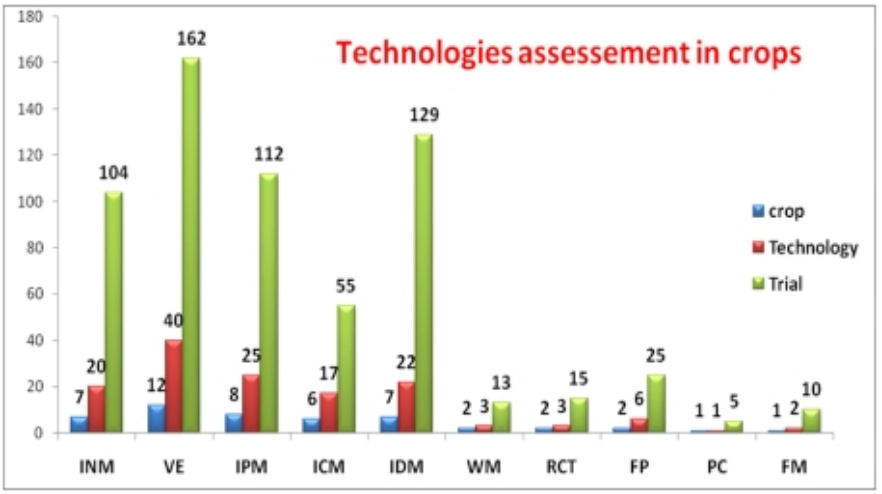
(3) TECHNOLOGY ASSESSMENT

3.1 Crop Related Technology Assessment

Uttarakhand conducted on farm 630 trials on 10 major thematic areas with 139 technologies. A total of 139 technologies were tested with involvement of 399 farmers. Cereals, pulses, oilseeds, vegetables, fruits, cash crops, etc. were assessed under different thematic areas namely Integrated nutrient management (20), integrated pest management (25), integrated disease management (22), integrated crop management (17), weed management (03), varietal evaluation (40), resource conservation technologies (03), farm machinery (02), protected cultivation (1), and fodder production (06) etc.

Table 3.1: Crop related technologies assessed by KVKs (UK)

Thematic Area	Crop	Technology	Trial
Integrated Nutrient Management	7	20	104
Varietal Evaluation	12	40	162
IPM	08	25	112
ICM	06	17	55
IDM	07	22	129
Weed Management	02	03	13
RCT	02	03	15
Fodder Production	02	06	25
Protected cultivation	01	01	05
Mechanization	01	02	10
Total	**48**	**139**	**630**

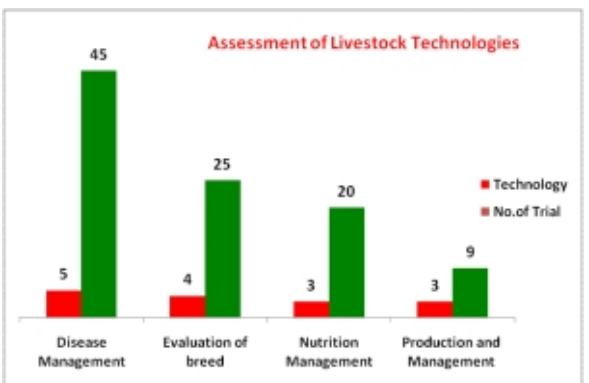


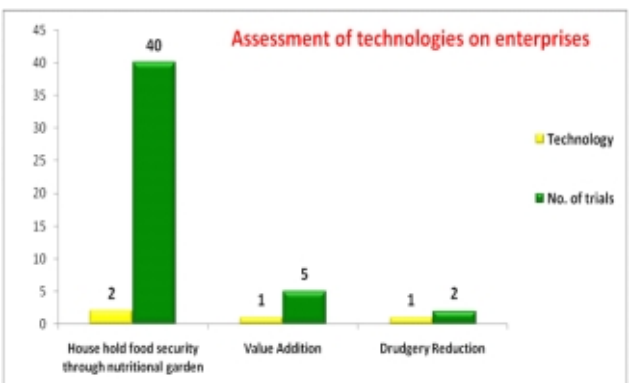
3.2 Assessment of Livestock Technologies

A total of 15 technologies were assessed under livestock management by KVKs of Uttarakhand with active participation of 99 beneficiaries. The technologies related to different thematic areas like disease management (05), evaluation of breeds (04), nutritional management (03) and production and management (5) were assessed.

Table 3.2: Assessment of livestock technologies (UK)

Thematic Area	Enterprises	Technology	No. of Trial
Disease Management	Cow, Buffalow, goat, calf	05	45
Evaluation of breed	Poultry and Fisheries	04	25
Nutrition Management	Cattle, Buffalo and Poultry	03	20
Production and Management	Cattle and fish	03	09
Total		**15**	**99**





3.3 Assessment of Technologies related to Enterprises

Thematic areas like household food security (02). value addition (01) and drudgery reduction (01) were taken up for assessment. 47 beneficiaries were involved in different enterprises. Kitchen gardening, house hold security, vermi culture, etc. were considered as an economic activity and to support nutritional security of the farmers.

Table 3.3: Assessment of technologies related to enterprises (UK)

Thematic areas	Enterprise	Technology	No. of trials
House hold food security through nutritional garden	Vegetables	02	40
Value Addition	Paustik atta	01	05
Drudgery Reduction	Wheel hoe	01	02
Total		**04**	**47**

3.4 Results of selected On Farm Trials

3.4.1 Technology assessment under various crops

Varietal Evaluation

Assessment of basmati rice for higher income

A varietal evaluation of basmati rice was under taken by KVK Almora to assess the performance of two varieties viz. Pant Sugandha Dhan 21 and Pant Sugandha Dhan 25 during Kharif 2016. The varieties tested were sown in nursery in mid May and harvested in the extream end of September. The results indicated that. Pant Sugandha Dhan 21 recorded maximum yield of 30.00 q/ha followed by Pant Sugandha Dhan 25. The treatment T2 also recorded 33.33 % more yield in comparison to farmer's practice. This treatment has also maximum net return (Rs. 45750/ha)and 2.40 B:C ratio over farmer,s practice. The yield under farmers practice was 22.50 q/ha.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1: Pahari Basmati rice having tall plant height, least fragrance and susceptible to blast	05	22.50	-	19300	1.75
T_2: Pant Sugandha Dhan 21		30.00	33.33	45750	2.40
T_3: Pant Sugandha Dhan 25		28.40	26.22	39750	2.27

Evaluation of Short duration HYV of basmati rice

KVK, Dehradun Uttarakhand conducted on-farm trial to assess the yield and economic potential of Basmati rice. Pusa Basmati 1509 produced the highest grain yield of 40.3 q/ha as against 21.4 q/ha only in traditional basmati Type 3. A good and higher net returns of Rs.65047/ha generated when farmer raised Pusa basmati 1509, and it was higher by Rs.39381as compared to farmers practice.

Technology Option	No. of trials	Yield (q/ha)	Net Returns (Rs./ha)
T_1: Type 3(Farmers Practice)	4	21.4	25666
T_2: Taarori Basmati		26.2	36935
T_3: Pusa Basmati 1509		40.3	65047

Assessment of lentil varieties

KVK, Almora organized OFT to study the varietal effect on the yield of lentil during rabi 2016-17. The varieties tested under trial were Pant Lentil 7 and Pant lentil 8. The trial was conducted under rainfed condition at 05 farmers field. The crop was shown in last week of October 2016 and harvested in the mid April 2017. The result indicated that PL8 performed well and gave the yield 9.27 qtl/ha. The second varieties i.e. PL 7 gave 9.00 qtl/ha yield. The treatment T3 i.e. PL 8 also recorded 40.45 more yield than check. B.C. ratio was also found in the same order. In general the yield was severely affected due to drought during crop cycle.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Yield increase (%)	B:C Ratio
T_1 : Farmers practice (Pahari Masoor -mix seed of brown and black colour)	05	6.60	-	13650	1.70
T_2 : Pant Lentil 7		9.00	36.36	28420	2.40
T_3 : Pant Lentil 8		9.27	40.45	29878	2.48

Assessment of dual purpose barley varieties

KVK, Almora conducted OFT on barley to study the varietal effect on the yield during rabi 2016-17. The varieties tested under trial was VL barley 130. The trial was conducted under rainfed condition at 01 farmer field. The crop was shown in last week of October 2016 and harvested in the last week of April 2017.crop cutting for fodder purpose was done in mid February. The fodder yield obtained was 20.60 qt/ha. In general the yield was severely affected due to drought during crop cycle.

Technology Option	No.of trials	Yield (q/ha)	Yield increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1 : Farmers practice (Local)	01	8.75	-	3300	1.23
T_2 : VL Barley 130		10.30 (grain) 20.60 (fodder)	17.71	15600	20.1

Assessment of malted Barley varieties

KVK, Almora conducted OFT on barley to study the varietal effect on the yield during rabi 2016-17. The varieties tested under trial were RD 2849 and DWR-B 1012. The trial was conducted under rainfed condition at 01 farmer field. The crop was shown in last week of October 2016 and harvested in the first week of April 2017. The result indicated that DWR-B 1012 performed well and gave the yield 14.50 qtl/ha. The variety RD 2849 gave 13.90 qt/ha yield. DWR-B 1012 also recorded 43.28 more yield than check. B:C ratio was also found in the same order. In general the yield was severely affected due to drought during crop cycle.

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1 : Farmers practice (Local)	01	10.12	-	5640	1.38
T_2 : RD 2849		13.90	37.35	12400	1.80
T_3 : DWR-B 1012		14.50	43.28	13600	1.88

Introduction of New variety of sugarcane

KVK Haridwar conducted on farm trial to assess the performance of CoP 99214 and CoP 05224 as compared to CoS 767 which is giving low yield in the district due to high disease incidence. The result indicated that variety CoP 05224 gave highest yield 715 qtl/ha followed by CoP 99214 and CoS 767. Which gave 705 q/ha and 575 q/ha yield respectively. Farmers preferred the sugarcane variety CoP 99214 and CoP 05224 due to high yield potential and less disease and insect infestation than old varieties.

Treatment	No of trial	Yield (q/ha)	Net Return (Rs./ha)	B:C Ratio
T_1 : Farmer's Practice (CoS 767)	05	575	41525	1.30
T_2 : CoP 99214	05	705	*81435*	1.60
T_3 : CoP 05224	05	715	*84505*	1.62

Evaluation of open pollinated varieties of tomato

KVK, Pithoragarh has assessed the open pollinated varieties of tomato. The OFT showed that the open pollinated variety DRL 68 gave slightly less yield as compared to farmers practice. But B:C ratio of both the treatments are at par.

Technology Option	No. of trials	yield (q/ha)	Gross cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1 : Farmers practice (F1 Hybrids)	7	142.62	55600	171144	115544	2.08
T_2 : DRL 68		126.46	42100	126460	84360	2.00

Varietal evaluation of onion

KVK Pauri Garhwal assess the performance of two varieties viz. NHRDF-Red and Agrifound light red . The results indicated that Agrifound light red recorded maximum yield of 295 q/ha followed NHRDF-Red. The treatment T3 also recorded 43.20 % more yield in comparison to farmer's practice. This treatment has also maximum net return (Rs. 90000/ha)and 3.0 B:C ratio over farmer,s practice. The yield under farmers practice was 206 q/ha.

Technology Option	No. of trials	Yield (q/ha)	% change in Yield	Avg. Bulb size (cm)	Gross cost (Rs./ha)	Gross return (Rs./ha)	Net return (Rs./ha)	B:C Ratio
T_1:Farmers practice (local variety)	5	206	-	3.7 cm	67000	155000	88000	2.31
T_2: NHRDF-Red		215	4.37	5.5 cm	85000	205000	130000	2.41
T_3: ALR		295	43.20	5.5 cm	90000	270000	180000	3.00

Varietal evaluation of onion

KVK Pauri Garhwal assess the performance of two varieties viz. NHRDF-Red and Agrifound light red . The results indicated that Agrifound light red recorded maximum yield of 295 q/ha followed NHRDF-Red. The treatment T3 also recorded 43.20 % more yield in comparison to farmer's practice. This treatment has also maximum net return (Rs. 90000/ha)and 3.0 B:C ratio over farmer,s practice. The yield under farmers practice was 206 q/ha.

Resource Conservation

Growing of frenchbean on ridges

Hill agriculture is mostly rainfed. Uncertainity of rainfall affects productivity of vegetables crop badly. The whole crop is totally failure quiet often due to no rains and sudden heavy rains. Keeping this problem in mind above OFT was conducted on resource conservation to sowing the frenchbeans on ridges. Farmers are growing French bean on flat bed. In this technique French bean seed sowing was done in ridges in Kharif season of 2016. Results revealed that growing French bean on ridges gave 70.230 q/ ha yield in comparison to farmer's practice (42.6 q/ha) which was 65.5% higher. The net return was Rs. 246050/ha in this technique.

Technology Option	No.of trials	Yield (q/ha)	Yield increase (%)	Net Return (Rs./ha)	B:C Ratio
T_1: Farmers practice i.e. growing french bean on flat bed	10	42.6	-	149100	4.32
T_2: Growing French bean on ridges		70.3	65.5	246050	7.79

Integrated Crop Management

Evaluation of sowing date of vegetable pea under mid hill condition

KVK Pithoragarh conducted the trial on date of sowing of vegetable pea. The result indicate that august sown vegetable pea gave higher return to the farmer despite having low yield as compared to October sown crop under mid hill condition.

Technology Option	No. of trials	Yield (q/ha)	Gross cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C ratio
T_1: Farmers practice (Sowing in second fortnight of October)	7	124.4	47500	186600	139100	2.93
T_2: Sowing in first week of August		74.5	47500	223500	176000	3.71
T_3: Sowing in second fortnight of November		114.5	47500	171750	124250	2.62

Intercropping of turmeric between mixed agro forestry tree with straw mulch

KVK Chamoli conducted on farm trial to assess the intercropping of haldi between mixed agro forestry trees with straw mulch. The results indicated that Planting fungicide treated turmeric in mixed trees along with Straw mulch of Pine/Banj tree leaves gave net return of Rs, 23000 in comparison to without mulching (Rs. 21000) and framer's practice (Rs.16000)

Technology Option	No. of trials	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs/ha)	Net Returns (Rs/ha)	B:C ratio
T_1: No use of fungicide & mulch in intercropping of Haldi under Agroforestry	05	26	-	88000	16000	0.18
T_2: Mixed trees + turmeric as intercrop seed treated with fungicide		28	7.69	91000	21000	0.23
T_3: Mixed trees + turmeric seed treatment with Fungicide + Straw mulch of Pine/Banj tree leaves etc.		29	11.53	93000	23000	0.25

Integrated Pest Management

Stem borer management in barnyard millet

Barnyard millet is a major cereal crop of rainfed area of district chamoli. It severally affected by stem borer and yield loss reached upto 20 to 25%. KVK Chamoli conducted on farm trial to find out best control measure against the insect. Spray of Chlorpyriphos @2.5 ml/lt reduce the infestation from 30 % to 8% and gave the yield 14,8 q/ ha over farmer,s practice (10.5 q/ha). The net return was Rs.17760/ ha in this treatment.

Technology Option	No. of trials	damage %	Yield (q/ha)	Yield increase (%)	Gross Cost Rs/ha	Net return (Rs/ha)	B : C Ratio
T_1:Spray of Dichlorovas 1ml/lt. (FP)	05	30	10.5	-	10840	12600	1.16
T_2:Cartaf Hydrochloride 4G @25 kg./ha (RP)		22	12.5	19.0	11900	15000	1.26
T_3: Spray of Chlorpyriphos @2.5 ml/lt.		8	14.8	40.9	12500	17760	1.42

Management of red mite in apple

KVK, Uttarkashi in Uttarakhand conducted on-farm trial to assess Management of Red Mite (Panonychus ulmi (Koch) in Apple Spray of HMO (Arbofine or Orchex 796) 1.5% at pink bud stage, Repeat 2nd spray after 20 days @ 1.0%. + One spray with Propargite (Omite/ Simbaa 57EC) @ 200mL/200L after 25 days was found more effective and decreased disease infestation up to 10 % moreover 23.36 % yield increase was reported as compared to control followed by 18.47 % in case of Spray of Fenazaquin (Magister 10EC @ 50ml/200liter).

Treatment	Mite incidence (%)	Yield (kg/plant)	Yield (q/h)	Yield Increase (%)	Gross cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1	17.80	56.85	115.97	-	85200	405895	320695	3.76
T_2	9.55	67.35	137.39	18.47	96550	480865	384315	3.98
T_3	7.85	70.25	143.31	23.36	100700	510585	410158	4.07

Management of fruit borer in tomato

Tomato is one of the major vegetable crop of Uttar kashi. Heavy infestation by the fruit borer has been reported at the time of fruit development which affects heavy losses of tomato. KVK Uttar kashi conducted on farm trial to evaluate control measures against this insect. It was found that the one foliar spray of Indoxacarb @ 1 mL/L at fruit setting stage followed by 2nd spray after 10 day of 1st spray was found more effective and decreased insect incidence up to 17 % moreover 20.06 % yield increase was reported as compare to control followed by 14.38 % in case of Use of Pheromone traps @ 20 No. per ha for early detection and control of moth population + 1 spray of Bt (Biocide) @ 2g/L after emergence of moth + 1 spray of Indoxacarb 17.8 SL @ 1 mL/L after 10 day of 1st spray.

Treatment	Insect incidence (%)	Yield (q/ha)	Yield increase (%)	Gross cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C ratio
T_1	23.2	218.6	-	62580	262320	199740	3.19
T_2	7.9	245.8	14.38	67080	294960	227880	3.39
T_3	**5.5**	**267.5**	**20.06**	**66430**	**321000**	**254570**	**3.83**

Leaf curl management in tomato

Tomato is an important commercial crop of Uttatakhand However, there is high incidence of leaf curl disease resulting in yield loss. KVK Nainital conducted on-farm trial to assess the control measure. The refined technology of spraying with imidacloprid @ 200 ml./ha. reduced the percentage of disease incidence from 40 to 4.0% and yield was increased by 32.0 per cent.

Technology Option	No.of trials	Incidence of leaf curl (%)	Yield (q/ha)	Yield increase (%)
T_1: No Spray	5	40.0	250	--
T_2: Application of two spraying of Rogor 30 EC @ 1.5 lit/ha after 3 weeks of planting at 15 days interval		10.0	300	20.0
T_3: Application of two spraying of Imidachloprid 2 ml/10 lit. after 3 weeks of planting at 15 days interval		4.0	330	32.0

Integrated Disease Management

Management of late blight disease of potato

Potato is an important commercial crop of district Pithoragarh. However, there is high incidence of late blight resulting in yield loss. The refined technology of tuber treatment with T. viride@4g/kg + mancozeb 75%@2.5g/l at 30 and 60DAS and tuber treatment with T. viride@4g/kg + mancozeb 75%@2.5g/l at 30DAS+ cynoxil@2.5g/l at 45 DAS + mancozeb 75%@2.5g/l at 60DAS reduced the disease incidence and increased the yield.

Technology Option	No. of trials	Disease incidence (%)	Yield (q/ha)	Yield increase (%)	B:C ratio
T_1: Farmers Practice (No seed treatment)	7	38.6	98.6	-	1.86
T_2: Tuber treatment with *T. viride* @ 4g/kg + mancozeb 75%@ 2.5g/l at 30 and 60 DAS		16.8	175.8	78.29	3.22
T_3: Tuber treatment with *T. viride* @4g/kg + mancozeb 75%@ 2.5g/l at 30 DAS + cynoxil @ 2.5g/l at 45 DAS + mancozeb 75%@ 2.5g/l at 60 DAS		12.4	188.7	91.37	3.18

Management of yellow rust in wheat

KVK, Uttarkashi in Uttarakhand conducted on-farm trial on Management of yellow rust in wheat.. The Spray of propiconazole 25 EC (Tilt) @ 0.1% (1ml/lt.) was found more effective and decreased disease incidence to 3.5 % moreover 26.28 % yield increase was reported as compare to control followed by 23.87 % in case of tebuconazole 250 EC (Folicur) @ 0.1% (1 ml/lt.).

Treatment	Disease incidence (%)	Yield (q/ha)	Yield increase (%)	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net Return (Rs/ha)	B:C ratio
T_1	14.5	20.24	-	19850	36432	16582	1.83
T_2	8.5	24.35	23.35	22750	43830	21080	1.98
T_3	3.5	25.56	26.28	22075	46008	23933	2.08
T_4	5.7	24.87	23.87	21890	44766	22876	2.04

Soft and dry rot management in Ginger

TGinger is an important commercial crop of Uttarakhand. However, there is high incidence of soft and dry rot disease resulting in yield loss. KVK Rudraprayag conducted on-farm trial to assess the control measure in ginger. The seed treatment with Pant Bioagents-3 and use of use of FYM and biodegradable mulch reduced the percentage of disease incidence of rot from 28.4% to 20.2% in treatment T_2. However, disease incidence was found minimum 4.3 % and yield was increased by 50.13 % in treatment T_3.

Technology Option	No. of trials	No. of sprouts/ rhizome	Incidence of rot (%)	Yield (q/ha)	Yield Increase (%)
T_1 : Farmers Practice (Use of non-descript cultivars of ginger)	5	4.8	28.4	74.0	-
T_2 : use of Himgiri + use of FYM+ biodegradable mulch @20 t/ha + Pant bioagent-3		5.3	20.2	98.7	33.37
T_3:- T_2 + spray of Pant bioagent-3		6.2	4.3	111.1	50.13

Integrated management of dieback disease in malta

Malta is an important fruit crop of the district. Due to high incidence of dieback problem, resulting reduction in yield and quality loss of fruit. KVK Rudraprayag conducted on-farm trial to assess the control measures for dieback problem in malta. The refined technology of treatment T-3 i.e. Spray of pant bio-agent-3 with application of 30 kg FYM/plant/year and use of tracer at fruit set, reduced problem of dieback incidence from from 40 % to 20 % and fruit yield increased from 24 kg/plant to 45 kg. However, disease incidence was found minimum 20 % and yield was increased by 54.16 % in treatment T3.

Technology Option	No. of trials	TSS (%)	Disease incidence (%)	Yield (kg/plant)	Yield Increase (%)
T_1 : Farmers Practice	5	5.5	40	24	-
T_2 : Spray of pant bio-agent-3 with application of 30 kg FYM/plant/year		7.5	26	32	33.33
T_3 : T_2 + Tracer after fruit set		9.5	20	45	54.16

Weed Management

Weed control in sugarcane under valley conditions

KVK Dhakrani Dehradun in Uttarakhand conducted on farm trial to assess the efficacy of chemical weed control in sugarcane. The results indicated that the post emergence application of Ethoxysulfuron @ 45 g ai/ha at 4LS stage gave 87.0% weed control efficiency (WCE) as against of 61.3 with 2,4-D Na salt @ 0.8 kg ai/ha.

Treatments	Weed dry matter (g/m^2)	WCE (%) 60 DAP	Cane yield (*q/ha*)
T_1 : Weedy	18.6	-	580
T_2 : 2,4-D Na salt @ 0.8 kg (Farmers Practice)	7.2	61.3	740
T_3 : Ethoxysulfuron @ 45 g/ha	2.4	87.0	846
T_4 : Ethoxysulfuron @ 60 g/ha	2.4	87.0	848

Integrated Nutrient Management

Response of foliar spray of fertilizer

The soils in Haridwar district are mostly deficient in plant nutrients N,P K, micronutrient & Zn. Deficiency of zinc leads to disease & other deficiencies also cause reduction in yield in paddy crop. Ten trials were conducted to assess the effectiveness of integrated plant nutrient management for enhancing the yield of paddy crop. The IPNM was refined for addressing the micronutrient deficiency prevalent in the district. The response of micronutrients was very effective in terms of yield.

Technology Option	No of trial	Yield Increase (%)	Net Return (Rs/ha)	BC Ratio
T_1: Use of 100 kg N & 60 Kg P2O5 through urea+DAP	10	-	25955	1.78
T_2: 100% Recommend Fertilizer + 1 spray of soluble NPK		11.22	29180	1.82
T_3: 100% Recommend Fertilizer+ 1 spray of Soluble micronutrient		21.85	34075	1.92

Nutrient management in onion

Onion is a major vegetable crop of District Pithoragarh. But due to improper use of manure and fertilizer especially sulfur, the yield, quality and size of the bulb is adversely affected. Recommended NPK dose + compost 5 t/ha+ Basal application of bentonite sulphur@ 25 kg/ ha resulted in highest increase in yield and B:C ratio.

Technology Option	No. of trials	Yield (q/ha)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1: Farmers practice.(Improper use of fertilizer and use of un decomposed FYM)	7	110	32000	110000	78000	2.43
T_2: Recommended NPK dose + compost 5 t/ha		150	37000	150000	113000	3.05
T_3: Compost 15 t/ha		175	41000	175000	134000	3.26
T_4: T_2 + Basal application of bentonite sulphur@ 25 kg/ ha		190	42000	190000	148000	3.52

Effect of zinc sulphate on yield and quality of potato

KVK, Uttarkashi in Uttarakhand conducted on-farm trial on Effect of zinc sulphate on yield and quality of potato cultivator kufri jyoti. The application of Recommended dose of NPK @ 160:100:120 kg/ha + $ZnSO_4$ @ 20kg/ha (basal) was found more effective and 20.95 % yield increase was reported as compare to control followed by 14.87 % in case 0f T_1 + $ZnSO_4$ @ 1.0% (foliar) at 35,45 and 55 DAS.

Treatment	Yield (q/ha)	Yield Increase (%)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C ratio
T_1	205.65	-	42700	246780	204080	5.77
T_2	248.75	20.95	48950	298500	249550	6.09
T_3	236.25	14.87	47500	283500	236000	5.96

Drudgery Reduction

Drudgery reduction of weeding practices in transplanting paddy

Hand weeding in paddy is a time taking and exhausting operation in case of paddy. To reduce drudgery in this case KVK Haridwar conducted on farm trial to assess two methods of weeding for comfort, time economy and cost of weeding. The hand hoe reduces the time hour by 5 hour in comparison to Farmer's practice which takes 13 hours and comfort index was 8.4 in comparison to farmer's practice which was only 3.2. Hand hoe also reduce the weeding cost from Rs. 450 to Rs. 175.

Treatment	No of Trial	Technical			Economics	Social
		Time (hr)	Man hour	Comfortness index (out of 10)	Cost of Weeding	Extent of adoption
T_1 : Farmers Practice	05	13	1	3.2	450	-
T_2 : Cono Weeder		6	1	6.8	275	18
T_3 : Hand Hoe		5	1	8.4	175	29

Mechanization

Low cost water filter

In hill region there are long rainy season. The water of rain harvested and store by the farm women. This water is contaminated so that they have more number of bacteria ,microbes and harmful salt like fluoride which are not beneficial to the body. The farm women in hill region are very resource poor. They are not spent more money to purchase a water filter. Krishi vihyan Kendra Nainital develop a low cost water filter. The filters are not only low cost but simple and easy to use, and can provide enough clean water for a family of five every day. The filter required little maintenance provides clean water without the need for chemicals such as chlorine, and the process of filtrations required no few consumptions.

Technology	No. of Trials	No. of Family members	Family Members Suffering from disease	Disease Control(%	Awareness on Water Purification Before/After	Views of Farmers regarding technology
T_1 : **Farmer Practice** Use of Drinking water Directly from Naula/Tap water.	5	39	12	6)9.24	No	Not Satisfied
T_2 : Low cost water filter	5	35	6	82.85	No Yes	Good response because water cold & good for health.

Technology Assessment under Livestock

Evaluation of dual purpose poultry birds

KVK, Lohaghat assess the suitable breed of poultry bird suitable for back yard poultry production in mid hill areas of Uttarakhand. The technology recommended was fine breeds of Croiler and RIR suitable in hill condition foregg and meat purpose.

Treatment	No. of Farmers	Average body weight (g)							Egg production
		1 week	2 week	4 week	8 week	12 week	16 week	20 week	
T_1: Unrecognized breed	20	40	65	475	810	990	1180	1290	Start at 7.5 month onwards
T_2 : Croiler		65	90	680	1150	1440	1600	1800	Start at 5.5 month onwards
T_3 : RIR		50	65	580	1060	1250	1450	1600	Start at 6.0 month onwards

Nutritional management of poultry

KVK, Pithoragarh has conducted the trial on nutritional management of poultry and find out that Feeding balanced ration (starter, grower and finisher ration + kitchen waste) is suitable for increasing meat and egg productivity.

Technology Option	No. of trials	Av. weight after 15 days (gm)	Av. weight after 30 days (gm)	Av. weight after 45 days (gm)	Av.V weight after 60 days (gm)	Av. weight after 75 days (gm)
T_1 : Farmers Practice (local grains and kitchen waste)	10	142.0	425.000	683.000	875.000	1047.00
T_2 : Feeding balanced ration (starter, grower and finisher ration + kitchen waste)		168.0	661.000	895.000	1084.000	1572.00

Economics

Technology Option	No. of trials	no of birds	Sale price (Rs/kg)	Gross Cost (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
T_1 : Farmers Practice (local grains and kitchen waste)	10	9.60	180	700	1,805	1,105	1.58
T_2 : Feeding balanced ration (starter, grower and finisher ration + kitchen waste)		9.80	180	900	2,774	1,874	2.08

Management of post- calving anoestrous condition in buffaloes

KVK, Bageshwar, conducted trial to find out suitable treatment practices for post- calving anoestrus condition in Buffaloes as the recommended practice reduces mineral deficiencies and stimulates the release of gonadotropic hormone to the desired level. The technology recommended was fine tuned by including Vetmate (Gonadotropic hormone) heat inducer therapy for the control of post- calving anoestrus.

Technology Option	No.of trials	% incidence of post-calving anoestrus
T_1 : Use of mustard oil cakes (Farmers practice)	15	90
T_2 : Use of area specific mineral mixture (Lykamin powder -- Recommended practice of IVRI, Izatnagar)		60
T_3 : Recommended practice + use of gonadotropic hormone -heat inducer therapy ((Vetmate injection @2ml (72hrs before AI) after 45 days of calving.		10

Evaluation of fish breed

KVK, U.S. Nagar Conducted an farm trials to assess the effect of species replacement in composite fish culture with new improve Jayanti, Rohu .the old Rohu variety was replaced by New improved & Janyanti Rohu, which resulted into an increase of 9.45% compared to farmers practice.

Technology option	No. of trials	Yield kg/ha	Net income Rs. in lakh
T_1: stocking of old variety of Rohu (F.P.)	5	3448	3.44
T_2: Stocking of new unproved Jayanti Rohu		3774	3.77

(4) EXTENSION PROGRAMMES

Kisan Gosthies (385) were organized, with participation of 37312 farmers & extension officials. Kisan melas (14) and exhibition (21) were organized for providing a platform of learning. 121 films on farm technologies were shown to the farmers and farm women. Radio (28) and TV talks (72) were delivered by experts of KVKs. Extension literature (37) on different aspect of agriculture and allied fields were prepared and distributed among the farm families. 816 diagnostic visits were organized. 6403 farmers were benefited under mobile advisory services by 2518 text and voice messages.

Table 4.1: Extension Prgrammes in Uttarakhand

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Advisory Services	1130	6324	283	6607
Diagnostic visits	816	3844	82	3926
Field Day	59	1617	59	1676
Group discussions	42	347	33	380
Kisan Ghosthi	385	36382	930	37312
Film Show	121	1950	124	2074
Self -help groups	17	233	6	239
Kisan Mela	14	51289	191	51480
Exhibition	21	65055	486	65541
Scientists' visit to farmers field	2106	13312	205	13517
Plant/animal health camps	6	260	14	274
Farm Science Club	1	22	2	24
Ex-trainees Sammelan	57	539	13	552
Farmers' seminar/workshop	5	257	12	269
Method Demonstrations	12	284	22	306
Celebration of important days	33	1450	102	1552
Special day celebration	11	733	60	793
Exposure visits	25	893	65	958
Others	436	1006	4	1010
Total	**5297**	**185797**	**2693**	**188490**

Table 4.2: Other extension activities in Uttarakhand

Particulars	Number
Electronic Media (CD./DVD)	2
Extension Literature	37
News paper coverage	151
Popular articles	37
Radio Talks	28
TV Talks	72
Animal health amps (Number of animals treated)	45
Others	8
Total	**380**

Table 4.3: Mobile Advisory services provided by KVKs of Uttarakhand

Message Type	No. of farmers covered	Type of Messages						
		Crop	Livestock	Weather	Marketing	Aware-ness	Other enterprise	Total
Text only	2500	2557	41	6	14	65	41	2724
Voice only	1385	874	216	92	86	411	156	1835
Total Messages	2518	2922	21	6	2	43	71	3065
Total farmers Benefitted	**6403**	**2557**	**46**	**6**	**14**	**64**	**49**	**2736**

4.4 Other Activities

Soil/Water/Plant/Manure samples analysis

In all, 2244 samples of soils, water plant, manures and others were analyzed for 281 villages benefitting 2717 farmers in Uttarakhand.

HRD and Publications

Total 29 workshops, 18 conferences, 76 meetings and 40 trainings for KVK officials were conducted by KVKs of Uttarakhand. In case of publicatioins, 5 books; 5 training manuals; 1 book chapter; 13 research papers, 4 seminar paper, 15 extension folders, 7 proceedings were publishesd by KVKs of Uttarakhand. KVKs of Uttarakhand are working on 5 on going research projects, in addition to this they have got 3 awards/recognitions also.

(5) SEED AND PLANTING MATERIAL PRODUCTION

5.1 Seed Production

Seed production programme is running in various KVKs of Uttarakhand for producing quality seed production. During the year 2016-17, KVKs of Uttarakhand produced 4782.4 q seed including cereals (684.35 q), oilseeds (115.12 q), pulses (54.75 q), spices (171.38 q) and commercial crops (3750.0 q), etc. Detail of seed production at a glance is given in the following Table.

Table 5.1: Physical achievements of seed production (UK)

Enterprise	Quantity (q)	Value (Rs. in lakh)
Cereals	684.35	2.83
Oilseeds	115.12	0.31
Pulses	54.75	1.19
Vegetables	5.30	0.99
Commercial	3750	-
Spices	171.38	0.03
Fodder	1.50	0.06
Total	**4782.4**	**5.41**

5.1.1 Cereals

The seed of important cereal crops produced paddy (146.92 q), wheat (526.9 q), maize (5.87 q), etc. Important varieties of paddy in seed production programme included Vivek Dhan- 154, VL Dhan- 85, 207, 208, Pant Sugandh- 15, 17, PRH-10, Pant Shankar Dhan- 3, etc. The other crop varieties included Wheat VL Gehun- 802, 804, 829, 832; Maize- Vivek- 35, Sankul Makka, Vivek Composit-11, VL Babicorn-1, Vivek Hyb. -15,17,21,23, Sankul Makka, Vivek QPM-9; Barley- VL Barley-56, 85; Finger Millet- VL Mandua-315, 324; Barnyard Millet- PRJ-1, Green Amaranth- PRA-3, VL Chua-44. The detailed crop wise data is given in table.

Table 5.1.1: Seed production of different cereal crops (UK)

Cereals	Quantity (q)	Value (Rs. in lakh)
Wheat	526.90	0.82
Paddy	146.92	0.25
Maize	5.87	1.63
Barley	2.00	0.05
Mandua	0.91	0.03
Barnyard millet	0.98	0.04
Finger millets	0.26	0.00
Others	0.52	0.02
Total	**684.36**	**2.84**

5.1.2 Oilseeds

The KVKs of the Uttarakhand produced seed 115.12 q of oilseeds. The important oilseed crops like Soybean (110.09 q), mustard (2.51 q), groundnut (2.00 q), were taken up under seed production programme. The important varieties soybean of selected for seed production were VL 65, PS- 1092, 1225, Pant Soybean-1241, 1347, 1225, etc; mustard - VL Toria-3, Pant Pili Sarson-1.

Table 5.1.2: Seed production of different oilseed crops (UK)

Oilseed	Quantity (q)	Value (Rs. in lakh)
Soybean	110.09	0.07
Mustard	2.51	0.22
Groundnut	2.00	0.00
Toria	0.37	0.02
Others	0.15	0.00
Total	**115.12**	**0.31**

5.1.3 Pulses

The total quantity of pulses seed production was 54.75 q. The seed production programme on pulses were taken up on urdbean (Pant Urd-31, 35), pigeon pea (Upas- 120, VL Arhar-1), lentil (VL Masoor-125, 129) and horse gram (VL Gahat-15, 19). Details are given in Table 7.4.

Table 5.1.3: Seed production of different pulse crops (UK)

Pulses	Quantity (q)	Value (Rs. in lakh)
Pigeon pea	10.63	0.51
Lentil	5.37	0.53
Chick pea	0.18	0.01
Urdbean	35.12	0.02
Rajmash	0.81	0.00
Horse gram	2.49	0.12
Other	0.15	0.00
Total	**54.75**	**1.19**

5.1.4 Vegetables

The KVKs of Uttarakhand produced 5.30 q of seeds of vegetables. The important crops were viz. vegetable pea (Vivek Matar-9 & 10), okra (Prabhani Kanti, VL Bhindi- 2), onion (VL- 3, AFDR, N-53).

Table 5.1.4: Seed production of different vegetable crops (UK)

Pulses	Quantity (q)	Value (Rs. in lakh)
Vegetable Pea	3.30	0.41
Okra	1.68	0.27
Radish	0.08	0.00
Onion	0.14	0.26
Other	0.10	0.05
Total	**5.30**	**0.99**

5.1.5 Spices

The total quantity of spices seeds produced was 171.38. The seeds of different spices were produced viz. turmeric (Swarna and Pant Pitab) and garlic (Agrifound Parwati). The detail spice wise data is given in table.

Table 5.1.5: Seed production of spices (UK)

Spices	Quantity (q)	Value (Rs. in lakh)
Turmeric	169.50	0.03
Garlic	0.50	0.00
Fenugreek	1.38	0.00
Total	**171.38**	**0.03**

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Turmeric	169.50	0.03
Garlic	0.50	0.00
Fenugreek	1.38	0.00
Total	**171.38**	**0.03**

5.1.6 Fodder and Fibre crops

The seed of fodder and fibre crops to the tune of 1.50 q was produced.

5.1.7 Commercial crops

Mainly sugarcane was taken by KVKs of Uttarakhand. The seed production of sugarcane (3750 q) was recorded. The important varieties i.e. Co 5011, Cos 96268, CoP 99214, CoP 5224, CoP 3220 of sugarcane selected for seed production.

5.2 Planting Material Production

The planting material/sapling production of vegetables, fruits, ornamentals, forestry, medicinal and other plants developed by KVKs. During this year KVKs produced 10520264 planting materials including vegetable seedlings (10438807), fruit saplings (6937), ornamental (1500), medicinal, aromatic plants (3020) and fodder (70000) etc.

Table 5.2: Physical achievement of planting material production (UK)

Planting Material	Number	Value (Rs. in lakh)
Vegetable	10438807	13.19
Fruits	6937	0.08
Ornamental	1500	0.00
Medicinal & Aromatic	3020	0.00
Fodder	70000	0.39
Total	**10520264**	**13.66**

5.2.1 Production of Vegetable Seedlings

KVKs produced large number of vegetable seedlings (38807) of brinjal, chilli, tomato, cabbage, cauliflower, broccoli, capsicum, onion, cucumber, bottle guard, bitter guard, sponge guard, knolkhole and summer squash etc. Quality seedlings made available to the farmers for enhancing their profitability and livelihood. The detail of vegetable crops with quantity of seedlings produced are given in table.

Table 5.2.1: Seedling production of different vegetables (UK)

Vegetable Seedling	Number	Value (Rs. in lakh)
Brinjal	14571	0.05
Chilli	1900	0.00
Tomato	87295	0.11
Cabbage	43700	0.02
Cauliflower	21300	0.03
Broccoli	600	0.00
Capsicum	48565	0.11
Onion	10142580	7.04
Cucumber	57202	5.69
Bottle gourd	4219	0.06
Bitter gourd	60	0.01
Sponge gourd	1069	0.05
Knolkhole	650	0.00
Summer squash	4176	0.01
Others	10920	0.01
Total	**10438807**	**13.19**

5.2.2 Production of Fruit Saplings

The total fruit saplings were 6937 produced by the KVKs of Uttarakhand. Different fruit saplings have taken i.e. citrus, lemon, apricort , peach and strawberry, etc. The detail of fruit saplings produced is given in table.

Table 5.2.2: Saplings production of different Fruits (UK)

Fruits Sapling	Number	Value (Rs. in lakh)
Citrus	1822	0.08
Lemon	200	0.00
Apricort	400	0.00
Peach	700	0.00
Strawberry	3255	0.00
Others	3815	0.00
Total	**6937**	**0.08**

5.2.3 Production of ornamental, forestry medicinal & other plant saplings

KVKs of Uttarakhand produced 74520 ornamental, medicinal and aromatic plants. Ornamental plants such as rose (Noor Jahaan), Medicinal and aromatic such as lemon grass (local) and fodder such as Hybrid Napier (Co 3 and Hybrid- 6) etc. The details are given in table.

Table 5.2.3: Sapling production of ornamental, forestry medicinal & other plants (UK)

Ornamental	Number	Value (Rs. in lakh)
Ornamental		
Marigold	500	0.00
Chrysanthmum	250	0.00
Rose	500	0.00
Others	250	0.00
Total	**1500**	**0.00**
Medicinal & Aromatic		
Lemon Grass	10	0.00
Others	3010	0.00
Total	**3020**	**0.00**
Fodder		
Napier	70000	0.39
Total	**70000**	**0.39**
Grand Total	**74520**	**0.39**

5.2.4 Production of Bio-Products

The KVKs of Uttarakhand produced 30120 kg of bio-products. It included vermi compost (900 kg), NADEP compost (220 kg) and FYM (29000 kg). The details are given in table.

Table 5.2.4: Production of bio-products (UK)

Bio-products	Quantity (kg)	Value (Rs. in lakh)
Vermicompost	900	0.05
NADEP compost	220	0.01
FYM	29000	0.89
Total	**30120**	**0.95**

5.2.5 Livestock & Fingerling Production

KVKs of Uttarakhand also produced 9330 dairy animals and 849 poultry. The amount of Rs 4.84 lakh was collected from the produce. The details are given in table.

Table 5.2.5: Production of livestock & fingerlings (UK)

Livestock	Number	Value (Rs. in lakh)
Dairy animals		
Cows	9	2.00
Calves	2	0.08
Others	9319	2.76
Total	**9330**	**4.84**
Poultry		
Broilers	400	0.00
Others	449	0.00
Total	**849**	**0.00**
Grand Total	**10179**	**4.84**

(4) CASE STUDY / SUCCESS STORIES

6.1 Management of shoot gall psylla in mango: KVK Dehradun

Brief Background: Amongst various insect-pests, shoot gall psylla, Apsylla cistellata Buckton (Psyllidae: Homoptera) is a devastating pest of mango causing formation of galls on the leaf axils which result in inhibition of inflorescence and most of the affected branches later dry up. According to an estimate that more than 4000 ha area are badly affected with incidence of shoot gall psylla in Dehradun district of Uttarakhand. From the last one decade, the incidence of shoot gall psylla has increased considerably in Dehradun. monocrotophos, dimethoate and quilanphos insecticides recommended earlier for the control of shoot gall psylla but it has been seen that these insecticides are not giving any relief to the farmers from the last 6-7 years. It may be due to continuous use of monocrotophos, quilanphos and dimethoate and change in agro environmental conditions.

Accordingly, we contacted ICAR-CISH, Lucknow for effective management of shoot gall psylla in mango. They informed that thiamethoxam 1 g per liter of water + profenophos 2 ml per liter of water + sticker 1 2 ml per liter of water has been found outstanding in management of shoot gall psylla. In order to observe their effectiveness, it has been conducted demonstrations along with earlier recommended insecticides in which two spray of thiamethoxam 1 g per liter of water + profenophos 2 ml per liter of water have been reduced the incidence of shoot gall psylla up to 90 per cent in most affected orchard.

Character of technology: (i) The insecticides i.e. thiamethoxam 1 g per liter of water + profenophos 2 ml per liter of water + sticker 1 2 ml per liter of water have been found most promising in management of shoot gall psylla in mango. (ii) Two application of both the insecticides have been suggested, first spraying should be done in IIIrd week of August and second spraying be done 15 days after Ist spraying. (iii) The spraying of these insecticides by the farmers on the recommendation of KVK, Dehradun managed the incidence of shoot gall psylla and due to which productivity of mango has been doubled. (iv) About 4000 ha area of mango are badly affected with the incidence of shoot gall psylla.

Impact of technology:

Adoption Status:

i. Two Spraying of recommended insecticides were done by the farmers of Badwala village of Vikasnagar block of Dehradun in 21 ha area in August-September, 2013 due to which farmers harvested about 4000 Q. mango from 2100 trees in June-August, 2014 which was almost doubled.

ii. Two spraying of recommended insecticides have been applied by the farmers of 24 villages of Vikasnagar and Sahaspur blocks of Dehradun in about 200 ha area. The spraying of these insecticides significantly reduced the incidence of shoot gall psylla and increased the productivity of mango. According to an estimate and data recorded, farmers harvested about 40,000 Q. mango from 200 ha area in June-August, 2015.

iii. The intensive campaign organized by KVK, Dehradun encouraged the mango farmers of the region. The farmers applied above insecticides in about 1200 ha area in about 55 villages of Vikasnagar and Sahaspur blocks of Dehradun during August-September, 2015. The feedback received from the farmers revealed that they harvested 2,40,000 Q. mango fruits from 1200 ha area between June-August, 2016.

iv. From the last three years area has been increased from 21 ha in 2013 to 1200 ha in 2015. According to an estimate and campaign organized in August, 2016 by KVK, Dehradun, it is expected that about more than 2000 ha area will be covered under management of shoot gall psylla in 2016.

Area to be spread

Expected increase in production

The impact of this technology increased the productivity of mango from 9.6 MT per ha to 20.0 MT per ha. The visible impact reflected due to technological intervention on management of shoot gall psylla at Badwala village on 2100 mango trees during August-September, 2013 completely changed the mindset of neighbouring farmers. The convincing impact encouraged the farmers to save their orchards from the menace of shoot gall psylla. The impact of the spraying done by the farmers in their mango orchards on the recommendation of KVK, Dehradun resulted in changing the mindset of the neighbouring farmers whose faith and interest were dwindling towards mango cultivation year after year and was in impression that this destructive pest could have not been controlled.

Income

The technological interventions made on management of shoot gall psylla in mango from 2013 to 2016 enhanced the income of farmers. According to an estimate, data recorded from the mango orchards and interaction held with the farmers revealed that about 6.0 crores additional income earned by the farmers due to management of shoot gall psylla in mango from the last three years.

Incidence of shoot gall psylla in mango

Adults of shoot gall psylla insect

View of shoot gall psylla campaign in mango

Bumper mango production due to management of shoot gall psylla

6.2 Low cost poly tunnel technology for nursery raising in vegetables: KVK Dehradun

Character of technology: (i) The nursery raised under poly tunnel having ideal vegetative growth, less affected with the incidence of various pests and diseases and their mortality in the field during and after plantation is almost nil. (ii) Under poly tunnel condition nursery of vegetables can be raised in any season even during adverse climatic conditions without any difficulties which is not possible in open field. (iii) During winter season nursery raising of cucurbits is not possible in open field due to very low temperature but such kind of nursery is grown successfully under poly tunnel condition as temperature inside the poly tunnel is increased 12 to 150 C as compared to open field. (iv) Establishment of poly tunnel technology helped us to raise vegetable nursery round the year and supply to the farmers through various developmental departments.

Impact of the technology :

Adoption Status

i. Poly tunnel technology has been established in three village of Vikasnagar block under the financial support of NABARD, Dehradun where farmers are raising vegetable nursery and supply to the farmers on reasonable rates

ii. Poly tunnel technology has been established in 12 villages of Raipur block by the Department of watershed management under the technical support of KVK, Dehradun in which farmers raising vegetable nursery and meeting the requirement of neighbouring farmers.

iii. Poly tunnel technology has also been established in 20 villages of Kalsi and Chakrata block for raising vegetable nursery by Department of watershed management under the technical support of KVK, Dehradun to cater the local demand.

iv. Poly tunnel technology has been established in three village of Vikasnagar block under the financial support of NABARD, Dehradun where farmers are raising vegetable nursery and supply to the farmers on reasonable rates

v. Poly tunnel technology has been established in 12 villages of Raipur block by the Department of watershed management under the technical support of KVK, Dehradun in which farmers raising vegetable nursery and meeting the requirement of neighbouring farmers

vi. Poly tunnel technology has also been established in 20 villages of Kalsi and Chakrata block for raising vegetable nursery by Department of watershed management under the technical support of KVK, Dehradun to cater the local demand.

Area to be Spread

Poly tunnel technology has been spread in more than 50000 sq. m. area in which farmers raise more than 2 crores seedlings of vegetables every year.

Expected Increase in Production

According to an estimate, vegetable's nursery raised under poly tunnel condition and their timely and sometime early plantation in the field significantly improved the productivity and production of vegetables. It is found that mortality of seedling in the field during and after plantation is almost nil raised under poly tunnel. Introduction of poly tunnel technology increased the productivity of tomato, brinjal, chilli, capsicum, cabbage, cauliflower up to 30 per cent due to healthy, disease free planting material and their cent percent survival in the field. The productivity of bottle gourd, bitter gourd, cucumber, smooth gourd, ridge gourd also increased up to 20 per cent due to early nursery raising and their plantation in the field before peak period. Hence, farmers harvested early production which fetched premium price in the markets.

Income

With the introduction of poly tunnel technology for nursery raising in vegetables and technological intervention made by KVK for their scientific methods of cultivation enabled the farmers to get up to Rs 2.50 to 3.00 lacs from 1.0 ha of land from one year.

Tomato nursery under poly tunnel

View of poly tunnel at KVK, Dehradun

Scientist interacted with farmers

Cucurbitaceous vegetables under poly tunnel

6.3 Migration Beekeeping for unemployed rural youth: Haridwar

Situation analysis/ Problem statements: Two such unemployed youth namely; Mr. Sarvesh Kumar (village Gummawala) and Mr. Abhilash (Roorkee) were trained in this enterprise under the ARYA project in 2015-16. They were provided with 15 beehives for starting their enterprise.

Plan, Implement and Support:- Beekeeping can be successfully practiced after training for honey, wax, and pollen, brood and propels production and pollination management. It benefits the insect pollinated crops through enhanced pollination. Selected rural youth of the district were trained by the KVK in Beekeeping as a source of income. The training included scientific management of beehives, establishment of apiary, bee flora, and seasonal management of beehives, migration, disease management and pollination management.

Output: The two purchased 65 beehives from local beekeeper @ Rs. 2000.00. Thus started their apiary at Gummawala with 80 beehives. The practiced migration beekeeping and is the process the bees multiplied.

Outcome: They divided the beehive brood and created 30 new beehives. These 30 beehives were sold by them @ 2500/each In four months (Honey flow season) the beehives produced 25qt honey which was sold @ Rs. 80/kg.

Income Detail :-

1. Income from sale of beehive is Rs. 2500×30 = Rs. 75000.00
2. Income from sale of honey is Rs. 80×2500 kg = Rs. 200000.00

Total Income = Rs. 2,75, 000.00

Net Profit is Rs. 2,75, 000-Rs. 1,90,000 = Rs. 85,000.00

Impact:- The migration apiculture is becoming exceeding popular among the rural youth due to large gap in the demand and supply of quality honey.

KVK Scientist Dr. Deepti Chaudhari, Asstt. Prof. (Entomology) at farmers' field with other farmers.

Director Extension Education, Pantnagar, Head KVK Dr. Purushottam Kumar and Asstt. Prof. (Entomology) Dr. Deepti Chaudhary visiting farmers field.

6.4 Processing and Packaging of turmeric powder: Udham Singh Nagar

Situation analysis/ Problem statements: Krishi Vigyan Kendra, Kashipur under the concept of minimal processing unit is organizing trainings and providing technical information and guidance to farm women on processing and packaging of turmeric through various extension activities, time to time. In this context, two farm women namely Sunita Devi and Rajnandni contacted Dr. Pratibha Singh, SMS, Home Science and gained technical information on processing of turmeric.

Plan, Implement and Support: During the year 2015-16 and 2016-17 Krishi Vigyan Kendra, Kashipur has selected tribal village Audhli Sitarganj block for carrying out extension activities. In this village, detailed survey of the village revealed that tribal farm women of this village grow turmeric and they do no-get the optimum price of the same. Scientist have also conducted field visit which created awareness among women on processing of turmeric for income generation. They have been guided on cultivation aspect of turmeric production to enhance the yield.

Output: This technique attracted these women and then they started processing of turmeric as an income generation enterprise at village level. They motivated other farm women for turmeric production and contacted Krishi Vigyan Kendra, Kashipur for imparting training to them and gathering relevant information for preparation packaging and marketing of the produce. Fourty three participant received training on processing and value addition of turmeric dated 30-7-16.

Outcome: During the activity the Hon'ble MLA Shri Prem Singh Rana also visited the site, appreciated and motivated the farm women for working in a collective approach. Thereafter, these farm women processed and prepared 3Q turmeric packets in 250 g, 500 g and 1 kg pack size for sale purpose. Their group has exhibited turmeric packets and these packets were launched by the Hon'ble Governor K.K.Paul, Uttarakhand during 100th All India Farmers Fair at GBPUA&T, Pantnagar during 17 th to 20th October, 2016. This resulted in monetary benefit and popularization of the turmeric packets prepared by the farm women of Audhli Village.

Impact: Krishi Vigyan Kendra, Kashipur (U.S.Nagar) made efforts to train Sunita Devi, Rajnandni and their group/ farm women of the village for turmeric powder preparation and packaging. NGO, ISD Kichha, NABARD and TATA motors were also associated with the group for initiating turmeric processing at larger scale by the farm women and other activities were also taken up by the group such as THR and LED bulbs related as reported by Smt. Sunita. The SHG group also received award in March, 2017 by NABARD.

6.5 कृषक गठ जोड़ बनी सफलता की कुंजीः अल्मोरा

स्थिति विश्लेषणः जनपद अल्मोड़ा (उत्तराखण्ड) के हवालबाग विकासखण्ड में अल्मोड़ा दौलाघट मार्ग पर एक गांव चौना है जो समुद्र तल से लगभग 1200 मीटर की ऊचाई पर स्थित है। गॉव में करीब..190 मवासे है जिमें आजिविका का मुख्य साधन कृषि है। गांव पर्वतीय क्षेत्र के ज्यादातर अन्य गांवों की तरह इस गांव की भी कृषि वर्षा आधारित है। यद्यपि कुछ कृषक नजदीक से बह रही नदी से पानी खीचकर अच्छी खेती भी करते है। इसी गांव के एक निवासी है श्री पूरन सिंह बोरा पुत्र स्व श्री अमर सिंह बोरा। लगभग 60 वर्षीय बोरा जिनके पास कुल 36 नाली भूमि है, खेती से पूर्व देहरादून में प्राईवेट पोल्ट्री फार्म में कार्य करते थे, जो उन्हें रास नही आ रहा था। अतः देहरादून से वर्ष 2002 में गांव आ गये और अन्य ग्राम वासियों की भॉति परम्परागत कृषि करने लगे।

योजना, कार्यान्वयन एवं सहायताः पर्वतीय क्षेत्रों की विभिन्न फसलें जैसे चैती धान, मडुवा,मादिरा, भट्ट गहत, गेहूँ, मसूर आदि फसलों से उन्हें बहुत कठिन परिश्रम के बाद भी उचित लाभ नही मिल रहा था अतः धीरे–धीरे उनका मन कृषि से हटने लगा था। इसी दौरान दूरदर्शन ,कृषि गोष्ठी, समाचार पत्र इत्यादि से उन्हे जानकारी मिली कि बेमौसमी सब्जी उत्पादन, जैविक कृषि आदि से वो उन्नत खेती कर सकते है। चूँकि उन्हें परम्परागत खेती से लाभ नही मिल रहा था और वो स्वयं भी कुछ नया करना चाहते थे जिससे समाज में उनकी पहचान बने। अतः बेमौसमी सब्जी उत्पादन उन्हें उपयुक्त विकल्प लगा। वर्ष 2008–2009 में सरकार द्वारा चलाये जा रहे कृषक महोत्सव के दौरान वे कृषि विज्ञान केन्द्र के वैज्ञानिकों कृषि एवं उद्यान विभाग के अधिकारियों के सम्पर्क में आये और उनसे अपनी इच्छा व्यक्त की। वैज्ञानिकों और अधिकारी वर्ग से उन्हें सकारात्मक सहयोग का आश्वासन मिला और विभागीय अधिकारियों से उन्होने वर्मी कम्पोस्ट यूनिट, पॉलीहाउस, उन्नत यंत्र पर दिये जा रहे अनुदान के बारे में जानकारी ली और सर्वप्रथम अपने प्रक्षेत्र में अनुदान का लाभ उठाते हुए वर्मीकम्पोस्ट यूनिट लगाये। तत्पश्चात उद्यान विभाग के सहयोग से एक पॉलीहाउस लगाये वैज्ञानिकों से बढ़ते सम्पर्क और उन्नत खेती ने उनकी खेती के प्रति रूझान एक बार पुनः बढ़ा। वैज्ञानिकों के सलाहनुसार आज वो टमाटर, शिमला मिर्च, मैरो, खीरा, लौकी, कद्दू , मटर, प्याज, लहसून आदि की खेती कर रहे हैं।

परिणामः पर्वतीय क्षेत्र में जाड़ों में पानी की समस्या को दृष्टिगत रखते हुए आपने जल संरक्षण टैक बनवाया जिससे वो टपक सिंचाई द्वारा सब्जी मटर, प्याज, धनियॉ, लहसून आदि की सिंचाई करते है। आपके पूरे प्रक्षेत्र में रासायनिक उर्वरक एवं पौध सुरक्षा रसायन का प्रयोग निशेध है। दूसरे शब्दों में कहा जाये तो आप पूर्णतया जैविक खेती करते है। पहले जहॉ तकनीकी जानकारी के अभाव में श्री बोरा टमाटर, शिमला मिर्च, फ्रासबीन, मैरो, खीरा, लौकी, मटर, प्याज की परम्परागत/स्थानीय प्रजाति का प्रयोग करते थे जिससे कम उपज मिलता था। वही कृषि विज्ञान केन्द्र के वैज्ञानिकों के सलाह पर नवीनतम विकसित प्रजातियों का प्रयोग करना प्रारम्भ किये जिससे पैदावार में 2–2.5 गुना वृद्धि हो गयी।

निष्कर्षः आप वाश्पीकरण विधि से गोमूत्र का अर्क तैयार कर पंतजलि को आपूर्ति करते है जिससे इनकी निरन्तर आय होती रहती है। श्री बोरा के बगीचे में 5–6 आडू (रैडजोन) के पेड़ है जिससे भी उन्हें प्रतिवर्ष आय होती है। गायत्री परिवार से जुड़ाव होने के कारण आप अपने प्रक्षेत्र पर विभिन्न औशधीय एवं सगन्ध पौध जैसे ब्राम्ही , अश्वगंधा, वक्ष, गिलोय, निर्गुण्डी, तुलसी इत्यादि लगा रखे है और भ्रमण करने वाले ग्रामीण व अन्य अतिथियों को इसके होने वाले लाभ के बारे में बताते है। आप बताते है कि प्रतिदिन निर्गुण्डी के पौध/टहनी से यज्ञ/हवन करते है, जिससे पूरा वातावरण शुद्ध रहता है और कीट–रोग का न्यूनतम प्रकोप होता है। अभी हाल ही में आप यौगिक कृषि प्रारम्भ किये हैं, जिसमें पॉलीहाउस एवं गौशाला में गायत्री मंत्र जाप का संगीत चलाते रहते है। आपका मानना है कि गायत्री मंत्र से उत्पन्न तरंगों से पौधों का अच्छा विकास होता है, फलतः अधिक उपज प्राप्त होता है। आपके पास दो गाय एवं 2 बछड़े भी है जिनसे शुद्ध दूध मिलता है। इसके घरेलू प्रयोग के पश्चात 2–3 लीटर दूध का प्रति दिन विक्रय भी करते है जो आय के निरन्तरता में मदद करती हे। आप के0वी0के0, कृषि एवं उद्यान विभाग के प्रशिक्षण तथा गोश्ठियों में भाग लेते रहते है और कृषि की नयी–नयी विधाओं के जानकारी हेतु सदैव उत्सुक रहते है। विगत वर्ष आपको आत्मा परियोजना, अल्मोड़ा से प्रगतिशील कृषक के रूप में सम्मानित किया गया है। आप यह भी बताते है कि प्रारम्भ में

2–3 वर्षो मे उन्हें विपणन की समस्या आयी और वो स्थानीय बाजार में दुकान इत्यादि में सब्जी रखवा कर बिक्रय किये। इससे दुकान वाला ज्यादा आय ले लेता और उन्हें कम मिलता। परन्तु अब वो कही नही जाते और अपनी शर्तो पर स्थानीय बाजार के दुकान वाले एवं अल्मोड़ा में आसानी से विपणन हो जाता हैं। श्री बोरा बताते हे कि सब्जी, फल, दूध, गोमूत्र के अर्क आदि से प्रति वर्श उन्हे लगभग रू. 1.00 लाख की आमदनी हो जाती है। और उन्हें कहीं जाना भी नहीं पड़ता है।

प्रभाव: वर्तमान में श्री बोरा का अपने गॉव व समाज में एक अलग पहचान व ऊँचा स्थान है। वे दूसरे कृषकों को भी नई तकनीक अपनाने को प्रेरित करते रहते है। इसके अतरिक्त अपने अनुभव व कृषि के क्षेत्र में दक्षता के चलते अन्य कृशकों द्वारा पूछे गये कृषि संबंधी समस्याओं का निराकरण भी करते है। इस तरह वो क्षेत्र में ''कृषि ज्ञान केन्द्र'' के रूप में भी जाने जाते है।

12 लोगों को काम देकर गांव छोड़ने वालों को दिखाया आइना

चौना के पूरन बोरा ने सब्जी उत्पादन में तलाशा भविष्य

कुछ हट के

Chapter 5

HRD, Publications & Linkages

5.1 Training Programmes

1. Training-cum-review workshop of Animal Scientist of KVKs (UP & Uttrakhand) organized at ICAR-ATARI Kanpur on 21/7/2016.
2. Training-cum-review workshop of Pant Protection Workshop cum training of SMS of KVKS UP & Uttrakhand held at ICAR-ATARI, Kanpur on 28/7/2016.
3. Training cum workshop for the Home Scientist from 06-07 May 2016 held at SHIATS Allahabad.
4. Training programme on skill development by ASCI held at ICAR-CAZRI, Jodhpur and organized by ICAR-ATARI, Jodhpur from 7-9 Nov., 2016.

5.2 Workshops/Meetings

1. Meeting of vKVK with Dr. TV Prabhakar and his research team from IIT Kanpur along with the scientist and Director ICAR-ATARI Kanpur on 4/6/2016.
2. Zonal Project Management Committee (ZPMC) meeting of Farmer FIRST meeting at ICAR-ATARI, Kanpur on 10/6/2016 in which 8 member experts including farmers' members participated and total 13 research project proposal from ICAR institutes and SAUs were evaluated.
3. Agronomy Scientists' training-cum-review workshop on 8/7/2016 at ICAR-ATARI Kanpur
4. First Review meeting of ARYA project being implemented by KVKs Muzaffarnagar and Haridwar at ICAR-ATARI Kanpur on 12/7/2016.
5. Soil Scientist training–cum-review workshop of all KVK scientist for one day held at ICAR-ATARI Kanpur on 13/7/2016.
6. Horticulture Scientist training-cum-review workshop for all KVK scientist of UP and Uttrakhand) held at ICAR-ATARI Kanpur on 19/7/2016.
7. Conference of Directors (Extension) and Directors of ICAR-ATARI, Kanpur held at ICAR-ATARI Kanpur on 11/08/2016.
8. IMC meeting held at ICAR-ATARI Kanpur at 16 Aug 2016.
9. Review meeting of cluster FLDs Oil Seed & Pulses which was held at ICAR-ATARI Kanpur on 8/9/2016.
10. Meeting for finalization of five best technology by KVKs of UP and Uttarakhand held on 26-09-2016 at ICAR-ATARI Kanpur.
11. Purvanchal Krishi Pradarshini , Gorakhpur held at Chaukmafi and inaugurated by the Hon'ble AG&FW Minister, Govt . of India , Sh. Radha Mohan Singh Ji.
12. Zonal project management committee meeting of Former FIRST on 12 Nov., 2016 at ICAR-ATARI Kanpur.
13. Farmer FIRST meeting on 24/11/2016 at ICAR-ATARI Kanpur.
14. Interface meeting on Skill Development for KVK Expert at ICAR-ATARI Kanpur in partnership with JSS, Kanpur and Jet knitwear, Kanpur on 2/12/2016.
15. Meeting cum workshop on Seed Hub held at ICAR-ATARI Kanpur on 7/12/2016.
16. One day technical session on project preparation for skill Development for KVK expert held at ICAR-ATARI Kanpur on 13/12/2016.
17. Sensitization meeting with KVKs for preparing the application for Zonal and National best KVK award.
18. E-Kisan App or mobile app development for KVKs of UP and Uttarakhand & first 30 KVKs with Omega telesolution and 30 kvks with joint partnership with CSAUAT, Kanpur.
19. Review meeting of ARYA Project on held at ICAR-ATARI Kanpur on 6/3/2017.
20. Review workshop of Inter-Instutional Research Project on Reducing Drudgery on 28-29 March 2017 held at ICAR-ATARI Kanpur.
21. PMFBY at Ghaziabad in which Hon'ble MP Ghaziabad Sh. V. K. Singh participated on 11/04/2016.
22. PMFBY at G.B. Nagar in which Hon'ble MP Sh. Mahesh Chandra Sharma participated on 13/04/2016.
23. National workshop on "FLDs and Seed Production of Oilseed & Pulses crop" on 16-17 May 2016 held at NASC Complex New Delhi.

24. Annual Zonal Workshop held at IISR Lucknow from 26-28 May, 2016.
25. Finalization of proceedings of Agro Ecological Workshop for Bundelkhand Region held at IGFRS Jhansi from 25-26 August, 2016.
26. National Workshop on skill development 4-6 January, 2017 held at NASC New Delhi.
27. Review workshop ARYA and EFC meeting held at NASC, New Delhi during 17-18 Jan 2017.
28. Meeting with VC, Comptroller & DE, SVPUAT, Meerut on 30-31 Feb., 2017 regarding budget utilization for the year 2016-17.
29. Director conference on 14-15 Feb 2017 at NASC New Delhi.
30. Farmer FIRST Review meeting at NAARM Hyderabad from 18-19 March 2017.
31. State wise coordination committee for doubling farmer Income by March on Zonal Meeting held at IVRI, Bareilly on 05-04-2017.
32. Celebration of Annual Day of the institute.
33. National Science Day on 28 Februray, 2016 at this institute.
34. Organized the events like quize, essay writing and speech on the event of Hindi Pakhwaraa

5.3 HRD by Directorate of Extension of SAUs

Title of the training programmes	No. of Participants	No. of KVKs involved
CSAUA&T, Kanpur		
Eco friendly and synergetic management of horticultural crops for increasing the income of farm families	25	18
Recent technologies for increasing productivity of pulse and oilseed crops	25	20
E-Kisan App	28	22
Effective plant protection measures for agriculture and horticultural crops	25	19
Animal health and establishment of animal demonstration units	26	20
Bio energy and climate resilience for sustainable development in India	55	18
SVPUA&T, Meerut		
Improving soil health for sustainable crop production technology	25	13
Effect of climate change on crop production	25	13
GBPUA&T, Pantnagar		
Efficiency Centric Agro-Management for Food and Nutrient Security	02	02
Precision Farming to Enhance Quality and Productivity of Vegetables	01	01
Role of Communication in Rural Development of Hilly Areas	03	03
Skill Development in Agriculture	73	26
Doubling the Farmers' Income by 2022 - A Brain Storming Session	09	09
Women Empowerment and Gender Sensitization	01	01
Effective Extension Methodology for Fisheries Extension Personnel	01	01
Skill Development for Agro- Forestry Extension Personnel	01	01
Skill Development in Dairy Management	03	03
Skill Development in Organic Farming	01	01
Extension Methodology for effective Transfer of Technology	03	03
Climate Change	02	02
Motivational Skills for Organic Farming	02	02
ICT for Linking Farmers to Market	03	03
Extension Management Skills	01	01
Leaders & Group methods in Transfer of Technology	01	01
Skill Development in Horticultural Crops	03	03
Extension Management Skills	01	01
Participatory Extension Methods for Effective Transfer of Technology	01	01
Training Skills for Master Trainers for strengthening of ATMA model	02	02
Training Needs Assessment of an Extension Programme	01	01
UUHF, Pauri		
Cultivation Practices of Vegetable Crops	20	2
Integrated Nutrient Management of Hill Crops	15	2
Production Technology of Vegetable Crops	15	2
Farmers exposure visit	30	2
Total	**429**	**-**

5.3 Training and capacity building for staff of the institute under HRD

Category wise trainings planned and implemented for 2016–17

A. Physical targets and achievements

S. No.	Category	Total No. of Employees	No. of trainings planned for 2015-16 as per ATP	No. of employees undergone training during			% realization of trainings planned during 2016-17
				April-September 2016	Oct. 2016 -March 2016	April 2015 - March 2016	
1	2	3	4	5	6	5+6=7	7/4x100=8
1	Scientist	3	4	1	2	3	75
2	Technical	2	2	1	1	2	100
3	Administrative & Finance	7	6	5	0	5	83.33
4	SSS	1	1	0	0	0	0
	Total	13	13	7	3	10	76.92

B. Financial targets and achievements (All employees)

S. No.	RE 2016-17 for HRD			Actual Expenditure up to 31st March, 2017 for HRD			% Utilization of RE
	Plan	Non-plan	Total	Plan	Non-plan	Total	
	(Lakh Rs.)	(Lakh Rs.)	(Lakh Rs.)	(Lakh Rs.)	(Lakh Rs.)	(Lakh Rs.)	2016-17
1	2	3	2+3=4	5	6	Col. 5+6=7	Col. 7*100/ Col.4=8
1	5.00	0	5.00	3.54	0	3.54	70.80

C-1. Category-wise trainings attended by employees during 2016-17

S. No.	Name of Employee	Designation	Discipline/ Section	Name of training programme attended	Actual Expenditure incurred	Entered in ERP system	Concerned Employee attended training as per ATP 2016-17
					(Rs)	(Yes/No)	(Yes/No)
1	Dr. U.S. Gautam	Director	Dairy Extension	Executive Development Programme on Leadership Development	31025	No	Yes
2	Dr Atar Singh	Principal Scientist	Agronomy	ASCI Training Alongwith KVKs at Pantnagar	4500	No	Yes
3	Dr Atar Singh	Principal Scientist	Agronomy	ASCI Training Alongwith KVKs at Ludhiana	6500	No	Yes
4	Dr S K Dubey	Principal Scientist	Agriculture Extension	RTI module at New Delhi RTI Institute	5200	No	Yes
5	Dr S K Dubey	Principal Scientist	Agriculture Extension	ASCI Training Alongwith KVKs at Jodhpur	6000	No	Yes

C-2. Category: Technical staff

S. No.	Name of employee	Designation	Discipline/ Section	Name of training programme attended	Actual Expenditure incurred	Entered in ERP system	Concerned Employee attended training as per ATP 2016-17
					(Rs)	(Yes/No)	(Yes/No)
1	S.N. Yemul	CTO	Computer	Cyber Security	5500	No	Yes
2	S.N. Yemul	CTO	Computer	Krishi Portal	4000	No	Yes
3	S.N. Yemul	CTO	Computer	M-Portal and Feedback session	5400	No	Yes
4	Vinay Dhar Shukla	YCP-II	Computer	M-Portal and Feedback session	2000	No	No
5	Vinay Dhar Shukla	YCP-II	Computer	ERP Modules	1410	No	No
6	K K Bajpai	YCP-I	Computer	M-Portal and Feedback session	2000	No	No

C-3. Category: Administrative staff

S. No.	Name of employee	Designation	Discipline/ Section	Name of training programme attended	Actual Expenditure incurred (Rs)	Entered in ERP system (Yes/No)	Concerned Employee attended training as per ATP 2016-17 (Yes/No)
1	Kanta Prasad	AF&AO	Finance	E-procurement	1670	Yes	Yes
2	R.B. Verma	AAO	Admin	E-procurement	1670	Yes	Yes
3	Raman Tripathi	Asstt	Admin	ERP Modules	1996	No	Yes
4	Ms. Kratika Sharma	Asstt	Admin	ERP Modules	2301	No	Yes
5	Shravan Yadav	LDC	Admin	E-procurement	1415	Yes	Yes

C-4. Category: SS : Nil

D. Number of trainings organised for various categories of ICAR employees including winter/summer schools and short term trainings : Nil

5.4 Publications

Research Papers:

1. Nishi Sharma, Ambrish Sharma, J P Sharma, S K Dubey, J P S Dabas, B K Singh, Anjani Kumar, Nafees Ahmad, S Chakravorty, Pratibha Joshi, Nand Kishore1, P P Maurya, Kisan Singh and A V Dubey. 2017. Farmers' preferences to varietal attributes as an indicator for acceptance and adoption of aromatic rice (*Oryza sativa*) varieties, *Indian Journal of Agricultural Sciences*, 87 (1): 51–55.
2. A K Singh, A K Singh, Anupam Mishra, Lakhan Singh and S K Dubey. 2016. Improving lentil (*Lens culinaris*) productivity and profitability through farmer participatory action research in India. *Indian Journal of Agricultural Sciences,* 86 (10): 1286–92.
3. S.K. Dubey, Nishi Sharma, J.P. Sharma, Ambrish Sharma and Nand Kishore. 2016. Assessing citrus (lemon) based intercropping in the irrigated areas of northern plains of Haryana. *Indian J. Hort*. 73(3), September: 441-444.
4. S. K. Dubey, J. P. Sharma, A. K. Singh, US Gautam and Uma Sah. 2016. Futurology of farm extension services in India. *Current Science*, Vol. 110, NO. 12, 2216-2217.
5. A. K. Singh, S. K. Dubey, Uma Sah and Lakhan Singh. 2016. Temporal adaptation of agricultural extension systems in India. *Current Science,* Vol. 110, NO. 7, 1169-1177.
6. Anuradha Ranjan Kumari, S. K. Dubey and US Gautam. 2016. Elected Women Panchayat Samiti: An Structural Arrangement for Farm Women Empowerment in India. *Indian Journal of Extension Education,* Vol. 52, No. 1 & 2, 2016 (45-51).
7. Anuradha Ranjan Kumari1, S.K. Dubey and U.S. Gautam. 2016. What Hinders the Elected Women Village Panchayat Members in their Role Performance? *Journal of Community Mobilization and Sustainable Development,* Vol. 11(1), 61-65.
8. Lakhan Singh, Rajesh Bishnoi, V P Chahal, Bankey Bihari and Shantanu Kumar Dubey. 2017. Psychological and leadership orientation of development officials in India - A diagnostic study of soil and water conservation training programme. *Indian Journal of Agricultural Sciences,* 87 (2): 215–19.
9. V. Sangeetha, R. Roy Burman, J.P. Sharma and S.K. Dubey. 2016. Institutional innovations in technology transfer-Mobile agro advisory services and its impact in adopting improved cultivation practices. *Economic Affairs*, 61(3): 525-532.
10. MeCarty SC, Chauhan DS, MeCarty AD, Tripathi KM, Selvan T and Dubey SK. 2017. Effect of Azotobacter and Phosphobacteria on Yield of Wheat (*Triticum aestivum*). *Vegetos*, 30(1), 24-26.
11. J.B. Singh, N.K. Singh and U.S. Gautam entitled on " Impach Assessment of Beekeeping Training Programme Among Rural Youths for Poverty Reduction in District Pratapgarh. J. Interacad 20(4):537-540, 2016.

Lead Papers:

1. SK Dubey, Uma Sah and US Gautam. 2016. Speedy transfer of technologies for sustainable farming. Lead paper in the National Conference on Mass Communication as an effective tool for agricultural development, organized by UPCAR, Lucknow and held at Lucknow from June 14-15, 2016 , 6-16.
2. US Gautam and SK Dubey. 2016. Skilling of rural youth for remunerative farming. Lead paper in the National Conference on Mass Communication as an effective tool for agricultural development, organized by UPCAR, Lucknow and held at Lucknow from June 14-15, 2016, 17-27.
3. S.K Dubey, Uma Sah, U.S Gautam and Y.D Mishra. 2016. 'Why' and 'How' for speedier transfer of farm technologies?, Lead paper in National Seminar on Information and communication management concerning climate smart agriculture for sustainable development and poverty alleviation, organized by Indian Society of extension Education and Department of Extension Education, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, held from November, 28-30, 2016 at 11-19.
4. US Gautam and SK Dubey. 2017. Skilling the agricultural youths: Experiences and new initiatives of Krishi Vigyan Kendras. Lead Paper in the National conference on Farmers' Centric Agri-innovations for sustainable developed, held at CSAUT, Kanpur from March, 24-25, 2017, P:53-58.

Books:

1. Singh A.K., Gautam, U.S., Chahal V.P., Singh N.P., Singh Atar, Dubey S.K. and Yemul S.N. 2016. Demonstrational performance of pulses of India: Experiences of KVKs under NFSM (2015-16), Published by ICAR-ATARI, Kanpur, pp 122.
2. Sangeetha, V., JP Sharma, RR Burman, SK Dubey and MS Nain. 2017. ICT based agricultural extension initiatives in India, pp 284. Westville Publishing House, New Delhi.

Bulletins:

1. J S Sandhu, Gautam, U.S., R.K. Singh, A.K. Garg, Atar Singh, S.K. Dubey, B.P. Singh and Rupasi Tiwari. 2016. Agro-climatic Region Centered Research and Development Planning (Upper Gangatic Plains-UGP region), Published by ICAR-ATARI, Kanpur, pp 30.
2. J S Sandhu, U.S. Gautam, P.K. Ghosh, S.K. Dubey, Atar Singh, R.V. Kumar and S.V. Singh 2016. Agro-climatic Region Centered Research and Development Planning (Central plateau and Hill region), Published by ICAR-ATARI, Kanpur, pp 27.
3. Gautam, U.S., Atar Singh, S.K. Dubey and Ajit Kr. Srivastava, S.N. Yemul and Avanish Kumar Singh. Step up farmer's Right with PPV & FRA and ICAR-ATARI, Kanpur, Published by ICAR-ATARI, Kanpur, pp 46.

Newsletters:

1. Gautam, U.S., Singh Atar, Dubey S.K. and Yemul S.N. ICAR-ATARI, Kanpur Newsletter October-December, 2016, Volume:5, pp 12.
2. Gautam, U.S., Singh Atar, Dubey S.K. and Yemul S.N. ICAR-ATARI, Kanpur Newsletter July-September, 2016, Volume: 4, pp 8.
3. Gautam, U.S., Singh Atar, Dubey S.K. and Yemul S.N. ICAR-ATARI, Kanpur Newsletter April-June, 2016, Volume:3, pp 8.
4. U.S Gautam, Atar Singh, S.K. Dubey & S.N. Yemul (2017). News Letter of ICAR-ATARI, Kanpur published by ICAR-ATARI, Zone-IV, Kanpur (UP) Volume-6, pp.8.

Reports:

1. Gautam, U.S., Atar Singh, S.K. Dubey and Ajit Kr. Srivastava (2015) NICRA Annual Report 2014-15, Published by ICAR-ATARI, Kanpur, pp 29.

Popular Article:

1. U S Gautam, Atar Singh, SK Dubey, Ajit Kumar Srivastava and Avanish Kumar Singh. 2016. *Krishi mein jalwayoo ka prabhav evem nirakaran ki pahal*. IKSHU, 5(1), 79-81.
2. A K Singh, S K Dubey, US Gautam, Atar Singh (2016). Innovative Farm Technologies for small holders of Uttar Pradesh and Uttarakhand. *Indian Farming*, 66(5): 2-4.

5.5 Award /Certificates

1. Recognition of the outstanding servies regarding the Agro-biodiversity Conservation and Implementation of PPV& FRA Act 2001 to Dr. U.S. Gautam, Director, ICAR-ATARI, Kanpur held on 7th July, 2016 at New Delhi
2. The President, Indian Council of Agricultural Research has conferred the ICAR Award "**Best Krishi Vigyan Kendra Awards at Zonal level** to KVK, Pratapgarh from Zone-IV, during the Foundation Day and Award Ceremony at Vigyan Bhawan, New Delhi on 16.7.2016.
3. Pt. Deen Dayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar 2016 (National/Zonal levl) on 15th March, 2017 the Hon'ble Union Minister of Agril. & Farmers Welfare, Shri Radha Mohan Singh Ji conferred the Zonal Award to KVK, Saharanpur & Haridwar held at Krishi Unnati Mela , IARI, New Delhi .

Certificate:

The Chairman, Central Board of Direct Taxes, Ministry of Finance, Government of India issued a Certificate and appreciated me the taxpayer in the '*Bronze*'category in recognition of the contribution of taxes towards building of this great nation for the Assessment Year 2016-17 and field the Income Tax return.

5.6 Linkage and coordination

1. Linkage with Indian Institute of Technology, Kanpur for agro advisory service through voice and text messages to identified farmers in 81 districts of U.P. & Uttarakhand.
2. Fodder development programme initiated in collaboration with IGFRI, Jhansi.
3. Linkage with CRIDA, Hyderabad for promoting climate resilient technologies in 13 districts of U.P. & Uttarakhand.
4. IIVR, Varanasi for providing suitable technologies for vegetable production.
5. Senior level interactions and meetings organized with line department officials for better convergence & linkage.
6. Linkage initiated with Van Vigyan Kendra
7. Linkage with National Rain fed Area Authority for development of Bundelkhand region.
8. Linkage with MANAGE Hyderabad for Agri-business & Agri Clinic Scheme & also knowledge up gradation of KVK staff in ICT.
9. Interface on KVK-ATMA linkage held at State level with Principal Secretary Agriculture & Director Agriculture for effective linkage.
10. SAUs (GBPUAT, SVBPUAT, CSAUAT & NDUAT) linked for technological backstopping to KVKs of U.P. & Uttarakhand.

Chapter 6

Infrastructure, Staff and Budget Status

6.1 Infrastructure facilities

Most of KVKs are having their own infrastructure facilities, in Uttar Pradesh availability of infrastructure are admin. building (66), farmers hostel (60), staff quarters(59), soil testing labs (45), rain water harvesting (04) and demo unit are established related to livestock, horticulture,polyhouse, vermiculture, mushroom unit and others. Jeep (67), motor cycle (41) and tractors (66) are facilitated. In case of Uttarakhand availability of infrastructure are admin. building (13), farmers hostel (12), staff quarters(12), soil testing labs (5), rain water harvesting (13) and demo unit are established related to livestock, horticulture, polyhouse, vermiculture, mushroom unit and others. Jeep (13), motor cycle (11) and tractors (10) are facilitated by this zone. The details of infrastructure facilities are shown in following Table 5.1.

Table 5.1: State wise basic infrastructure facilities available at KVKs of U.P. & Uttarakand

S.No.	KVK District	Year of establishment	Land with KVK (ha)	Admn. building	Farmers Hostel	Staff Quarter	Soil Testing Lab.	Rain Water Harvesting Structure	Demo Unit-1 (Livestock related)	Demo Unit-2 (Horticulture/Poly House Related)	Demo Unit-3 (Vermi Comp./Mushroom U./Others)	Jeep	Motor Cycle	Tractor
1	Bahraich	1983	13.600	Y	Y	Y	Y	N	Dairy Unit, Fish Unit	Fruit Plant Nursery	-	Y	Y	Y
2	Basti	1989	20.000	Y	Y	Y	Y	N	Goatary Unit	Horticulture Unit	Mushroom Unit	Y	-	Y
3	Ballia	1984	9.600	Y	Y	Y	Y	N	Poultry, Goatary	-	-	Y	Y	Y
4	Mau	1989	21.000	Y	Y	Y	Y	N	Poultry Unit, Fish Unit	-	-	Y	Y	Y
5	Varanasi	1989	12.350	Y	Y	Y	Y	N	Fish Pond	Vegetable Nursery	-	Y	Y	Y
6	Siddharthnagar	1992	16.400	Y	Y	Y	Y	N	Poultry Unit	Horticulture	Vermi compost	Y	Y	Y
7	Faizabad	2004	20.000	Y	Y	Y	Y	N	Bee keeping	-	Vermi Compost, Nadep Unit	Y	-	Y
8	Gorakhpur-I	2004	13.110	Y	Y	Y	Y	N	-	-	Vermi Compost	Y	-	Y
9	Mahrajganj	2004	4.000	Y	Y	Y	Y	N	Goatary Unit	-	Mushroom Unit, Nadep Unit	Y	-	Y
10	Sonbhadra	2004	4.800	N	N	N	Y	N	-	-	NADEP Unit	Y	-	Y
11	Azamgarh	2004	17.000	Y	Y	Y	Y	N	Goatary Unit	-	Vermi Compost, Nadep Unit	Y	Y	Y
12	Barabanki	2004	12.500	Y	Y	Y	Y	N	Goatary Unit	-	Vermi Compost	Y	Y	Y
13	Balrampur	2005	16.320	Y	Y	Y	N	N	Goatary Unit	Nursery	-	Y	Y	Y
14	Chandoli	2005	8.000	Y	Y	Y	Y	N	-	Nursery Unit	Vermi Compost	Y	Y	Y
15	Jaunpur	2005	7.200	Y	Y	Y	Y	N	Goatary Unit	-	Agriculture Implement	Y	Y	Y
16	St. Kabir Nagar	2009	24.000	Y	Y	Y	N	N	-	-	-	Y	-	Y
17	Ambedkar Nagar	2010	9.735	Y	Y	Y	N	N	-	-	-	Y	-	Y
18	Jhansi	1984	22.500	Y	N	Y	Y	N	-	Nursery	Vermi Compost, NADEP Unit	Y	Y	Y
19	Raebareli	1984	9.800	Y	Y	Y	Y	N	Poultry Unit, Fish Unit	-	Mushroom Unit	Y	Y	Y
20	Fatehpur	1989	10.200	Y	Y	Y	Y	N	Nursery	-	NADEP Unit	Y	Y	Y
21	Aligarh	1992	20.000	Y	Y	Y	Y	N	Bee keeping	Nursery, Medicinal Plant	-	Y	Y	Y
22	Kannauj	2004	10.000	Y	Y	Y	N	N	Dairy Unit	-	Vermi Compost	Y	-	Y
23	Etawah	2004	6.500	Y	N	Y	N	N	Dairy Unit	-	Vermi Compost	Y	-	Y
24	Mainpuri	2004	10.000	Y	Y	Y	Y	N	Bee keeping	-	Vermi Compost, NADEP Unit	Y	-	Y
25	Kanpur Dehat	2004	20.000	Y	Y	N	Y	N	Bee keeping, Poultry	-	Vermi Compost	Y	-	Y
26	Mahoba	2004	8.000	Y	Y	Y	Y	N	Goatary Unit, Poultry Unit	-	-	Y	-	No
27	Firozabad	2004	20.000	Y	Y	Y	N	N	Poultry	-	Vermi Compost	Y	-	Y
28	Hamirpur	2005	12.700	Y	N	Y	N	N	Dairy Unit	-	Vermi Compost	Y	-	Y
29	Lakhimpur Kheri	2005	20.000	Y	Y	Y	N	N	Dairy Unit	-	-	Y	-	Y
30	Farrukhabad	2005	20.000	Y	Y	Y	N	N	-	-	-	Y	-	Y

31	Jalaun	2005	23.060	Y	Y	Y	N	N	-	-	Vermi Compost	Y	-	Y
32	Lalitpur	2005	20.000	Y	N	Y	N	N	-	Nursery, Medicinal Plant	Vermi Compost	Y	-	Y
33	Hardoi	2005	16.209	Y	N	Y	N	N	Dairy Unit	-	Vermi Compost	Y	-	Y
34	Banda	2007	8.890	Y	Y	N	N	N	-	-	-	Y	-	Y
35	Mahamaya Nagar	2009	20.755	Y	Y	Y	N	N	-	-	-	Y	-	Y
36	Mathura	1984	21.000	Y	Y	Y	Y	N	Dairy Unit	-	Vermi Compost	Y	Y	Y
37	Bijnor	1992	13.350	Y	Y	Y	Y	N	-	-	Mushroom Unit, Bio-control Unit	Y	Y	Y
38	Rampur	1992	12.813	Y	Y	Y	Y	N	-	Poly House	Vermi Compost, Mushroom Unit	Y	Y	Y
39	Budaun	1992	22.280	Y	Y	Y	Y	N	Carp Hatchery	Horticulture Unit	Agro-Forestry	Y	Y	Y
40	Saharanpur	1992	10.109	Y	Y	Y	Y	N	-	Nursery	Vermi Compost, Mushroom Unit	Y	Y	Y
41	Ghaziabad	1992	15.640	Y	Y	Y	N	N	-	-	Mushroom Unit, Bio-control Unit	Y	Y	Y
42	Shahjahanpur	1994	18.314	Y	Y	Y	Y	N	-	Horticulture	Mushroom Unit	Y	Y	Y
43	Meerut	1994	8.820	Y	Y	Y	Y	Y	-	Mango Orchard	Engineering Workshop	Y	Y	Y
44	Muzaffarnagar	1994	10.600	Y	Y	Y	Y	N	Honey processing Unit	-	Vermi Compost	Y	Y	Y
45	Pilibhit	1998	12.000	Y	Y	Y	Y	N	-	Horticulture	Mushroom Unit	Y	Y	Y
46	Baghpat	2004	12.560	Y	Y	Y	N	N	-	Horticulture	Mushroom Unit	Y	Y	Y
47	Moradabad	2005	17.500	Y	Y	Y	Y	N	-	Horticulture	Mushroom Unit	Y	Y	Y
48	Gautam Buddh Nagar	2005	15.640	Y	Y	Y	Y	N	-	Nursery Unit	Vermi Compost	Y	Y	Y
49	Bulandshahr	2004	15.549	N	Y	Y	N	N	-	-	-	No	-	No
50	Sultanpur	1976	73.300	Y	Y	Y	Y	N	Fish Unit	Horticulture Nursery	-	Y	Y	No
51	Etah	1992	45.500	Y	Y	Y	Y	N	Poultry Unit, Goatary Unit, Dairy Unit	-	-	Y	Y	Y
52	Mirzapur	1984	20.000	Y	Y	Y	Y	N	-	Horticulture Unit	Vermi Compost	Y	Y	Y
53	Gonda	1989	21.300	Y	Y	Y	Y	N	Poultry, Goatary Unit, Dairy Unit, Piggery Unit	Horticulture Unit, Vegetable Nursery	-	Y	Y	Y
54	Chitrakoot	1992	19.650	Y	Y	Y	Y	Y	Goatary Unit, Dairy Unit, Piggery, Poultry	Horticulture	-	Y	Y	Y
55	Allahabad	1992	26.700	Y	Y	N	Y	N	Piggery	Horticulture	-	Y	Y	Y
56	Pratapgarh	1999	20.110	Y	Y	Y	N	Y	Poultry	Horticulture	IFS	Y	Y	Y
57	Unnao	1999	20.340	Y	Y	Y	Y	N	Bee keeping, Dairy Unit, Goatary	-	Vermi Compost	Y	Y	Y
58	Bareilly	1985	6.900	Y	Y	N	Y	N	Bee Keeping, Fish Unit	-	-	Y	Y	Y
59	Lucknow	1994	20.000	Y	N	N	N	N	-	-	Vermi Compost, Farm Machinery	Y	Y	Y
60	Ghazipur	2002	25.200	Y	Y	Y	Y	N	Poultry	Horticulture	-	Y	Y	Y
61	Agra	2002	20.000	Y	N	Y	Y	N	-	Horticulture, Vegetable Nursery	Vermi Compost	Y	Y	Y
62	Kushinagar	2005	20.000	Y	Y	Y	Y	N	Fish Unit	Horticulture	-	Y	-	Y
63	St. Ravidas Nagar	2008	18.416	Y	Y	Y	N	N	-	-	-	Y	-	Y
64	Deoria	2009	8.160	Y	Y	Y	N	N	-	-	-	Y	-	Y
65	Sitapur-I	2005	12.353	Y	Y	Y	Y	N	Dairy Unit	Horticulture	-	Y	Y	Y
66	Kaushambi	2006	16.500	Y	Y	N	N	Y	Poultry, Goatary, Fish Unit	Horticulture	-	Y	-	Y
67	Auraiya	2007	6.500	Y	Y	N	N	N	Goatary	Planting Material	Honey Processing Unit, Vermi compost,	Y	Y	Y
68	Sitapur-II	2011	21.050	Y	Y	N	Y	N	-	-	-	Y	-	Y
69	Gorakhpur-II	2017	20.056										-	Y
	Total			**66**	**60**	**59**	**45**	**4**	**0**	**0**	**0**	**67**	**41**	**66**

70	Tehri Garhwal	1983	21.000	Y	Y	N	Y	Y	-	Horticulture Unit	Mushroom Unit	Y	N	Y
71	Champawat	1994	6.000	Y	Y	Y	Y	Y	Fish Unit	Poly House	Mushroom Unit	Y	Y	Y
72	Almora	2004	15.000	Y	Y	Y	N	Y	-	Horticulture Unit	Vermi Compost	Y	Y	Y
73	Chamoli	2004	7.780	Y	Y	Y	N	Y	-	Horticulture Unit	Vermi Compost	Y	Y	Y
74	Haridwar	2004	24.500	Y	Y	Y	N	Y	-	Horticulture Unit	Vermi Compost	Y	Y	Y
75	Pauri Garhwal	2004	20.000	Y	Y	Y	Y	Y	-	Horticulture Unit	Vermi Compost	Y	N	N
76	Rudraprayag	2004	13.790	Y	Y	Y	Y	Y	-	Horticulture Unit	-	Y	Y	Y
77	Nainital	2004	9.000	Y	N	Y	N	Y	-	Poly House	Vermi Compost	Y	Y	N
78	Pithoragarh	2004	17.190	Y	Y	Y	N	Y	-	Horticulture Unit	Vermi Compost	Y	Y	N
79	Dehradun	2004	24.000	Y	Y	Y	Y	Y	-	Horticulture Unit, Poly House	-	Y	Y	Y
80	Udham Singh Nagar	2004	21.440	Y	Y	Y	N	Y	Fish Unit	-	Vermi Compost	Y	Y	Y
81	Uttarkashi	2004	12.620	Y	Y	Y	N	Y	Dairy Unit	-	Vermi Compost	Y	Y	Y
82	Bageshwar	2007	7.860	Y	Y	Y	N	Y	Dairy Unit	Poly House	-	Y	Y	Y
	Total			**13**	**12**	**12**	**5**	**13**	**0**	**0**	**0**	**13**	**11**	**10**
	Grand Total			**79**	**72**	**71**	**50**	**17**	**0**	**0**	**0**	**80**	**52**	**76**

6.2 State wise Number of Existing KVKs covered for modernizing with additional facilities during XIIth Plan upto March 2017

Sr. No.	Details of facilities	Uttar Pradesh	Uttarakhand
1	Rain Water Harvesting Facility	5	9
2	Soil and Water Testing Laboratory	45	6
3	Minimal Processing Facility	6	1
4	Carp Hatchery	5	2
5	Integrated Farming System units	67	13
6	e-Linkage Facility	68	13
7	Technology Information Unit	50	10
8	Mini Seed Processing Facility	4	-
9	25 KVA Silent Genset	10	-

6.3 Staff Position

Out of total post of 1312 in the KVKs of both state, 991 post are filled up and rest 321 post are lying vacant. In case of Uttar Pradesh, there are 1104 posts out of which 973 are filled up and 231 post are lying vacant and in KVKs of Uttarakhand there are 198 posts out of which 118 are filled up and 90 posts are still lying vacant. In both the states, post wise detail positions are Head (F: 167, V : 36); SMS (F: 958, V: 260); Farm Manager (F: 51, V:31); PA-Computer(F: 62, V: 20); PA-Lab Asstt(F: 55, V: 27); Assistant(F: 67, V:15); Steno(F: 55, V: 27); Driver(F: 108, V: 56) and SSS(F: 138, V: 26). Detail KVK wise staff positions are given in the following Table 5.3.

Table 6.3: Statewise detail staff position

S. No.	Name of KVK	Head		SMS		Farm Manager		PA (Computer)		PA (Lab Tech.)		Assistant		Steno		Driver		SSS		TOTAL	
		F	V	F	V	F	V	F	V	F	V	F	V	F	V	F	V	F	V	F	V
1	Bahraich	1	0	4	2	1	0	1	0	0	1	1	0	1	0	2	0	2	0	**13**	**3**
2	Basti	1	0	6	0	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**16**	**0**
3	Ballia	1	0	4	2	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**14**	**2**
4	Mau	1	0	6	0	1	0	0	1	1	0	1	0	1	0	2	0	1	1	**14**	**2**
5	Varanasi	1	0	6	0	1	0	0	1	0	1	1	0	1	0	1	1	2	0	**13**	**3**
6	Siddharthnagar	1	0	5	1	1	0	0	1	2	-1	1	0	1	0	2	0	2	0	**15**	**1**
7	Faizabad	1	0	6	0	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**16**	**0**
8	Gorakhpur-I	1	0	6	0	1	0	1	0	1	0	1	0	0	1	2	0	2	0	**15**	**1**
9	Mahrajganj	1	0	5	1	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**15**	**1**
10	Sonbhadra	1	0	6	0	1	0	1	0	1	0	0	1	0	1	1	1	2	0	**13**	**3**
11	Azamgarh	1	0	4	2	1	0	1	0	1	0	0	1	2	-1	1	1	1	1	**12**	**4**
12	Barabanki	1	0	4	2	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**14**	**2**
13	Balrampur	1	0	5	1	0	1	1	0	1	0	1	0	1	0	1	1	2	0	**13**	**3**
14	Chandoli	1	0	5	1	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**15**	**1**
15	Jaunpur	1	0	6	0	1	0	1	0	1	0	1	0	1	0	1	1	1	1	**14**	**2**

16	St. Kabir Nagar	1	0	6	0	1	0	1	0	1	0	1	0	0	1	1	1	2	0	**14**	**2**
17	Ambedkar Nagar	1	0	5	1	1	0	1	0	1	0	1	0	1	0	1	1	2	0	**14**	**2**
18	Jhansi	1	0	1	5	0	1	1	0	0	1	1	0	1	0	2	0	2	0	**9**	**7**
19	Raebareli	1	0	5	1	0	1	1	0	0	1	1	0	1	0	2	0	2	0	**13**	**3**
20	Fatehpur	1	0	6	0	0	1	1	0	1	0	1	0	1	0	2	0	2	0	**15**	**1**
21	Aligarh	1	0	5	1	0	1	1	0	0	1	1	0	1	0	2	0	2	0	**13**	**3**
22	Kannauj	1	0	6	0	0	1	1	0	1	0	1	0	1	0	1	1	2	0	**14**	**2**
23	Etawah	1	0	6	0	0	1	1	0	1	0	1	0	0	1	2	0	2	0	**14**	**2**
24	Mainpuri	1	0	5	1	0	1	1	0	0	1	1	0	0	1	1	1	2	0	**11**	**5**
25	Kanpur Dehat	1	0	6	0	0	1	1	0	1	0	1	0	1	0	2	0	2	0	**15**	**1**
26	Mahoba	0	1	0	6	0	1	0	1	0	1	0	1	0	1	0	2	2	0	**2**	**14**
27	Firozabad	1	0	6	0	0	1	1	0	0	1	1	0	0	1	2	0	2	0	**13**	**3**
28	Hamirpur	0	1	1	5	0	1	0	1	0	1	0	1	0	1	0	2	0	2	**1**	**15**
29	Lakhimpur Kheri	1	0	4	2	0	1	1	0	0	1	1	0	1	0	2	0	2	0	**12**	**4**
30	Farrukhabad	1	0	6	0	0	1	1	0	0	1	1	0	1	0	2	0	2	0	**14**	**2**
31	Jalaun	0	1	1	5	0	1	0	1	0	1	0	1	0	1	1	1	1	1	**3**	**13**
32	Lalitpur	1	0	1	5	0	1	0	1	0	1	0	1	0	1	0	2	2	0	**4**	**12**
33	Hardoi	1	0	6	0	0	1	1	0	0	1	1	0	1	0	1	1	1	1	**12**	**4**
34	Banda	0	1	0	6	0	1	0	1	0	1	0	1	0	1	0	2	2	0	**2**	**14**
35	Hathras	1	0	5	1	0	1	1	0	0	1	1	0	1	0	1	1	2	0	**12**	**4**
36	Mathura	1	0	5	1	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**15**	**1**
37	Bijnor	1	0	5	1	1	0	1	0	0	1	1	0	1	0	1	1	1	1	**12**	**4**
38	Rampur	1	0	6	0	1	0	1	0	1	0	1	0	1	0	1	1	2	0	**15**	**1**
39	Budaun	1	0	5	1	1	0	1	0	1	0	1	0	0	1	2	0	2	0	**14**	**2**
40	Saharanpur	1	0	6	0	1	0	1	0	0	1	1	0	1	0	2	0	2	0	**15**	**1**
41	Ghaziabad	1	0	6	0	1	0	1	0	0	1	1	0	1	0	2	0	2	0	**15**	**1**
42	Shahjahanpur	1	0	6	0	1	0	1	0	1	0	1	0	1	0	1	1	2	0	**15**	**1**
43	Meerut	1	0	5	1	0	1	1	0	1	0	1	0	1	0	2	0	3	-1	**15**	**1**
44	Muzaffarnagar	1	0	6	0	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**16**	**0**
45	Pilibhit	0	1	4	2	1	0	1	0	1	0	1	0	1	0	1	1	2	0	**12**	**4**
46	Baghpat	1	0	4	2	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**14**	**2**
47	Moradabad	1	0	5	1	1	0	1	0	1	0	1	0	1	0	1	1	2	0	**14**	**2**
48	Gautam Buddh Nagar	1	0	5	1	1	0	1	0	1	0	0	1	1	0	1	1	2	0	**13**	**3**
49	Bulandshahr	1	0	6	0	1	0	1	0	0	1	1	0	1	0	1	1	2	0	**14**	**2**
50	Sultanpur	1	0	5	1	1	0	1	0	2	-1	1	0	1	0	1	1	3	-1	**16**	**0**
51	Etah	0	1	5	1	1	0	1	0	0	1	1	0	1	0	2	0	2	0	**13**	**3**
52	Mirzapur	1	0	5	1	1	0	1	0	1	0	0	1	1	0	1	1	3	-1	**14**	**2**
53	Gonda	1	0	4	2	0	1	0	1	3	-2	1	0	2	-1	2	0	3	-1	**16**	**0**
54	Chitrakoot	1	0	4	2	1	0	0	1	1	0	1	0	1	0	2	0	6	-4	**17**	**-1**
55	Allahabad	1	0	6	0	1	0	1	0	2	-1	1	0	0	1	2	0	1	1	**15**	**1**
56	Pratapgarh	1	0	4	2	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**14**	**2**
57	Unnao	1	0	6	0	0	1	1	0	1	0	1	0	1	0	2	0	2	0	**15**	**1**
58	Bareilly	0	1	4	2	0	1	0	1	0	1	1	0	1	0	1	1	2	0	**9**	**7**
59	Lucknow	0	1	5	1	0	1	0	1	0	1	0	1	1	0	2	0	2	0	**10**	**6**
60	Ghazipur	1	0	6	0	1	0	1	0	1	0	1	0	1	0	1	1	2	0	**15**	**1**
61	Agra	1	0	6	0	1	0	1	0	1	0	1	0	1	0	1	1	2	0	**15**	**1**
62	Kushinagar	1	0	6	0	1	0	0	1	0	1	1	0	0	1	2	0	0	2	**11**	**5**
63	St. Ravidas Nagar	1	0	5	1	1	0	1	0	1	0	1	0	0	1	2	0	0	2	**12**	**4**
64	Deoria	0	1	6	0	1	0	0	1	0	1	0	1	0	1	2	0	0	2	**9**	**7**
65	Sitapur-I	1	0	4	2	1	0	1	0	1	0	1	0	1	0	2	0	2	0	**14**	**2**
66	Kaushambi	1	0	6	0	1	0	1	0	0	1	1	0	1	0	2	0	2	0	**15**	**1**
67	Auraiya	0	1	5	1	1	0	1	0	1	0	1	0	0	1	1	1	1	1	**11**	**5**
68	Sitapur-II	1	0	5	1	1	0	1	0	1	0	1	0	0	1	2	0	2	0	**14**	**2**
69	Gorakhpur-II	0	1	0	6	0	1	0	1	0	1	0	1	0	1	0	2	0	2	**0**	**16**
	Total (UP)	**58**	**11**	**330**	**84**	**44**	**25**	**54**	**15**	**47**	**22**	**57**	**12**	**52**	**17**	**103**	**35**	**128**	**10**	**873**	**231**

70	Tehri Garhwal	0	1	6	0	0	1	0	1	0	1	0	1	0	1	1	1	2	0	**9**	**7**
71	Champawat	1	0	3	3	1	0	1	0	1	0	1	0	0	1	1	1	0	2	**9**	**7**
72	Almora	1	0	6	0	1	0	1	0	1	0	1	0	0	1	0	2	1	1	**12**	**4**
73	Chamoli	1	0	5	1	1	0	1	0	1	0	1	0	1	0	0	2	0	2	**11**	**5**
74	Haridwar	1	0	6	0	1	0	1	0	0	1	1	0	1	0	0	2	0	2	**11**	**5**
75	Pauri Garhwal	0	1	4	2	0	1	0	1	0	1	0	1	0	1	0	2	0	2	**4**	**12**
76	Rudraprayag	1	0	5	1	1	0	0	1	0	1	1	0	0	1	0	2	0	2	**8**	**8**
77	Nainital	1	0	3	3	0	1	1	0	1	0	1	0	1	0	0	2	0	2	**8**	**8**
78	Pithoragarh	1	0	4	2	0	1	1	0	1	0	1	0	0	1	0	2	1	1	**9**	**7**
79	Dehradun	1	0	4	2	0	1	1	0	1	0	1	0	0	1	0	2	1	1	**9**	**7**
80	Udham Singh Nagar	1	0	5	1	1	0	1	0	1	0	1	0	0	1	0	2	1	1	**11**	**5**
81	Uttarkashi	1	0	3	3	0	1	0	1	0	1	0	1	0	1	1	1	2	0	**7**	**9**
82	Bageshwar	0	1	3	3	1	0	0	1	1	0	1	0	0	1	2	0	2	0	**10**	**6**
	Total (Uttarakhand)	**109**	**25**	**628**	**176**	**7**	**6**	**8**	**5**	**8**	**5**	**10**	**3**	**3**	**10**	**5**	**21**	**10**	**16**	**118**	**90**
	Total (UP & Uttarakhand)	**167**	**36**	**958**	**260**	**51**	**31**	**62**	**20**	**55**	**27**	**67**	**15**	**55**	**27**	**108**	**56**	**138**	**26**	**991**	**321**

Note : F : filled position, V: vacant position

6.4 Status of staff position in ICAR-ATARI, Kanpur

ICAR-ATARI, Kanpur have filled up 13 staff personnel out of total 20 vacancies. There are still 5 positions of Scientific (1 PS, 2 Sr Scientist, 2 Scientist), 2 positions of administrative and 1 supporting staff are lying vacant.

Table 6.4: Status of staff position in ICAR-ATARI

Sr.No.	Positions	Filled	Vacant
1	RMP	1	0
2	Principal Scientist	1	1
3	Sr. Scientist	1	2
4	Scientist	0	2
5	Technical	2	0
6	Administrative	7	2
7	Supporting	1	1
	Total	**13**	**8**

Table 6.5: List of staff position in ICAR-ATARI

Scientific Staff	1. Dr. U.S. Gautam, Director 2. Dr. Atar Singh, Principal Scientist (Agron) 3. Dr. Shantanu Kumar Dubey, Sr. Scientist (Agril Extn.)
Technical Staff	1. Mr. Yemul Sanjeev N., Chief Technical Officer 2. Mr. Pramod Kumar Rai, Sr. Technical Asstt.
Administrative Staff	1. Mr. Kanta Prasad, Asstt. Finance & Accounts Officer 2. Mr. Ram Bodh Verma, Asstt. Administrative Officer 3. Mr. S.N. Singh, Personal Assistant 4. Ms. Kratika Sharma, Assistant 5. Mr. Raman Tripathi, U.D.C. 6. Mr. Sunil Kumar Singh, L.D.C. 7. Mr. Shravan Kumar Yadav, L.D.C.
Supporting Staff	1. Mr. Bal Kishun, Skill Supporting Staff

6.6 Status of Budget

During the financial year 2016-17, an amount of Rs.9727.36 lakh was utilized /released against the allotted budget of Rs. 10950.00 lakh.

Table 5.6 : Head wise allocation funds for ICAR-ATARI and KVKs of Zone-IV for 2016-17

(Rs in lakh)

S. No	Heads	ATARI	Uttar Pradesh			Uttrakhand			Grand Total
			KVK	DE	Total	KVK	DE	Total	
A	**Revenue**								
i)	Pay & Allowances	121.00	6706.00	0.00	6706.00	983.00	0.00	983.00	**7810.00**
ii)	T.A.	8.00	83.45	1.70	85.15	16.70	1.20	17.90	**111.05**
iii)	H.R.D.	5.00	33.70	2.90	36.60	6.10	2.00	8.10	**49.70**
iv)	Contingency	50.00	1385.45	15.80	1401.25	270.50	4.50	275.00	**1726.25**
	Total (A)	**184.00**	**8208.60**	**20.40**	**8229.00**	**1276.30**	**7.70**	**1284.00**	**9697.0**
B	**Capital**								
i)	Furniture/Equipmt.	13.60	384.36	0.00	384.36	127.00	0.00	127.00	**524.96**
ii)	Works	44.57	307.62	0.00	307.62	18.85	0.00	18.85	**371.04**
iii)	Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
iv)	Vehicle	8.00	88.00	0.00	88.00	8.00	0.00	8.00	**104.00**
	Total (B)	66.17	779.98	0.00	779.98	153.85	0.00	153.85	**1000.00**
C	**Revolving Fund**	0.00	3.00	0.00	3.00	0.00	0.00	0.00	**3.00**
D	**TSP**	0.00	91.00	0.00	91.00	159.00	0.00	159.00	**250.00**
	Total (A+B+C+D)	**250.17**	**9082.58**	**20.40**	**9102.98**	**1589.15**	**7.70**	**1596.85**	**10950.0**

Table 11.2 : Actual Expenditure/Release for 2016-17

(Rs in lakh)

S. No	Heads	ATARI	Uttar Pradesh			Uttrakhand			Grand Total
			KVK	DE	Total	KVK	DE	Total	
A	**Revenue**								
i)	Pay & Allowances	120.53	6208.39	0.00	6208.39	1027.72	0.00	1027.72	7356.64
ii)	T.A.	5.64	82.25	1.70	83.95	16.70	1.20	17.90	107.49
iii)	H.R.D.	3.54	34.00	2.60	36.60	6.10	2.00	8.10	48.24
iv)	Contingency	50.25	981.14	8.10	989.24	234.78	4.50	239.28	1278.77
	Total (A)	**179.96**	**7305.78**	**12.40**	**7318.18**	**1285.30**	**7.70**	**1293.00**	**8791.14**
B	**Capital**								
i)	Furniture/Equipmt.	14.25	301.37	0.00	301.37	116.00	0.00	116.00	431.62
ii)	Works	44.57	180.30	0.00	180.30	18.85	0.00	18.85	243.72
iii)	Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iv)	Vehicle	6.88	0.00	0.00	0.00	8.00	0.00	8.00	14.88
	Total (B)	**65.70**	**481.67**	**0.00**	**481.67**	**142.85**	**0.00**	**142.85**	**690.22**
C	**Revolving Fund**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D	**TSP**	0.00	92.00	0.00	92.00	154.00	0.00	154.00	246.00
	Total (A+B+C+D)	**245.66**	**7879.45**	**12.40**	**7891.85**	**1582.15**	**7.70**	**1589.85**	**9727.36**

Scientific Advisory Committee Meetings (SACs) conducted during 2016-17

S. No.	Name of KVK	No.	Date of SAC
1	Bahraich	NC	NC
2	Ballia	NC	NC
3	Basti	NC	NC
4	Mau	NC	NC
5	Varanasi	NC	NC
6	Siddharthnagar	NC	NC
7	Faizabad	NC	NC
8	Gorakhpur	NC	NC
9	Maharajganj	NC	NC
10	Sonbhadra	NC	NC
11	Azamgarh	NC	NC
12	Barabanki	NC	NC
13	Balrampur	NC	NC
14	Chandauli	NC	NC
15	Jaunpur	NC	NC
16	Sant Kabir Nagar	NC	NC
17	Ambedkar Nagar	NC	NC
18	Jhansi	NC	NC
19	Rai Bareli	NC	NC
20	Fatehpur	01	27.01.2016
21	Aligarh	NC	NC
22	Kannauj	NC	NC
23	Etawah	01	11.11.2016
24	Mainpuri	NC	NC
25	Kanpur (Dehat)	01	01.02.2016
26	Mahoba	NC	NC
27	Firozabad	NC	NC
28	Hamirpur	NC	NC
29	Lakhimpur Kheri	NC	NC
30	Farrukhabad	NC	NC
31	Jalaun	NC	NC
32	Lalitpur	NC	NC
33	Hardoi	NC	NC
34	Banda	NC	NC
35	Mahamaya Nagar	NC	NC
36	Mathura	01	30.03.2017
37	Bijnor	01	17.12.2016
38	Rampur	01	26.12.2016
39	Badaun	01	29.12.2016
40	Saharanpur	01	19.12.2016
41	Ghaziabad	01	22.12.2016
42	Sahajahanpur	01	27.12.2016
43	Meerut	01	14.12.2016
44	Muzaffarnagar	01	16.12.2016
45	Pilibhit	01	30.12.2016
46	Baghpat	01	10.01.2017
47	Moradabad	01	09.01.2017
48	Gautam Budha Nagar	01	20.12.2016
49	Bulandshahar	01	21.12.2016
50	Sultanpur	01	18.01.2017
51	Etah	01	24.10.2016
52	Mirzapur	NC	NC
53	Gonda	01	27.3.2017
54	Chitrakoot	NC	NC
55	Allahabad	01	15.11.2016
56	Pratapgarh	01	22.02.2017
57	Unnao	01	27.01.2017
58	Bareilly	01	22.03.2017
59	Lucknow	01	11.03.2016
60	Gazipur	01	25.2.2017
61	Agra	01	13.09.2016
62	Kushinagar	01	12.01.2016
63	St. Ravidas Nagar	NC	NC
64	Deoria	01	09.02.2017
65	Sitapur	01	10.11.2016
66	Sitapur-II	01	11.11.2016
67	Kaushambi	01	09.11.2016
68	Auraiya	01	20.09.2016
69	Tehri Garhwal	01	25.03.2017
70	Champawat	01	16.08.2016
71	Almora	01	04.08.2016
72	Chamoli	01	29.11.2016
73	Haridwar	01	28.07.2016
74	Pauri Garhwal	01	25.03.2017
75	Rudraprayag	01	30.11.2016
76	Nainital	01	03.08.2016
77	Pithouragarh	01	11.08.2016
78	Dehradun	01	29.07.2016
79	Udham Singh Nagar	01	27.07.2016
80	Uttarkashi	01	08.06.2016
81	Bagheshwar	01	09.12.2016
	Total SACs	**46**	

NC : Not conducted (due to assembly elections)

Institute Projects and its achievements (2015-18)

1	**Project Name**	Digitization of Krishi Vigyan Kendras (dKVK) for efficient management information system: An Action Research
	Project Team	PI: Dr. Shantanu Kumar Dubey, PS(Agril. Extn) Co-PI: Dr. U.S. Gautam, Director, Mr. S.N. Yemul, Chief Technical Officer (Computer)
	Objectives	• To develop the interactive database system of personnel and institutional information related to the KVKs • To develop the data repository & retrieval system of technical information pertaining to the KVKs • To establish the data mines of accounts and finance related information of the KVKs
	Achievements	(i) Under this project on the Finance related record i.e, budget released details, financial records and Audit utilization certificate with respect to all the 81KVKs for the period of 2005-06 to 2015-16 were digitized with user friendly retrieval system. (ii) The online monitoring system of all the KVKs from Uttar Pradesh and Uttarakhand were made for PMO Report, MPR, QPR and also for SBA. Currently the success rate of this online monitoring system is 95%. (iii) The website for all the 81 KVKs of UP and Uttarakhand were structured, symenticized, hosted and validated (iv) Annual reports of last 10 years were digitized

2	**Project Name**	Improving production efficiency through situation specific farm mechanization : A diagnostic investigation
	Project Team	PI: Dr. Shantanu Kumar Dubey, PS(Agril. Extn) Co-PI: Dr. U.S. Gautam, Director, Dr. Atar Singh, PS(Agron.), Mr. S.N. Yemul, Chief Technical Officer (Computer)
	Objectives	• Analyzing the existing level of mechanization at farming level in different zones of the state • Quantification of comparative energy use efficiency at mechanized Vs non/less-mechanised farms • Documentation of various processes utilized by farmers to mechanize their farms • Deriving the institutional and policy implications for efficient farm mechanizations in the state
	Achievements	(i) Case Analysis of Sugarcane Trench maker was done for its energy efficiency as compared to manual planting and use of ridger for planting. (ii) The relative Energy required in different planting methods of Sugarcane for Field preparation were $36x10^4$ hps, $100x10^4$ hps, $115.2x10^4$ hps Respectively for Manual planting, Use of Ridger and Trench Maker. (iii) Similarly for sugarcane planting the ene rgy requirements were $72x10^4$ hps, $0.72x10^4$ hps and 0.72×10^4 hps, respectively for manual planting, use of ridger and trench maker.

3	**Project Name**	Developing Location Specific Livelihood Security Frontline Models Integrating With Credit & Marketing of Disadvantage District of U.P. & Uttarakhand, Zone-IV.
	Project Team	PI: Dr. U.S. Gautam, Director Co-PI: Dr. S.K. Dubey, PS(Agril. Extn.), Dr. Atar Singh, PS(Agron.), Dr. Ajit Kr. Srivastava, RA & 21 KVKs Center (Sitapur-II, Pratapgarh, Mainpuri, Etah, Lalitpur, Chitrakoot, Varanasi, Ghazipur, Gonda, Deoria, Mirzapur, Sonbhadra, Rampur, Bareilly, Muzaffarnagar, Saharanpur, Badaun, Shahjahanpur, Uttarkashi, Pauri Garhwal, Dehradun)
	Objectives	• Generate knowledge and better understanding of livelihood interventions and farming systems in selected district. • Participatory development, demonstration and validation of location specific Livelihood security frontline models . • Capacity building of stakeholders including landless laborers, sharecroppers, CBOs and PRIs for building social capital enabling sustainable livelihood security. • Generating Multiple income avenues for land less labourers, Farmers & farm Women
	Achievements	The detailed activity chart and time framework were standardized for each objective. Activities: i. Planning meeting for finalization of action plan, Collection and synthesis of information from primary and secondary sources, Benchmark analysis of the project area, identification of constraints.

		ii. Documentation of existing Integrated Farming System models with credit and marketing facility available in the area and Review & synthesize technological and management intervention, Stakeholder analysis for prioritization of target interventional areas and interventions. iii. Organizing visit to the target area and meeting and discussions including PRA/RRA., Rapport building and awareness programme of Farmers & Groups of the Farmers, Listing of key interventions to serve as a basket of options for broadcasting ideas to stakeholders. iv. Broadcasting identified farming system models amongst different categories of stakeholders.,Collection of responses, Need based changes in identified farming systems models based on stakeholders responses. Preparation and distribution of communication products on socially agreed farming system modules amongst different categories of stakeholders. v. Facilitating group discussions on communication products and collection of responses.,Demonstration, evaluation and validation of farming systems modules through strategic field demonstrations in selected blocks of different clusters ., Documentation of experiences, insights and lessons learnt. vi. Promotion of collective marketing for reducing transaction costs through self help groups.,Interface with bankers, processors and input dealers, Digital and non-digital means of communication through radio, television, newspapers, even the Internet in order to increase awareness about marketing. vii. Support SHGs and Stakeholders to participate at the local, National and International fairs, Linking input supplies and produce marketing,Supporting grading, packaging, packing and licensing by linking with different schemes. viii. Basic marketing training, linking of small-scale rural entrepreneurs to larger, urban-based firms., Preparation of zero-energy cool chambers ix. Exposure visits., capacity building of scientific workers of the project in India x. Capacity building/ Skill up gradation of different categories of stakeholders based on identified farming system modules.,Institutional arrangement for regular training and skill up gradation of stakeholders in future., process documentation. xi. Documentation of result, evaluation and validation of integrated farming system models with credit and marketing facility available in the area. xii. Developing rural delivery system by involving Stakeholders, primary institutions, financial institutions and line departments for establishing strong linkages and upscaling xiii. Documentation of , developed location specific iivelihood security frontline models integrating with credit and marketing of farmers and farm women of disadvantage district of MP, CG & Odisha, xiv. Concluding Workshop. xv. Concluding policies and guidelines for dissemination. xvi. Submission of project. **Achievements** ➢ Identification and selection of KVK as Center Co PIs on the basis of agro-climatic zone. ➢ Preparation of activity chart on the basis of objective. ➢ Center Co PI documented 20 existing farming system model. ➢ Workshop for finalization of IFS model in which expert, farmers, CoPIs, PI & expert from PD FSR, Modipuram, Meerut will participate.
4.	**Project Name**	Externally funded project UPCAR on "Harnessing modern communication technologies for sharing of available knowledge resources with pulse growing farmers of Uttar Pradesh" in collaboration with IIPR, Kanpur
	Project Team	PI: Dr. U.S. Gautam, Director Co-PI: Dr. S.K. Dubey, PS(Agril. Extn.), Dr. Atar Singh, PS(Agron.)
	Objectives	To enhance pulse production through-demonstrations, capacity building, mobile advisory to farmers & other extension activities
	Achievements	Demonstrations of chickpea, lentil, fieldpea, pigeonpea were conducted at farmers' fields. i. Capacity building programmes for them were also organized. ii. Voice messages were sent to 2500 farmers of the project areas. iii. Documentary films on IPM, value addition and processing were made and hosted
5.	**Project Name**	Externally funded research project under extramural funding by ICAR on Value chain analysis of selected agribusiness enterprises in the states of Uttar Pradesh and Uttarakhand
	Project Team	PI: Dr. Shantanu Kumar Dubey, PS(Agril. Extn) Co-PI: Dr. U.S. Gautam, Director, Dr. R.R. Burman, PS(AE), ICAR-IARI, New Delhi, Dr. Reshma Gill, Scientist (AE), ICAR-IARI, New Delhi Implementing centers and partners: Dr. Rajeev Kumar Singh, SMS (Agron), KVK, Jalaun Dr. Prabhas Shukla, SMS (Agribusiness), KVK, Pratapgarh Dr. Bhupendra Kumar Singh, SMS (PP), KVK, Kannauj KVK, Champawat, Uttarakhand
	Objectives	Value chain analysis of selected agribusiness enterprises in the states of Uttar Pradesh and Uttarakhand

	Achievements	(i) Survey was conducted among the farmers of Jalon, Kannauj and Pratapgarh districts and date were collected on various parameters of supply chain like cost share of various actors, share of various cost components in the given chain, structural provisions and functioning of at various level of supply, etc; and also the value chin in reverse direction which included the relative economic gains by various actors, differential share of producers in consumers", retailers' and wholesellers' price in different marketing chains. (ii) The commodities included were potato, aonla, banana, guava and vegetable pea.

6.	Project Name	Extramural research project funded by ICAR on "Determinants of Adoption and Socio-economic Impact of NARS technologies in Indo-Gangetic Plains
	Project Team	PI: Dr. R. Roy Burman; Co-PI: Dr. S.K. Dubey
	Objectives	Developing Road map for Agriculture Development in Upper Gangetic Plain (UGP) Region
	Achievements	The findings are as follows: ➢ Punjab, Uttar Pradesh, West Bengal and Uttarakhand had been selected for the purpose for the study. ➢ Four districts from each of the three states and one district from Uttarakhand had been selected representing different agro-ecosystem in the states. ➢ Two adopted and one non-adopted villages suggested by local KVK from each of the selected districts had been identified for data collection. ➢ Sixty adopter from two (thirty from each) KVK adopted villages and non-adopters from the non-adopted village have been randomly selected. ➢ The variable for measurement e.g. adoption, its determinants and socio-economic and technological impact including measurement techniques had been identified based on review of literature. ➢ Data have been collected from 1170 farmers of identified district of four states. ➢ Adoption of improved Wheat varieties has been recorded as HD-2967 (50%) and HD-3086 (30%) in Punjab, HD-2967 (45%) and Lok-1 (25%) in Uttar Pradesh, HD-2967 (60%) in Haridwar (Uttarakhand). ➢ Adoption of improved Paddy varieties has been recorded as PB-1121 (40%) and PB-1509 (12 %) in Punjab, Sharbati (60%) and Pusa-2511 (10%) in Haridwar, (Uttarakhand), PB-1121 (30%) in Uttar Pradesh, Swarna (40%), Bidhan-2 (45%) in West Bengal. ➢ Adoption of improved sugarcane varieties has been recorded as Sugarcane Coimbatore-0238 (30%) in Uttar Pradesh.

7.	Project Name	Inter-institutional research project on "Combating Drudgery for Enhancing Farm Women's Efficiency in Different Agro-climatic of Uttar Pradesh and Uttarakhand.
	Project Team	PI: Dr. U.S. Gautam; Co-PI: Dr. S.K.Dubey
	Objectives	• What is the quantified estimate of hardship and drudgery of women farmers in crop production, livestock and post harvest related operations? • What are the different gender appropriate tools and farm implements recommended by research institutes and how effective they are in real working situation? • What prototype or kit can be developed containing the available and tested drudgery reducing tools for farm women?
	Achievements	Under this project survey of 960 women farmers from 36 villages across 18 districts of Uttar Pradesh and Uttarakhand to ascertain their socio-economic background, work participation, perceived work load and hardship in the areas of crop production, dairying and post-harvest management. Based on the findings, the action plan for assessment and demonstration of drudgery reducing implements were finalized.

स्वच्छ भारत

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