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ICAR

# ANNUAL REPORT
# 2014-15

**ICAR-Zonal Project Directorate, Zone-IV**
**Kanpur - 208002**

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Chapter-1

# EXECUTIVE SUMMARY

## Training Programmes

Total of 8184 courses were organized involving 175722 farmers, farm women, rural youths and extension functionaries. In all, 16968 rural youths, 13986 extension functionaries and 144768 farmers/farm women participated in training programmes conducted by KVKs.

## Frontline Demonstrations

A total of 17078 frontline demonstrations were organized related to crops (10651), horticulture (1683), fishery units (20), livestock (3662), other enterprises (489), farm implements (301) and nutritional gardening (282).

## Technology Assessment & Refinement

KVKs conducted problem based on farm trials in 13 major thematic areas. 280 technologies were tested involving 2149 farmers. In Uttar Pradesh, 224 farm technologies were assessed covering 1804 farmers, whereas 56 technologies were assessed in Uttarakhand with participation of 345 farmers. Integrated Nutrient Management (41), varietal evaluation (54), Integrated Pest Management (34), Integrated Crop Management (34), Integrated Disease Management (43), weed management (11), Resource Conservation Technology (27), farm machinery (3), post harvest technology (4), drudgery reduction (5) and integrated farming system, etc. related OFTs were taken up for assessment. 57 technologies related to livestock management were also assessed by KVKs. The livestock related thematic technologies like disease management (10), feed and fodder management (7), nutritional management (13), evaluation of breeds (8) and production & management (13) were taken up. Thematic areas like house hold food security (2), nutritional gardening (4) were addressed. In assessment of enterprise related technologies, kitchen gardening, small farm implements as an economic activity & nutritional support were considered.

## Extension Programmes

A large number of extension activities were organized by KVKs of Uttar Pradesh and Uttarakhand. The major activities like advisory service (15792), diagnostic visits (4758), field days (627), group discussions (638), kisan gosthies (1827), film shows (419), self help groups (361), kisan mela (251), exhibitions (525), scientist visit (15334), plant/animal health camps (810), farm science clubs (214), ex-trainees meet (212), farmers' seminars (1218), method demonstrations (626), celebrations of important days (176), special days celebration (89), exposure visits (144) and other activities (10518) with the participation of 1011816 farmers and 34623 extension personnel were performed. 34851 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 67 KVKs with 257172 SMSs to 47966 farmers. Voice messages (7222) were delivered to all registered farmers in agropedia. By sending text and voice messages by mobile has enabled the KVKs to reach the unreached farmers in distant and remotely located areas.

## Seed Production

KVKs of both states produced 19394.73 q seed valued at Rs. 322.23 lakh. The major share was of cereals (13760.41 q) followed by commercial crops (4500.63 q), pulses (490.67 q), oilseeds (337.92 q), vegetables (34.50q), fodder (10.72q) and spices (259.88 q).

## Planting Material Production

KVKs of both states produced 11205772 planting materials including vegetable seedlings (11067892), fruit saplings (41697) & ornamental (63754), forestry (23128), medicinal & aromatic plants (301), etc.

## Bio-Products

The KVKs of Uttar Pradesh produced 70926.45 kg of bio-products whereas the KVKs of Uttrakhand produced 244.65 kg of bio-products. It included vermicompost (46435 kg), NADEP compost (20727.5 kg), FYM (82.15 kg). Besides, KVKs also produced 650 kg bio pesticides.

## Livestock & Fingerling Production

KVKs of Uttar Pradesh also produced 102 goat kids (Barbari), 1841 Broiler, 36 piglets (Large White Yorkshire), fingerlings 41.32 lakh. Whereas, in Uttarakhand very meagre production of broilers(222), calves (2) and cows(3), was reported.

## HRD Activities

Four workshops (Annual & Mid term) with the participation of 81 KVKs, One day interaction meeting on Sodicity problems (20 participants), Orientation course on IPM in important crops with special reference to U.P. & Uttarakhand (40 participants), One day interaction workshop on 'Postal Agricultural Extension System' (18 participants), III Phase training of NAARM for PCs of

KVKs (6 participants), Training Programme on PPVFRA for farmers (50 participants) were some of the HRD activities conducted during this period. Besides this ICAR foundation day, Road Safety week and National Science day also organized by ZPD. Linkage and coordination with different line departments, research institutions and SAUs was strengthened. The Directorates of Extension of four SAUs organized 49 training programmes involving 70 KVKs.

## Publications & Awards

By ZPD – 17 research papers, 1 book, 4 lead papers, one information folder, 11 popular articles, 4 technical reports.

By KVKs - Four books, 75 Technical bulletins, 190 research papers, 34 seminar papers, 20 training manuals, 310 technical reports, 29 popular articles, 23 extension literature and 42 news paper coverage were published by KVKs of both states.

**Awards :** (i) Fellow, Indian Society of Pulses Research and Development (2014) by Indian Institute of Pulses Research, Kanpur (ii) Best Community Mobilizer Award (2015) in VII National Seminar of the Society for Community Mobilization for Sustainable Development on "Sustainable Rural Livelihood: Technological and Institutional Perspectives", held on SKAUST of Jammu, January 8-10, 2015. (iii) Best paper Presentation Award (2014) on the paper titled "Impact of IARI-post office linkage extension model: An innovative extension approach to reach the unreached" in National Extension Education Congress 2014 held from 8-11 November, 2014 at ICAR Research Complex, Umiam, Meghalaya. (iv) KVK Muzaffarnagar awarded Best Zonal KVK Award 2014 of SVPUAT, Meerut under ICAR-ZPD, Kanpur. (v) Dr .V.K.Vidyarthi Memorial Award in 2014-15 by Society of Extension Education (SEE) in the year 2015 (vi) Bharat Jyoti Award 2014, given by Hon'ble Sh. Dr Bhishma Narain Singh, Former Governor of Tamil Nadu & Assam by India International Friendship Society, New Delhi

Chapter-2

# MAJOR ACHIEVEMENTS

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. Presently, this Zonal Project Directorate, Zone IV, 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 Zonal Project Directorate 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 'assessment, refinement and demonstration of technology/products'. The activities of KVK include: on-farm testing to identify the location specificity of agricultural technologies under various farming systems; organizing frontline demonstrations to establish its production potential on the farmers' fields; conduct training of farmers to update their knowledge and skills in modern agricultural technologies; and training of extension personnel to orient them in the frontier areas of technology development; to work as resource and knowledge centre of agricultural technology for supporting initiatives of public, private and voluntary sectors for improving the agricultural economy of the district. In order to create awareness about improved technologies, a large number of extension activities are being taken up; and to support various activities, the seeds and planting materials are also produced by the KVKs and made available to the farmers.

**KVK under different host organizations in Uttar Pradesh and Uttarkhand**

| S. No. | Name of the KVK | Year of establishment | S. No. | Name of the KVK | Year of establishment |
|---|---|---|---|---|---|
| | **NDUA&T, Faizabad** | | | | |
| 1 | Bahraich | 1983 | 10 | Sonbhadra | 2004 |
| 2 | Ballia | 1989 | 11 | Azamgarh | 2004 |
| 3 | Basti | 1984 | 12 | Barabanki | 2004 |
| 4 | Mau | 1989 | 13 | Balrampur | 2005 |
| 5 | Varanasi | 1989 | 14 | Chandauli | 2005 |
| 6 | Siddharthnagar | 1992 | 15 | Jaunpur | 2005 |
| 7 | Faizabad | 2004 | 16 | Sant Kabir Nagar | 2009 |
| 8 | Gorakhpur | 2004 | 17 | Ambedkar Nagar | 2010 |
| 9 | Maharajganj | 2004 | | | |
| | **CSAUA&T, Kanpur** | | | | |
| 18 | Jhansi | 1984 | 27 | Firozabad | 2004 |
| 19 | Raebareli | 1984 | 28 | Hamirpur | 2005 |
| 20 | Fatehpur | 1989 | 29 | Lakhimpur Kheri | 2005 |
| 21 | Aligarh | 1992 | 30 | Farrukhabad | 2005 |
| 22 | Kannauj | 2004 | 31 | Jalaun | 2005 |
| 23 | Etawah | 2004 | 32 | Lalitpur | 2005 |
| 24 | Mainpuri | 2004 | 33 | Hardoi | 2005 |
| 25 | Kanpur Dehat | 2004 | 34 | Banda | 2007 |
| 26 | Mahoba | 2004 | 35 | Mahamaya Nagar | 2009 |
| | **SVPUA&T, Meerut** | | | | |
| 36 | Bijnor | 1992 | 43 | Muzaffarnagar | 1994 |
| 37 | Rampur | 1992 | 44 | Pilibhit | 1998 |
| 38 | Badaun | 1992 | 45 | Baghpat | 2004 |
| 39 | Saharanpur | 1992 | 46 | Moradabad | 2005 |
| 40 | Ghaziabad | 1992 | 47 | Gautam Budha Nagar | 2005 |
| 41 | Sahajahanpur | 1994 | 48 | Bulandshahar | 2004 |
| 42 | Meerut | 1994 | | | |

| | | | | | |
|---|---|---|---|---|---|
| | **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 |
| | **BHU, Varanasi** | | | | |
| 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 | | | |
| | **GBPUA&T, Pantnagar** | | | | |
| 69 | Champawat | 1994 | 74 | Nainital | 2004 |
| 70 | Almora | 2004 | 75 | Pithouragarh | 2004 |
| 71 | Chamoli | 2004 | 76 | Dehradun | 2004 |
| 72 | Haridwar | 2004 | 77 | Udham Sing Nagar | 2004 |
| 73 | Rudraprayag | 2004 | | | |
| | **VPKAS, Almora** | | | | |
| 78 | Uttarkashi | 2004 | 79 | Bagheshwar | 2007 |
| | **UUHF, Pauri (Transferred from GBPUAT, Pantnagar)** | | | | |
| 80 | Tehri Garhwal | 1983 | | | |
| 81 | 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.

## 2.3 Achievement at a glance

| Training Programmes | Courses | Participants |
|---|---|---|
| Farmers & farm women | 6464 | 144768 |
| Rural youths | 893 | 16968 |
| Extension functionaries | 692 | 13986 |
| **Total** | **8049** | **175722** |

| **Frontline demonstrations** | | | |
|---|---|---|---|
| | **Demon.** | **Area (ha)** | **Units/ Animals** |
| Pulses | 2471 | 650.61 | - |
| Oilseeds | 1827 | 502.01 | - |
| Cereals | 3553 | 1041.6 | - |
| Millets | 302 | 50.5 | - |
| Hybrids | 1278 | 246.37 | - |
| Fodder | 600 | 60.85 | - |
| Spices | 32 | 18.68 | - |
| Commercial | 588 | 236.33 | - |
| Vegetables | 1623 | 156.01 | - |
| Fruits | 60 | 13.98 | - |
| **Total** | **12334** | **2976.94** | - |
| Fishery | 20 | 10.86 | 5005 |
| Livestock | 3662 | 21.7 | 6750 |
| Other Enterprises | 489 | 32 | 375 |
| Farm Implements | 301 | 4898.58 | - |
| Kitchen Gardening | 282 | - | 264 |
| **Grand Total** | **17088** | **7940.08** | **12394** |

| Technology Assessment & Refinement | | |
|---|---|---|
| | **Technology** | **Trials** |
| Crops | 403 | 3424 |
| Livestock | 68 | 912 |
| Various enterprises | 6 | 109 |
| **Total** | **477** | **4445** |
| **Extension Programmes** | | |
| | Programmes | Participants |
| Extension activities | 54539 | 1083406 |
| Other extension activities | 34851 | - |
| **Total** | **89390** | **1083406** |
| | Text messages | Beneficiaries |
| Mobile advisory services | 257172 | 47966 |
| **Seed & Planting Material Production** | | |
| | Quintal/No. | Value Rs |
| Seed (q) | 19394.73 | 32222715 |
| Planting material (No.) | 11268463 | 1898899 |
| Bio-Products (q) | 71171.1 | 559010 |
| Livestock strains (No.) | 4136809 | 1600970 |
| **Soil, Water & Plant Analysis** | | |
| | Samples | Beneficiaries |
| 44 KVKs | 25062 | 17515 |
| Publications | by KVKs: 973 | by ZPD: 3 |
| **HRD** | by DEEs | by ZPD |
| No. of programmes | 49 | 10 |
| No. of participants | 87 | 405 |

## 2.4 National Initiatives on Climate Resilient Agriculture (NICRA)

Zonal Project Directorate, Zone-IV, Kanpur is involved in coordinating the project in UP (11) & Uttrakhand (2). Two more districts from Uttar Pradesh are also involved on soidic soil vulnerability. 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.

### Modules intervention:

In order to address the climatic vulnerabilities of the selected villages, different interventions were planned under the four modules. However, the specific interventions under each module for a particular village was need based and decided based on climatic vulnerability and resource situation of that village. The six intervention modules planned are as given below:

### Module-I: Natural Resource

This module consists of interventions related to in-situ moisture conservation, biomass mulching, residue incorporation instead of burning, brown and green manuring, water harvesting and recycling for supplemental irrigation, improved drainage in flood prone areas, conservation tillage where appropriate, artificial ground water recharge and water saving irrigation methods were intervened A total number of 3588 farmers were benefitted with an area of 792.36 ha covered during the period under report.

### Module-II: Crop Production

This module consists of introducing drought/temperature tolerant varieties, advancement of planting dates of *Rabi* crops in area with terminal heat stress, water saving paddy cultivation methods, frost management in horticulture, community nurseries in multiple dates for delayed monsoon, farm machinery custom hiring centers for timely completion of farm operations, location specific intercropping systems with high sustainable yield index. A total number of 7422 farmers were benefitted covering an area of 1745.63 ha during the period under report.

### Module-III: Livestock and Fisheries

Use of community lands for fodder production during droughts/floods, augmentation of fodder production through improved planting material, improved fodder/feed storage methods, fodder enrichment, prophylaxis, improved shelters for reducing heat stress in livestock, management of fish ponds/tanks during water scarcity and excess water and promotion of livestock as such as a climate change adaptation strategy. A total of 5344 farmers benefitted along with 7687 animals.

### Module-IV: Institutional Interventions

This module consists of institutional interventions either by strengthening the existing ones or initiating new ones relating to community seed bank, fodder bank, commodity groups, custom hiring centre, collective marketing group, introduction of weather index based insurance and climate literacy through a village weather station will be part of this module. A total number of 2721 farmers were covered with an area of 660.22 ha.

### Module-V: Capacity Building (HRD)

Capacity building refers to strengthening the skills, competencies and abilities of people and communities in developing societies so they can overcome the causes of their exclusion and suffering. Under HRD, 262 training programme were conducted by involving 8250 farmers were benefitted.

### Module-VI: Extension Activities

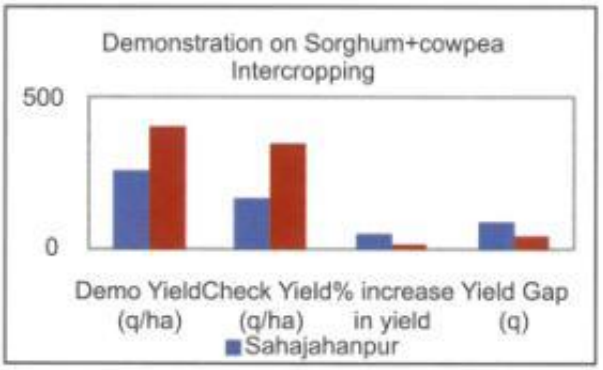
Extension activities provide a link between the scientist and the community. Extension has always been an integral part of Krishi Vigyan Kendra. KVK is continuously working with the aim of technology dissemination and community welfare through its various curricular/co-curricular /extra curricular works. Using different techniques such as Kishan gosthi, Field day, Exposure visits, interactive and participatory programmes, group working & group discussion etc. 783 extension activities conducted under this module by benefiting 10383 farmers.

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

| S. No. | District | Village | Institution | Soil Type | Annual rainfall (mm) | Climatic Vulnerability |
|---|---|---|---|---|---|---|
| 1 | Bahraich | Baundi | SAU | Sandy loam | 900 | Flood |
| 2 | Gorakhpur | Jhangha | SAU | sandy loam /loam | 1211 | Flood |
| 3 | Mahrajganj | Gopala | SAU | Clay Loam, Loamy | 870 | Flood |
| 4 | Gonda | Soauli Mohammadpur | NGONGO | sandy loam /loam | 1431 | Flood |
| 5 | Jhansi | Gandhinagar | SAU | Rakar, Padwa Black | 885 | Drought and Heat wave |
| 6 | Kushinagar | Amwakhas | ICAR | Sandy loam | 1282 | Flood |
| 7 | Sonbhadra | Bisrekhi | SAU | Black /Clay loam/ Red laterite | 1035 | Drought heat wave |
| 8 | Baghpat | Shikhera | SAU | Loam to Sandy | 750 | Ground water depletion |
| 9 | Muzaffarnagar | Sahdabbar | SAU | Sandy loam to Clay | 760 | Ground water depletion |
| 10 | Chitrakoot | Titihara | NGO | Silty clay | 543 | Drought and Heat wave |
| 11 | Hamirpur | Mankikhurd | SAU | Kabar, Maar, Paduwa | 864 | Drought and Heat wave |
| **State: Uttarakhand** | | | | | | |
| 12 | Uttarkashi | Dunda | ICAR | Sandy loam | 2500 | Cold wave, flood, hail storm |
| 13 | Tehrigarhwal | Dabri & Kalaith | SAU | Brown black | 1230 | Cold wave, hail storm |

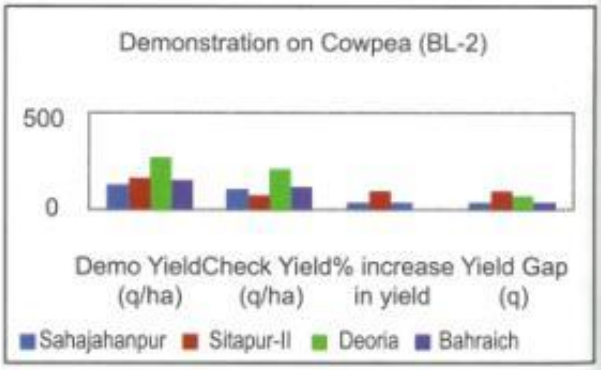
## 2.5 National Initiative on Fodder Technology Demonstrations (NIFTD)

**Uttar Pradesh:** District Shahjahanpur and SRD Nagar laidout demonstrations on Sorghum (PC-6) + Lobia (BL-2) in an area of 2.0 ha covering 28 farmers. The demonstrated cultivar resulted green fodder yield of 332 q/ha which was 27% higher as compared to local check (261q/ha). MP Chari demonstrated at district Shahjahanpur and Deoria in an area of 4.0 ha covering 18 farmers. The demonstration resulted green fodder yield of 466 q/ha which was 16.5% higher as compared to local check (400q/ha)




District Shahjahanpur laidout demonstrations on maize (J-1006) in an area of 1.0 ha on 5 farmers' field. The demonstration resulted green fodder yield of 235 q/ha which was 42% higher as compared to local check (165q/ha). Maize (African tall) was demonstrated for fodder purpose at district Sitapur-II on in an area of 0.72 ha covering 08 farmers. Green fodder yield recorded 460 q/ha which was 48% higher as compared to local check. This variety is palatable, fast growing and soft in nature which is liked by the animals.

Cowpea (BL-2) demonstrated at district Shahjahanpur, Sitapur-II, Bahraich and Deoria in an area of 4.98 ha




covering 32 farmers. The demonstration resulted green fodder yield of 287 q/ha which is 9% higher as compared to local check (264q/ha) (Fig. 2). Cowpea supply green fodder for longer period and improves soil health.

**Uttarakhand:** Districts Bageshwar, Haridwar and Uttarakashi laidout demonstrations in an area of 2.2 ha of 63 farmers' field on maize (African tall) resulted average green fodder yield 362.33 q/ha.

It is envisaged based on the results obtained in the sorghum+cowpea intercropping system which provided 20% higher green fodder yield and average yield gap of 71 q/ha over check. MP Chari resulted 46.0 tone green fodder, cowpea (BL-2) given 9% higher green fodder and average yield gap of 97 q/ha over check. Maize (J-1006) resulted 42% higher yield whereas the maize (African tall) resulted 48% higher yield as compared to their local checks. Similarly, maize (African tall) resulted yield of 36.2 tones green fodder in Uttarakhand. Hence, green fodder improved varieties have potential to enhance the yield advantages in all the crops demonstrated during kharif season. There are lot of options for fodder crops to be grown during kharif season to meet out the fodder demand under rainfed conditions of Uttar Pradesh and Uttarakhand.

### 2.6 Research Achievements of in-house projects.

**Impact Analysis of Crop/enterprise Diversification and Integration (CDI) (PI : Dr. S. K. Dubey)**

This project was implemented in district Champawat (Uttarakhand) and in four districts namely Aligarh, Mainpuri, Fatehpur, and Kannauj (Uttar Pradesh). Technological/crop components like sole or intercropping (crop, vegetables, flowers, etc); Bajra, Groundnut, Maize, Moongbean and other related crop (potato) cultivation and their spread have been included for impact. Data was collected through focussed group discussion from four villages of Kannauj district and three villages of Fatehpur districts on the aspects of existing diversified cropping systems, their technology application process therein and the relative economics. Survey was conducted in villages Digsara, Basirpur mar, Pokhra and Bhavanipur under Jalalabad block of Kannauj districts to analyze the crop diversification systems.

The major cropping system documented included Potato - Ground nut/Maize; Paddy-Potatao-Maize; Paddy-wheat-Green Manuring; Groundnut/Maize-potato-Maize; Maize-Mustard, Maize and Green Manuring-Early potato-wheat/seed potato. It was observed that summer groundnut was fast replacing the summer maize on account of more water requirement in summer maize (6-7 irrigation) than groundnut (3-4 irrigation) eventhough farmer was gettingg more yield (Rs 60-70 q/ha) and Rs 55-60 th./ha as net return than later (37-40 q/ha and Rs 65-70 th./ha as net return). Summer groundnut was felt more sustainable than summer maize as the ground water level is depleting very fast in the area (average declining rate of water is 2 ft is every year).

Wheat crop is getting marginalized among small land holders. Major cropping systems followed by such farmers were fallow/dhaincha-potato-maize; maize-potato-maize and maize-early potato-wheat (very less area). Diversification with mixed cropping of miner vegetables like coriander and kharif onion was also analyzed in the district.

Flower cultivation based crop diversification was documented in the study area. In the district of Kannauj, it was found that flowers like rose, bela (jasmine) and mehndi (Hena) were cultivated by large majority of the farmers' to address the industrial requirements in the district for making edible products of roses as well perfumes. Popular rose varieties being cultivated were chinia, goraiya and noorjahan and their preferences among the farmers were found in that order. Potato-rose was found as most frequently utilized cropping pattern as the fertilizer requirements in rose were being met from the residual nutrients of potato. The economics of rose cultivation and the related major issues were also identified.

**Production and Marketing Systems of off-season vegetable Cultivation and export-led Fruit Production (PI : Dr. S. K. Dubey)**

Major pulse growing districts namely Jalaun in Uttar Pradesh and two villages of the districts were surveyed. The Technological/crop components of vegetable pea both pod and seed production and fieldpea as well as other crops were analyzed. Total production, consumption and marketable surplus, marketed surplus, on-farm produce wastage, mode of disposal, marketing channels utilized, marketing cost, price fixation mechanism, constraints experienced by the related partners, gross and net profitability, use of marketing innovations, etc have been identified research variables for the study. Interview schedule and checklist were devised. Survey was conducted in the villages of Louna and Chhani Khas of Jalaun district of Bundelkhand region of Uttar Pradesh to analyze the system of vegetable pea both for pod production as well as seed production.

The evolution of vegetable pea was traced back in early nineties when farmers started to search for the alternatives of lentil as the productivity of lentil started declining due to wilt incidence. The profitability from zero input lentil production thus was started adversely affecting. In the suitable black soil of the district, pulses like chickpea and lentil were giving the average yield of 20-25 q/ha up to early ninties. However, under the mono cropping pulses production system, the incidence of wilt started increasing and thus reducing the productivity.

Arkil was the first vegetable pea variety which was introduced in the district. Now, Azad Pea 3 and JS10 has become the prominent vegetable pea variety in the area. Moreover, with the increase of irrigation facility (tube well) in Jalaun district, the aleternate cropping system of vegetable pea - wheat is fastly replacing the traditional kharif fallow- pulses or Til - Pulses or urdbean - Pulses. In the study, farmers' practice of vegetable pea cultivation vegetable pea seed production, economics in both the condition, marketing system, seed processing system, opportunity and future threats have been analyzed.

Chapter-3

# TRAINING OF FARMERS AND EXTENSION PERSONNEL

KVKs organized 8184 training courses with the participation of 175722 farmers, farm women, rural youths and extension functionaries. The farmers and farm women were represented in a proportion of 77.27% and 22.74%, respectively. In all 144768 farmers and farm women and 16968 rural youths were provided skill training in different enterprises. Similarly, 13986 extension personnel were also trained in different areas.

**Table 3.1 : Physical achievement of training programmes**

| Clientele | Uttar Pradesh | | | | Uttarakhand | | | | Grand Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | M | F | Total | C | M | F | Total | C | M | F | Total |
| Farmers & Farm Women | 5772 | 101947 | 24982 | 126929 | 827 | 8450 | 9389 | 17839 | 6599 | 110397 | 34371 | 144768 |
| Rural Youths | 831 | 12250 | 3478 | 15728 | 62 | 633 | 607 | 1240 | 893 | 12883 | 4085 | 16968 |
| Extension Functionaries | 649 | 11162 | 2203 | 13365 | 43 | 431 | 190 | 621 | 692 | 11593 | 2393 | 13986 |
| **Total** | **7252** | **125359** | **30663** | **156022** | **932** | **9514** | **10186** | **19700** | **8184** | **134873** | **40849** | **175722** |

*C: Courses, M: Male, F: Female*

## 3.1Farmers and Farm Women

Total of 6599 courses were conducted by KVKs of the zone with the participation of 144768 farmers and farm women. The share of Uttar Pradesh was 79.80% and remaining 20.20% was from Uttarakhand. Maximum courses (1345) and participants (28848) were related to crop production. The other areas of trainings were horticulture (1135 courses and 24904 participants); livestock production management (897 courses and 20590 participants); women empowerment (787 courses and 16131 participants); and soil health and fertility management (653 courses and 13726 participants).

**Table 3.2: Training of farmers and farm women**

| Area of training | Uttar Pradesh | | | | Uttarakhand | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | M | F | T | C | M | F | T | C | M | F | T |
| Crop Production | 1231 | 24425 | 2044 | 26469 | 114 | 1290 | 1089 | 2379 | 1345 | 25715 | 3133 | 28848 |
| Horticulture | 1000 | 19373 | 2415 | 21788 | 135 | 1514 | 1602 | 3116 | 1135 | 20887 | 4017 | 24904 |
| Soil Health & Fertility Management | 576 | 10781 | 1162 | 11943 | 77 | 1077 | 706 | 1783 | 653 | 11858 | 1868 | 13726 |
| Livestock Production & Management | 788 | 15435 | 2843 | 18278 | 109 | 1443 | 869 | 2312 | 897 | 16878 | 3712 | 20590 |
| Home Science/ Women empowerment | 671 | 885 | 12902 | 13787 | 116 | 247 | 2097 | 2344 | 787 | 1132 | 14999 | 16131 |
| Agril. Engineering | 229 | 4727 | 314 | 5041 | 8 | 134 | 1 | 135 | 237 | 4861 | 315 | 5176 |
| Plant Protection | 683 | 15070 | 1709 | 16779 | 157 | 1806 | 1663 | 3469 | 840 | 16876 | 3372 | 20248 |
| Fisheries | 81 | 1791 | 97 | 1888 | 14 | 235 | 40 | 275 | 95 | 2026 | 137 | 2163 |
| Production of Input at site | 118 | 2278 | 267 | 2545 | 1 | 12 | 13 | 25 | 119 | 2290 | 280 | 2570 |
| Capacity Building & Group Dynamics | 280 | 4902 | 1023 | 5925 | 51 | 354 | 750 | 1104 | 331 | 5256 | 1773 | 7029 |
| Agro forestry | 115 | 2280 | 206 | 2486 | 45 | 338 | 559 | 897 | 160 | 2618 | 765 | 3383 |
| **Total** | **5772** | **101947** | **24982** | **126929** | **827** | **8450** | **9389** | **17839** | **6599** | **110397** | **34371** | **144768** |

*C: Courses, M: Male, F: Female, T: Total*

### 3.1.1Crop Production

With respect to crop production, 1231 training courses were organized in Uttar Pradesh with the participation of 26469 farmers and farm women. In case of Uttarakhand, 114 such courses with the participation of 2379 were organized. Overall, 1345 courses involving 28848 farmers and farm women were organized. Integrated crop management related 197 courses were organized in which 4409 farmers and farm women participated; followed by 210 courses on weed management, 138 on resource conservation technologies 134 courses on seed production and with the participation of 4648, 2833 and 2896 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. The ratio of male female participation in crop production related training programmes was 8.20:1.

**Table 3.3: Training programmes related to crop production**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Weed Management Resource Conservation | 180 | 4045 | 30 | 603 | 210 | 4648 |
| Technologies | 131 | 2680 | 7 | 153 | 138 | 2833 |
| Cropping Systems | 104 | 2359 | 21 | 431 | 125 | 2790 |
| Crop Diversification | 70 | 1412 | 1 | 20 | 71 | 1432 |
| Integrated Farming | 79 | 1492 | 1 | 20 | 80 | 1512 |
| Micro irrigation/ irrigation | 48 | 954 | - | - | 48 | 954 |
| Seed production | 123 | 2641 | 11 | 255 | 134 | 2896 |
| Nursery management | 49 | 1062 | - | - | 49 | 1062 |
| Integrated Crop Management | 182 | 4091 | 15 | 318 | 197 | 4409 |
| Soil & water conservation | 55 | 1235 | 1 | 20 | 56 | 1255 |
| Integrated nutrient Management | 101 | 2229 | 8 | 176 | 109 | 2405 |
| Production of organic inputs | 58 | 1219 | 4 | 80 | 62 | 1299 |
| Others 51 | 1050 | 15 | 303 | 66 | 1353 | |
| **Total** | **1231** | **26469** | **114** | **2379** | **1345** | **28848** |

*C: Courses, T: Trainees*

### 3.1.2 Horticulture

Training on production technologies of vegetables, fruits, ornamental plants, plantation crops, tuber crops, spices and medicinal plants were organized. 558 courses on vegetables involving 12268 and 323 courses on fruit with the participation of 7276 were held. Similarly, in case of ornamental plants, organization of 71 courses with participation of 1464 persons was ensured. In the area of plantation crops, tuber crops, spices, medicinal & other crops 15, 54, 54 and 60 courses were organized with participation of 312, 1106, 1146 and 1332 farmers and farm women. Overall, male-female representation was 5.19:1 in horticulture related courses.

Training on pomegranate : KVK Dehradun

Training on floral arrangement : KVK Dehradun

**Table 3.4: Training on horticulture including sponsored**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| **A) Vegetable Crops** | | | | | | |
| Production of low volume and high value crops | 134 | 2925 | 15 | 328 | 149 | 3253 |
| Off-season vegetables | 50 | 1035 | 19 | 387 | 69 | 1422 |
| Nursery raising | 100 | 2199 | 21 | 524 | 121 | 2723 |
| Exotic vegetables | 17 | 318 | 1 | 20 | 18 | 338 |
| Export potential vegetables | 21 | 444 | - | - | 21 | 444 |
| Grading and standardization | 31 | 690 | 4 | 103 | 35 | 793 |
| Protective cultivation | 65 | 1463 | 17 | 487 | 82 | 1950 |
| Others 48 | 1007 | 15 | 338 | 63 | 1345 | |
| **Total (A)** | **466** | **10081** | **92** | **2187** | **558** | **12268** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **B) Fruits** | | | | | | |
| Training and Pruning | 37 | 755 | 9 | 201 | 46 | 956 |
| Layout and Management of Orchards | 69 | 1472 | 6 | 124 | 75 | 1596 |
| Cultivation of Fruit | 47 | 1094 | 1 | 20 | 48 | 1114 |
| Management of young plants/orchards | 38 | 782 | 6 | 170 | 44 | 952 |
| Rejuvenation of old orchards | 45 | 1116 | 5 | 100 | 50 | 1216 |
| Export potential fruits | 6 | 127 | - | - | 6 | 127 |
| Micro irrigation systems of orchards | 17 | 370 | - | - | 17 | 370 |
| Plant propagation techniques | 23 | 633 | 3 | 61 | 26 | 694 |
| Others 7 | 171 | 4 | 80 | 11 | 251 | |
| **Total (B)** | **289** | **6520** | **34** | **756** | **323** | **7276** |
| **C) Ornamental Plants** | | | | | | |
| Nursery Management | 36 | 718 | - | - | 36 | 718 |
| Management of potted plants | 9 | 205 | - | - | 9 | 205 |
| Export potential of ornamental plants | 1 | 25 | - | - | 1 | 25 |
| Propagation techniques of Ornamental Plants | 8 | 162 | 2 | 40 | 10 | 202 |
| Others | 12 | 254 | 3 | 60 | 15 | 314 |
| **Total (C)** | **66** | **1364** | **5** | **100** | **71** | **1464** |
| **D) Plantation crops** | | | | | | |
| Production and Management technology | 10 | 213 | 1 | 20 | 11 | 233 |
| Processing and value addition | 3 | 55 | - | - | 3 | 55 |
| Others | 1 | 24 | - | - | 1 | 24 |
| **Total (D)** | **14** | **292** | **1** | **20** | **15** | **312** |
| **E) Tuber crops** | | | | | | |
| Production and Management technology | 48 | 968 | - | - | 48 | 968 |
| Processing and value addition | 6 | 138 | - | - | 6 | 138 |
| Others | - | - | - | - | - | - |
| **Total (E)** | **54** | **1106** | **-** | **-** | **54** | **1106** |
| **F) Spices** | | | | | | |
| Production & Management technology | 46 | 982 | 3 | 53 | 49 | 1035 |
| Processing and value addition | 4 | 91 | - | - | 4 | 91 |
| Others | 1 | 20 | - | - | 1 | 20 |
| **Total (F)** | **51** | **1093** | **3** | **53** | **54** | **1146** |
| **G) Medicinal and Aromatic Plants** | | | | | | |
| Nursery management | 14 | 424 | - | - | 14 | 424 |
| Production and management technology | 37 | 726 | - | - | 37 | 726 |
| Post harvest technology and value addition | 8 | 162 | - | - | 8 | 162 |
| Others 1 | 20 | - | - | 1 | 20 | |
| **Total (G)** | **60** | **1332** | **-** | **-** | **60** | **1332** |
| **Grand Total (A-G)** | **1000** | **21788** | **135** | **3116** | **1135** | **24904** |

*C: Courses, T: Trainees*

### 3.1.3 Soil Health and Fertility Management

Total of 653 courses were attended by 13726 participants. The courses in the area of soil fertility management (104), integrated nutrient management (135), micro nutrient management (38), production & use of organic inputs (91), balanced use of fertilizer (38), management of problem soils (31), etc. were organized with the objectives to create awareness, knowledge and skill among farmers to address various issues.

Training on Rain water harvesting techniology: KVK Champawat

Training on Bio-product: KVK Chandauli

**Table 3.5: Training on soil health and fertility management**

| Areas of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Soil fertility management | 98 | 2167 | 6 | 120 | 104 | 2287 |
| Integrated water management | 25 | 516 | 1 | 20 | 26 | 536 |
| Integrated nutrient management | 116 | 2617 | 19 | 383 | 135 | 3000 |
| Production and use of organic inputs | 73 | 1435 | 18 | 364 | 91 | 1799 |
| Management of problematic soils | 30 | 610 | 1 | 19 | 31 | 629 |
| Micro nutrient deficiency in crops | 30 | 589 | 8 | 171 | 38 | 760 |
| Nutrient use efficiency | 35 | 696 | 1 | 20 | 36 | 716 |
| Balance use of fertilizer | 29 | 591 | 9 | 188 | 38 | 779 |
| Soil & water testing | 108 | 2126 | 13 | 476 | 121 | 2602 |
| others | 32 | 596 | 1 | 22 | 33 | 618 |
| **Total** | **576** | **11943** | **77** | **1783** | **653** | **13726** |

*C: Courses, T: Trainees*

### 3.1.4 Livestock Production Management

All together 897 courses were organized with the participation of 20590 participants. The courses related to dairy management (164) were organized with the participation of 4265 cattle owners. Disease management (192) was second preferred programme attended by 4642 participants. Feed and fodder management, animal nutrition, poultry, quality animal products, etc were other priority areas. Male-female ratio of 4.54:1 was as certained in livestock related training courses.


Training on Poultry: KVK Ambedkar Nagar


On campus Training on poultry: KVK Dehradun

**Table 3.6: Training on livestock production and management**

| Areas of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Dairy management | 141 | 3777 | 23 | 488 | 164 | 4265 |
| Poultry management | 76 | 1637 | 13 | 243 | 89 | 1880 |
| Piggery management | 52 | 1042 | 6 | 134 | 58 | 1176 |
| Rabbit management | 5 | 99 | - | - | 5 | 99 |
| Animal nutrition management | 156 | 3248 | 8 | 176 | 164 | 3424 |
| Disease management | 173 | 4247 | 19 | 395 | 192 | 4642 |
| Feed & fodder technologies | 116 | 2622 | 25 | 555 | 141 | 3177 |
| Production of quality animal products | 37 | 888 | 4 | 76 | 41 | 964 |
| Others | 32 | 718 | 11 | 245 | 43 | 963 |
| **Total** | **788** | **18278** | **109** | **2312** | **897** | **20590** |

*C: Courses, T: Trainees*

### 3.1.5 Women Empowerment

A range of courses (787) related to women empowerment were organized with the participation of 16131 farm women. Value addition courses (141) were attended by highest number of farm women (2932), followed by courses on kitchen gardening & nutritional security (78) attended by 1748 participants, women and child care (73) attended by 1545 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.

Training on tailering: KVK Kaushambi

Training on value addition : KVK Meerut

**Table 3.7: Training on Home Science/Women Empowerment**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Household food security by kitchen gardening | 65 | 1484 | 13 | 264 | 78 | 1748 |
| Design and development of low/minimum cost diet | 47 | 942 | 4 | 91 | 51 | 1033 |
| Development of high nutrient efficiency diet | 32 | 597 | 5 | 100 | 37 | 697 |
| Minimization of nutrient loss in processing | 38 | 723 | 1 | 20 | 39 | 743 |
| Processing & cooking | 45 | 852 | 5 | 84 | 50 | 936 |
| Gender mainstreaming through SHGs | 41 | 834 | 5 | 76 | 46 | 910 |
| Storage loss minimization techniques | 49 | 956 | 6 | 125 | 55 | 1081 |
| Value addition | 96 | 2046 | 45 | 886 | 141 | 2932 |
| Women empowerment | 50 | 1090 | 6 | 122 | 56 | 1212 |
| Location specific drudgery reduction technologies | 48 | 943 | 8 | 184 | 56 | 1127 |
| Rural crafts | 30 | 603 | 6 | 112 | 36 | 715 |
| Women and child care | 67 | 1418 | 6 | 127 | 73 | 1545 |
| Others | 63 | 1299 | 6 | 153 | 69 | 1452 |
| **Total** | **671** | **13787** | **116** | **2344** | **787** | **16131** |

*C: Courses, T: Trainees*

### 3.1.6 Agricultural Engineering

Total of 237 courses in various aspects related to farm machinery, implements and its maintenance, post harvest and value addition were organized by KVKs, benefiting 5176 farmers and farm women. Maximum courses on Farm machinery & its maintenance (77) were organized benefiting 1722 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 3.8: Training on agricultural engineering**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Farm machinery & its maintenance | 73 | 1660 | 4 | 62 | 77 | 1722 |
| Installation and maintenance of micro irrigation systems | 34 | 802 | 3 | 51 | 37 | 853 |
| Use of plastics in farming practices | 6 | 128 | - | - | 6 | 128 |
| Production of small tools & implements | 9 | 184 | - | - | 9 | 184 |
| Repair and maintenance of farm machinery and implements | 50 | 1058 | - | - | 50 | 1058 |
| Small scale processing & value addition | 12 | 274 | - | - | 12 | 274 |
| Post harvest technology | 26 | 592 | - | - | 26 | 592 |
| Others | 19 | 343 | 1 | 22 | 20 | 365 |
| **Total** | **229** | **5041** | **8** | **135** | **237** | **5176** |

*C: Courses, T: Trainees*

### 3.1.7 Plant Protection

Under Plant Protection total 840 courses were organized with the participation of 20248 persons. The highlights of these programmes and others each courses were on IDM (255), IPM (322), bio control of pests and diseases (129), production of bio control pests & agents (48).

**Table 3.9: Training on plant protection**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Integrated pest management | 225 | 7303 | 97 | 2044 | 322 | 9347 |
| Integrated disease management | 216 | 4512 | 39 | 869 | 255 | 5381 |
| Bio-control of pests and diseases | 120 | 2538 | 9 | 188 | 129 | 2726 |
| Production of bio control agents & bio pesticides | 46 | 1017 | 2 | 35 | 48 | 1052 |
| Others 76 | 1409 | 10 | 333 | 86 | 1742 | |
| **Total** | **683** | **16779** | **157** | **3469** | **840** | **20248** |

*C: Courses, T: Trainees*

### 3.1.8 Fish Production

The courses on integrated fish farming (19) and composite fish culture (39) were mainly organized with the participation of 596 and 812 persons. Overall 95 courses attracted participation of 2163 persons.

**Table 3.10: Training on fish production**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Integrated fish farming | 16 | 525 | 3 | 71 | 19 | 596 |
| Carp breeding and hatchery management | 2 | 30 | - | - | 2 | 30 |
| Carp fry and fingerling rearing | 12 | 197 | - | - | 12 | 197 |
| Composite fish culture | 37 | 771 | 2 | 41 | 39 | 812 |
| Hatchery management and culture of freshwater prawn | 2 | 30 | - | - | 2 | 30 |
| Fish processing and value addition | 8 | 220 | - | - | 8 | 220 |
| Others | 4 | 115 | 9 | 163 | 13 | 278 |
| **Total** | **81** | **1888** | **14** | **275** | **95** | **2163** |

*C: Courses, T: Trainees*

### 3.1.9 Production of inputs at site

Total 119 courses on this theme attracted participation of 2570 persons were organized. Seed production, vermi composting and organic manures attracted maximum participation.

Training on Bee keeping: KVK Allahabad

Training on vermi compost for rural women: KVK Muzaffarnagar

**Table 3.11: Training on production of input at the site**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Seed Production | 43 | 881 | - | - | 43 | 881 |
| Planting material production | 20 | 432 | - | - | 20 | 432 |
| Bio-agents production | 3 | 65 | - | - | 3 | 65 |
| Bio-pesticides production | 2 | 50 | - | - | 2 | 50 |
| Bio-fertilizer production | 7 | 156 | - | - | 7 | 156 |
| Vermi-compost production | 23 | 520 | 1 | 25 | 24 | 545 |
| Organic manures production | 7 | 149 | - | - | 7 | 149 |
| Production of fry and fingerlings | 1 | 35 | - | - | 1 | 35 |
| Production of Bee-colonies and wax sheets | 1 | 10 | - | - | 1 | 10 |
| Production of livestock feed and fodder | 5 | 111 | - | - | 5 | 111 |
| Production of Fish feed | 1 | 22 | - | - | 1 | 22 |
| Mushroom production | 2 | 49 | - | - | 2 | 49 |
| Apiculture | 1 | 9 | - | - | 1 | 9 |
| Others 2 | 56 | - | - | 2 | 56 | - |
| **Total** | **118** | **2545** | **1** | **25** | **119** | **2570** |

*C: Courses, T: Trainees*

### 3.1.10 Capacity Building and Group Dynamics

331 courses were organized benefiting 7029 persons. The topics covered in the programmes included leadership development, group dynamics, SHGs, entrepreneurship development, WTO & IPR, etc.

**Table 3.12: Training on capacity building and group dynamics**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Leadership development | 49 | 937 | 3 | 67 | 52 | 1004 |
| Group dynamics | 56 | 1197 | 23 | 471 | 79 | 1668 |
| Formation and management of SHGs | 64 | 1584 | 7 | 150 | 71 | 1734 |
| Mobilization of social capital | 18 | 370 | 2 | 43 | 20 | 413 |
| Entrepreneurial development of farmers/youths | 46 | 965 | 8 | 202 | 54 | 1167 |
| WTO and IPR issues | 8 | 147 | - | - | 8 | 147 |
| Others | 39 | 725 | 8 | 171 | 47 | 896 |
| **Total** | **280** | **5925** | **51** | **1104** | **331** | **7029** |

*C: Courses, T: Trainees*

### 3.1.11 Agro-forestry

In this area, 160 courses were organized benefiting 3383 farmers. The topics covered in the programmes included production technology, nursery management, integrated farming systems, etc.

**Table 3.13: Training on agro-forestry**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Production technologies | 39 | 816 | 23 | 431 | 62 | 1247 |
| Nursery management | 32 | 719 | 6 | 137 | 38 | 856 |
| Integrated farming systems | 24 | 541 | 12 | 244 | 36 | 785 |
| Others 20 | 410 | 4 | 85 | 24 | 495 | |
| **Total** | **115** | **2486** | **45** | **897** | **160** | **3383** |

*C: Courses, T: Trainees*

### 3.2 Training of Rural Youths

Total of 893 courses involving 16968 persons were conducted. The ratio of male - female participation was 3.30:1 in the zone. In case of Uttar Pradesh, it was 3.52:1 and for Uttarakhand it was 1.04:1. The highest participation was attracted towards the programmes like seed production (1980), nursery management of horticultural crops (1309), vermi culture (732), mushroom production (938) and organic inputs production (921). 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.

Training on Honey processing: KVK Muzaffarnagar

**Table 3.14: Training on rural youths**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Nursery Management of Horticulture crops | 61 | 1276 | 1 | 33 | 62 | 1309 |
| Training and pruning of orchards | 41 | 682 | 2 | 43 | 43 | 725 |
| Protected cultivation of vegetable crops | 38 | 830 | 5 | 175 | 43 | 1005 |
| Commercial fruit production | 32 | 536 | 1 | 22 | 33 | 558 |
| Integrated farming | 27 | 631 | 1 | 20 | 28 | 651 |
| Seed production | 90 | 1881 | 6 | 99 | 96 | 1980 |
| Production of organic inputs | 47 | 921 | - | - | 47 | 921 |
| Planting material production | 14 | 237 | 1 | 10 | 15 | 247 |
| Vermi-culture | 35 | 708 | 2 | 24 | 37 | 732 |
| Mushroom Production | 41 | 848 | 5 | 90 | 46 | 938 |
| Bee-keeping | 31 | 608 | 3 | 53 | 34 | 661 |
| Sericulture | 9 | 145 | - | - | 9 | 145 |
| Repair and maintenance of farm machinery and implements | 28 | 537 | 1 | 27 | 29 | 564 |
| Value addition | 42 | 744 | 3 | 60 | 45 | 804 |
| Small scale processing | 12 | 171 | 1 | 20 | 13 | 191 |
| Post Harvest Technology | 15 | 286 | - | - | 15 | 286 |
| Tailoring & Stitching | 17 | 316 | - | - | 17 | 316 |
| Stitching | 17 | 316 | - | - | 17 | 316 |
| Rural Crafts | 35 | 551 | 8 | 141 | 43 | 692 |
| Production of quality animal products | 11 | 241 | - | - | 11 | 241 |
| Dairying | 54 | 943 | 1 | 20 | 55 | 963 |
| Sheep and goat rearing | 34 | 725 | 1 | 20 | 35 | 745 |
| Quail farming | 2 | 20 | - | - | 2 | 20 |
| Piggery | 4 | 71 | - | - | 4 | 71 |
| Rabbit farming | 3 | 35 | - | - | 3 | 35 |
| Poultry production | 34 | 694 | 7 | 122 | 41 | 816 |
| Ornamental fisheries | 19 | 217 | - | - | 19 | 217 |
| Composite fish culture | 6 | 101 | - | - | 6 | 101 |
| Freshwater prawn culture | 1 | 15 | - | - | 1 | 15 |
| Shrimp farming | 1 | 10 | - | - | 1 | 10 |
| Pearl culture | 10 | 130 | - | - | 10 | 130 |
| Cold water fisheries | 7 | 95 | - | - | 7 | 95 |
| Fish harvest and processing technology | 7 | 95 | 1 | 20 | 8 | 115 |
| Fry and fingerling rearing | 1 | 10 | - | - | 1 | 10 |
| Other | 22 | 418 | 12 | 241 | 34 | 659 |
| **TOTAL** | **831** | **15728** | **62** | **1240** | **893** | **16968** |

*C: Courses, T: Trainees*

### 3.3 Training of extension personnel

692 courses involving 13986 extension personnel were organized in the zone, male- female ratio was 4.84:1. Major areas in which extension personnel were trained were productivity enhancement in field crops (1834), integrated pest management (1289), INM (976), production of organic inputs (755), livestock feed & fodder (569), women & child care (493) etc.

Training on Dairy processing: KVK Bareilly


Training on dhingri mushoom: KVK Champawat

**Table 3.15: Training for extension personnel**

| Area of training | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | C | T | C | T | C | T |
| Productivity enhancement in field crops | 69 | 1731 | 8 | 103 | 77 | 1834 |
| Integrated Pest Management | 52 | 1184 | 7 | 105 | 59 | 1289 |
| Integrated Nutrient management | 41 | 926 | 4 | 50 | 45 | 976 |
| Rejuvenation of old orchards | 26 | 537 | 1 | 10 | 27 | 547 |
| Protected cultivation technology | 34 | 816 | 3 | 25 | 37 | 841 |
| Production and use of organic inputs | 32 | 740 | 1 | 15 | 33 | 755 |
| Care & maintenance of farm machinery & implements | 16 | 316 | - | - | 16 | 316 |
| maintenance of farm machinery & implements | 16 | 316 | - | - | 16 | 316 |
| Gender mainstreaming through SHGs | 5 | 100 | - | - | 5 | 100 |
| Formation and Management of SHGs 17 | 383 | - | - | 17 | 383 | |
| Women and Child care | 24 | 440 | 3 | 53 | 27 | 493 |
| Low cost and nutrient efficient diet designing | 16 | 335 | 2 | 36 | 18 | 371 |
| Group Dynamics and farmers organization | 24 | 448 | - | - | 24 | 448 |
| Information networking among farmers | 3 | 32 | - | - | 3 | 32 |
| Capacity building for ICT application | 9 | 175 | - | - | 9 | 175 |
| Management in farm animals | 30 | 660 | 1 | 17 | 31 | 677 |
| Livestock feed and fodder production | 21 | 512 | 5 | 57 | 26 | 569 |
| Household food security | 21 | 380 | - | - | 21 | 380 |
| Other | 209 | 3650 | 8 | 150 | 217 | 3800 |
| **TOTAL** | **649** | **13365** | **43** | **621** | **692** | **13986** |

*C: Courses, T: Trainees*

Chapter-4

# FRONTLINE DEMONSTRATIONS

Frontline demonstration is an important activity of KVKs. It shows the production potential of improved technologies to the farmers. KVKs played important role to showcase and promote the latest varieties and other technologies related to cereals, oilseeds, pulses, vegetables, fruits, etc. to enhance the production and productivity. A total of 17078 frontline demonstrations were organized out of which on crops (10651), horticulture 1673, fishery (20), livestock (3662) and other enterprises (489), farm implements (301). Farm implement component was addressed covering 4898.58 ha area and 10.86 ha, 21.7 ha in case of fishery and livestock respectively. In case of kitchen gardening (282) total of 264 units were also demonstrated.

**Table 4.1: FLD at a glance**

| Enterprise | Uttar Pradesh | | | Uttarakhand | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Demo | Area (ha) | Units | Demo | Area (ha) | Units | Demo | Area (ha) | Units |
| Pulses | 2147 | 619.51 | - | 324 | 31.1 | - | 2471 | 650.61 | - |
| Oilseeds | 1444 | 475.25 | - | 383 | 26.76 | - | 1827 | 502.01 | - |
| Cereals | 2703 | 973.78 | - | 850 | 67.82 | - | 3553 | 1041.6 | - |
| Millets | 102 | 36.75 | - | 200 | 13.75 | - | 302 | 50.5 | - |
| Hybrids | 900 | 226.42 | - | 378 | 19.95 | - | 1278 | 246.37 | - |
| Fodder | 535 | 57.35 | - | 65 | 3.5 | - | 600 | 60.85 | - |
| Spices | 17 | 3.08 | - | 15 | 15.6 | - | 32 | 18.68 | - |
| Commercial | 486 | 153.75 | - | 102 | 82.58 | - | 588 | 236.33 | - |
| **Total (Crops)** | **8334** | **2545.89** | | **2317** | **261.06** | | **10651** | **2806.95** | **-** |
| Vegetables | 833 | 127.9 | - | 780 | 28.11 | - | 1613 | 156.01 | - |
| Fruits | 40 | 11.98 | - | 20 | 2 | - | 60 | 13.98 | - |
| **Total (Hort)** | **873** | **139.88** | **-** | **800** | **30.11** | **-** | **1673** | **169.99** | **-** |
| Fishery | 10 | 10.86 | - | 10 | | 5005 | 20 | 10.86 | 5005 |
| Livestock | 3527 | 21.7 | - | 135 | | 6750 | 3662 | 21.7 | 6750 |
| Other Enterprises | 359 | - | 375 | 130 | 32 | - | 489 | 32 | 375 |
| Farm Implements | 301 | 4898.58 | - | - | - | - | 301 | 4898.58 | - |
| Kitchen garden | 177 | - | 257 | 105 | - | 7 | 282 | - | 264 |
| **Grand Total** | **13581** | **7616.91** | **632** | **3497** | **323.17** | **11762** | **17078** | **7940.08** | **12394** |

State: Uttar Pradesh

## 4.2 FLD on Pulses and Oilseeds

Technology demonstrations on pulses were organized on an area of 619.51 ha involving 2147 farmers and on oilseeds in an area of 475.25 ha involving 1444 farmers. The crop wise and thematic area wise information is exhibited in following tables.

## FLD on Pulses

**Table 3.15: Performance of FLDs on Pulses**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|---|
| Pigeonpea | ICM | 80 | 16.60 | 15.88 | 12.24 | 29.74 |
| (38) | IDM | 35 | 16.00 | 14.44 | 9.04 | 59.73 |
| | INM | 109 | 30.00 | 12.38 | 9.45 | 31.01 |
| | IPM | 52 | 35.66 | 13.88 | 14.2 | -2.25 |
| | RCT | 60 | 18.80 | 13.28 | 11.68 | 13.7 |
| | Varietal | 304 | 57.52 | 14.89 | 12.04 | 23.67 |
| | **Total** | **640** | **204.58** | **14.13** | **11.44** | **23.51** |
| Blackgram | ICM | 99 | 37.4 | 9.56 | 6.6 | 44.85 |
| (20) | INM | 38 | 11 | 5.12 | 4.43 | 15.58 |
| | IPM | 15 | 3 | 5.09 | 4.53 | 12.36 |
| | IWM | 15 | 3.25 | 10.5 | 8.55 | 22.81 |
| | Varietal | 140 | 49.2 | 10.86 | 8.14 | 33.42 |
| | **Total** | **307** | **103.85** | **8.23** | **6.45** | **27.53** |
| Greengram | ICM | 15 | 3 | 15.1 | 11.6 | 30.17 |
| (12) | INM | 40 | 11 | 4.1 | 3.58 | 14.53 |
| | IPM | 10 | 2 | 7.8 | 6.85 | 13.87 |
| | IWM | 13 | 2 | 8.32 | 7.15 | 16.36 |
| | Varietal | 105 | 29.75 | 8.55 | 6.99 | 22.32 |
| | **Total** | **183** | **47.75** | **8.77** | **7.23** | **21.30** |
| Chickpea | ICM | 130 | 27.2 | 7.57 | 5 | 51.4 |
| (26) | INM | 40 | 12 | 23.55 | 21.59 | 9.08 |
| | IPM | 38 | 8 | 10.7 | 9.02 | 18.63 |
| | IWM | 26 | 9 | 7.95 | 6.53 | 21.75 |
| | Varietal | 233 | 51.6 | 9.85 | 8.02 | 22.82 |
| | **Total** | **467** | **107.8** | **11.92** | **10.03** | **18.84** |
| Fieldpea | Varietal | 138 | 30.65 | 14.29 | 11.6 | 23.19 |
| (10) | | | | | | |
| | **Total** | **138** | **30.65** | **14.29** | **11.6** | **23.19** |
| Lentil | ICM | 114 | 30.24 | 10.69 | 6.28 | 70.22 |
| (22) | INM | 53 | 21 | 10.57 | 8.13 | 30.01 |
| | IDM | 8 | 1.6 | 10.3 | 8.7 | 18.39 |
| | RCT | 20 | 2.5 | 13 | 9.2 | 41.3 |
| | Varietal | 217 | 69.54 | 10.02 | 7.65 | 30.98 |
| | **Total** | **412** | **124.88** | **10.92** | **7.99** | **36.59** |
| **Grand Total** | | **2147** | **619.51** | - | - | - |

**Pigeonpea:** The thirty eight KVKs conducted 640 demonstrations on pigeonpea crop that exhibited yield realization of 14.13 q/ha which was 23.51% higher than local check with net return of Rs. 44437/ha. Three KVKs attained more than 19 q/ha of yield and 6 KVKs reported yield of more than 15 q/ha in all the components. Highest yield was obtained under integrated crop management by variety NA 2 (20.3 q/ha). In varietal evaluation Bahar variety (19.49 q/ha) out performed Pusa 991 (18.10 q/ha). Similarly, performance of component demonstrations was found considerably better under integrated disease management (19.75 q/ha) followed by integrated pest management (17.65 q/ha).

FLD on Blackgram: KVK Lalitpur

**Blackgram :** Twenty KVKs laid out 307 demonstrations that exhibited yield levels of 8.23 q/ha against 6.45 q/ha in local checks. A net return of Rs. 21398/ha was realized in demonstrations which was about Rs. 6000 higher over local check. PU-31 variety yielded highest (18.75 q/ha) with full package. Performance of different component demonstrations was found satisfactory like HYV (IPU-94-1) + IWM (14.10 q/ha) in Shahjahanpur district.

**Greengram:** Greengram was demonstrated by 12 KVKs. This crop is mainly grown as summer crop with average yield of 8.77q/ha in demonstrations against 7.23 q/ha in local check with the increase is 21.30 percent . A net return of Rs. 29463/ha was obtained from demonstrations. The highest yield was obtained under ICM (15.10 q/ha) with Pant Moong 5, @ 15kg/ha + Seed treatment + line sowing (45x15cm) in Sitapur district. In varietal evaluation highest yield was observed by variety PDM 139 (10.30q/ha) in district Kaushambi followed by Pant moong-5 (9.87 q/ha) in district Etah.

**Chickpea :** Twenty six KVKs conducted 467 demonstrations on chickpea by covering an area of 107.8 ha, exhibited yield of 11.92 q/ha against 10.03 q/ha of local check showing an increase of 18.8% higher than local check with net return of Rs. 18616/ha. 6 KVKs realized more than 20.0 q/ha. The highest yield of 18.10 q/ha was recorded in Pusa 372 +Rhizobium+Bentonite+

Sulphur+ Quinalphos under ICM at Shahjahnpur followed by var Avrodhi +S.T. with Rhizobium and PSB (15.92 q/ha) at Rae bareilly.

**Field pea:** Ten KVKs conducted demonstrations in an area of 30.65 ha. On an average 14.29 q/ha yield of field pea was recorded in demonstrations, which was 23.19% higher over local check. Net return of Rs. 16569/ha was reported. Highest yield (18.75 q/ha) was recorded under by KVK Mainpuri for variety KPMR 522.

**Lentil :** Twenty two districts laid out 412 demonstrations by covering an area of 12.88 ha with lentil crop, exhibited 10.92 q/ha of productivity in demonstrations which was 36.59% higher than local check (7.99 q/ha). A net return of Rs. 25233 q/ha was realized in demonstrations. The variety Pusa Masur 5 with B + sulphur and carbendazim under ICM gave highest yield of 23 q/ha at Sahjahanpur. Under varietal evaluation the highest yield was obtained by L 4594 (17.80 q/ha) followed by HUL-57 (17 q/ha) in Sitapur district.

**Table 3.12: Performance of FLDs on Oilseeds**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|---|
| Groundnut | (11)ICM | 40 | 16 | 12.55 | 6.99 | 79.54 |
| | INM | 32 | 8 | 28.3 | 24.34 | 16.27 |
| | IPM | 34 | 8 | 20.07 | 17.21 | 16.62 |
| | IDM | 10 | 2 | 28.75 | 24.45 | 17.59 |
| | IWM | 20 | 4 | 22.75 | 20.12 | 13.07 |
| | Varietal | 40 | 9 | 17.45 | 14.63 | 19.28 |
| | **Total** | **176** | **47** | **21.65** | **17.96** | **20.54** |
| **Sesamum** | ICM | 81 | 44 | 6.2 | 4.24 | 46.23 |
| **(32)** | INM | 129 | 42 | 5.07 | 3.49 | 45.27 |
| | IPM | 30 | 12 | 3.9 | 3 | 30 |
| | IDM | 8 | 2 | 4.04 | 2 | 102 |
| | Varietal | 291 | 89.35 | 6.63 | 3.48 | 90.52 |
| | **Total** | **539** | **209.35** | **5.17** | **3.24** | **59.41** |
| **Mustard** | ICM | 184 | 68.8 | 22.76 | 11.46 | 98.6 |
| **(44)** | IDM | 20 | 5.6 | 9.8 | 7.27 | 34.8 |
| | INM | 112 | 42 | 19.6 | 13.06 | 50.08 |
| | IPM | 24 | 8 | 13.53 | 11.37 | 19 |
| | IWM | 9 | 2 | 12 | 10.5 | 14.29 |
| | Varietal | 380 | 112.5 | 13.61 | 10.07 | 35.15 |
| | **Total** | **729** | **228.9** | **15.22** | **10.62** | **43.26** |
| | **Grand Total** | **1444** | **475.25** | - | - | - |

**Groundnut:** 176 demonstrations were organized on groundnut (summer & kharif season) with productivity level of 21.65 q/ha which was 20.54% higher over local practice. The net return of Rs.37332 was realized in demonstrations while it was Rs. 26858 in local check. A total of six component demonstrations were conducted. The highest yield of 28.3 q/ha was obtained in INM component (NPK S Zn + PSB 15:45:20:25:25+ 2kg/ha) followed by 20.07 q/ha in IPM (Beauveria bassiana @ 5kg/ha).

FLD on Sesamum (Pragati): KVK Lucknow

**Sesamum:** The demonstrations on sesamum were laid out at 539 farmers' fields on 209.35 ha area. On an average 5.17 q/ha of yield was recorded in demonstrations, which was 59.41 % higher over local check (3.24 q/ha). A net return of Rs. 19284 /ha was realized in demonstrations. The highest yield of 11.8 q/ha was recorded in INM (Seed + DAP + Forate-10G +PP+Seed Treatment).

FLD on Mustard(Pusa Mahak): KVK Deoria

**Mustard:** The demonstrations on mustard were laid out at 729 farmers' fields at 228.90 ha area. On an average 15.22 q/ha of yield was recorded in demonstrations, which was 43.26% higher over local check (10.62 q/ha). A net return of Rs. 24300/ha was realized in demonstrations. The highest yield of 26.5 q/ha was recorded in INM in district Saharanpur followed by improved variety Maya +Sulphur @ 25.00kg/ ha + ICM (20.45 q/ha) in Mainpuri. In varietal evaluation component the highest yield was observed in Sradha MRR 8012 (18.40 q/ha) at Kaushambi followed by Pusa Sarson 28 (18.37 q/ha) in Pilibhit district.

**Table 4.4: Performance of FLDs on Cereals and Millets**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|---|
| **Cereal Crops** | | | | | | |
| **Paddy** | ICM | 45 | 16.8 | 55.32 | 41.99 | 31.75 |
| **36** | IDM | 30 | 12 | 45.14 | 38.04 | 18.66 |
| | INM | 95 | 31 | 46.9 | 39.78 | 17.9 |
| | IPM | 156 | 61.2 | 49.27 | 40.12 | 22.81 |
| | IWM | 66 | 23.4 | 51.61 | 42.82 | 20.53 |
| | RCT | 28 | 11.25 | 46.97 | 43.28 | 8.53 |
| | Varietal | 161 | 55.2 | 47.93 | 39.23 | 22.18 |
| | **Total** | **581** | **210.85** | **49.02** | **40.75** | **20.29** |
| **Scented** | ICM | 39 | 10.4 | 46.08 | 32.3 | 42.66 |
| **Rice (13)** | IDM | 16 | 10 | 41.9 | 28 | 49.64 |
| | IWM | 10 | 4 | 44.56 | 37.14 | 19.98 |
| | Varietal | 193 | 50.92 | 40.59 | 29.59 | 37.17 |
| | **Total** | **258** | **75.32** | **43.28** | **31.75** | **36.29** |
| **Wheat** | INM | 130 | 37.6 | 36.21 | 29.86 | 21.27 |
| | IPM | 16 | 8 | 36.18 | 28.05 | 28.98 |
| | IWM | 90 | 35.4 | 37.53 | 29.32 | 28 |
| | RCT | 36 | 13 | 39.07 | 35.73 | 9.35 |
| | Varietal | 389 | 143.34 | 37.06 | 29.93 | 23.82 |
| | **Total** | **669** | **242.34** | **37.21** | **30.58** | **21.69** |
| **Wheat** | ICM | 96 | 29.4 | 39.11 | 27.39 | 42.79 |
| **Timely** | INM | 32 | 12.8 | 34.7 | 30.3 | 14.52 |
| **Sown (24)** | IDM | 280 | 174.25 | 40.53 | 33.37 | 21.46 |
| | RCT | 49 | 12 | 25.45 | 22.05 | 15.42 |
| | Varietal | 280 | 72.12 | 31.12 | 25.8 | 20.62 |
| | **Total** | **737** | **300.57** | **34.182** | **27.78** | **23.04** |
| **Wheat** | IPM | 20 | 8 | 50.4 | 44.2 | 14.03 |
| Late Sown | IWM | 40 | 16 | 33.4 | 25.5 | 30.98 |
| | INM | 5 | 2 | 32.62 | 24.2 | 34.79 |
| | Varietal | 110 | 27.88 | 32.84 | 27.83 | 18 |
| | **Total** | **175** | **53.8** | **37.32** | **30.43** | **22.62** |
| **Barley (10)** | INM | 8 | 2 | 29.9 | 24 | 24.58 |
| | Varietal | 128 | 49.8 | 28.63 | 22.04 | 29.9 |
| | **Total** | **136** | **51.8** | **29.27** | **23.02** | **27.13** |
| **Maize (10)** | INM | 82 | 16.5 | 49.36 | 41.23 | 19.72 |
| | IPM | 10 | 2 | 35.12 | 30.9 | 13.66 |
| | ICM | 7 | 2.4 | 43.82 | 36.18 | 21.12 |
| | Varietal | 43 | 18.2 | 32.2 | 23.5 | 37.02 |
| | Total | 147 | 39.1 | 40.13 | 32.95 | 21.77 |
| **Total Cereal** | | **2703** | **973.78** | - | - | - |
| **Millet Crops** | | | | | | |
| **Jowar (3)** | Varietal | 50 | 19.5 | 17.55 | 13.46 | 30.39 |
| **Bajra (3)** | Varietal | 52 | 17.25 | 33.12 | 15.03 | 120.36 |
| | **Total** | **102** | **36.75** | | | |
| **Total (Millet)** | | **102** | **36.75** | - | - | - |

FLD on Paddy (NDR-118): KVK Gonda

**Paddy:** The demonstrations on seven thematic areas were conducted at 581 farmers' fields on 210.85 ha area. The average yield of 49.02 q/ha was achieved in demonstrations, which was 20.29 % higher over local check (40.75 q/ha). Net return of Rs. 43996/ha was realized in demonstrations. The highest yield of 79.55 q/ha was recorded in INM component with application of zinc at KVK Moradabad followed by Lucknow (74.55 q/ha) in IPM and IWM (Nominigold) in district Kannauj

161 demonstrations laid out in an area of 55.20 ha on varieties. The average yield of varieties was obtained 47.93 q/ha which was 22.18 % higher over local check (39.23 q/ha) with economic gain of Rs. 35727/ha. The highest yield was obtained by Kaushambi (82 q/ha) followed by Moradabad (52 q/ha).

Similarly, the demonstrations on scented rice in four thematic areas were organized at 258 farmers' fields on 75.32 ha area. On an average 43.28 q/ha of yield was gained, which was 36.29 % higher over local check (31.75 q/ha).

**Wheat:** The wheat demonstrations on different thematic areas were conducted at 669 farmers' fields covering an area of 242.34 ha. On an average 37.21 q/ha of yield was recorded in demonstrations, which was 21.69% higher over local check (30.58 q/ha). A net return of Rs. 26594/ha was realized in demonstrations. The highest yield of 62.95 q/ha was recorded when water soluble fertilizer was applied under IPNM in district Saharanpur followed by under varietal evaluation in variety WH 1105 (54.80 q/ha) and HD 2932 (51.39 q/ha) in Saharanpur and Etah district respectively.

In case of timely and late sown wheat, yield of 34.1 and 37.32 q/ha was realized, showing an increase of 23.04 and 22.65%, respectively over local check. Net returns of Rs. 16786 and Rs. 32877 per ha were realized from timely and late sown demonstrations.

**Barley:** Ten KVKs laid out barley demonstrations at 136 farmers' fields covering an area of 51.80 ha. On an average 29.27 q/ha of yield was obtained over local check (23.02 q/ha) which was 27.15% higher over local check. A net return of Rs. 20313/ha was obtained in demonstrations. The highest yield of 41.13 q/ha was recorded by variety Jawahar Barley 1 followed by Narendra 2 (32.51 q/ha) in Agra.

FLD on Maize: KVK Kushingar

**Maize:** The demonstrations on maize were laid out on INM, IPM, ICM and varieties at 147 farmers' fields at 39.10 ha area. Maize is being grown in all the three crop seasons. The average yield of 40.13 q/ha was achieved in demonstrations, which was 21.77 % higher over local check. A net return of Rs. 36682 /ha was realized in demonstrations. The highest yield of 57.20 q/ha was recorded in INM component at Badaun followed by under weed management at Farrukhabad which was 48.38 q/ ha.

**Millets:**

**Bajra:** The demonstrations on varietal evaluation of bajra were laid out at 52 farmers' fields on 17.25 ha area. On an average 33.12 q/ha of yield was recorded in demonstrations, which was 120% higher over local check (15.03 q/ha). A net return of Rs. 16711/ha was realized in demonstrations.

**Jowar:** The jowar demonstrations were conducted at 50 farmers' fields on 19.50 ha area. On an average 17.55 q/ha of yield was recorded in demonstrations, which was 30.39 % higher over local check (13.46 q/ha). Net income of Rs. 8563/ha was reported by farmers. The highest yield of 25.3 q/ha was noted with cultivar Super boss in district Auraiya followed by variety CSV 15 (20.15 q/ha) in Hardoi. Jowar being fodder crop has again value for livestock. Value addition may be created in the villages for enhancing their family income.

**FLD on Vegetables**

A total of 843 demonstrations on 127.90 ha were laid out on vegetables covering important crops in all the three crop seasons .

**Table 4.5: FLD on Vegetables**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|---|
| Bottlego- | ICM | 5 | 1 | 395 | 278 | 42.09 |
| urd (5) | IPM | 10 | 2 | 298.6 | 189.5 | 57.57 |
| | Varietal | 18 | 2.4 | 283.33 | 224.71 | 26.09 |
| | **Total** | **33** | **5.4** | **325.64** | **230.74** | **41.13** |
| Bittergo- | IPM | 6 | 2 | 130.72 | 107.34 | 21.78 |
| urd | ICM | 19 | 1.5 | 214 | 262 | -18.32 |
| | Varietal | 12 | 2 | 128.5 | 95 | 35.26 |
| | **Total** | **37** | **5.5** | **157.74** | **154.78** | **1.91** |
| Pointed- | IPM | 10 | 4 | 115 | 82.6 | 39.23 |
| gourd (1) | | | | | | |
| | **Total** | **10** | **4** | **115** | **82.6** | **39.23** |
| Tomato | IDM | 5 | 2 | 349.95 | 334.25 | 4.7 |
| (17) | INM | 15 | 2.4 | 274 | 339 | -19.17 |
| | IPM | 10 | 3 | 535.17 | 507.68 | 5.41 |
| | ICM | 9 | 1.6 | 409.5 | 306.3 | 33.69 |
| | RCT | 6 | 1 | 301.9 | 249.4 | 21.05 |
| | Varietal | 72 | 13.04 | 325.75 | 258.07 | 26.23 |
| | **Total** | **117** | **23.04** | **366.04** | **332.45** | **10.11** |
| Frenchbean | Varietal | 10 | 0.8 | 92.5 | 77.8 | 18.89 |
| (1) | IPM | 40 | 8 | 110 | 83.5 | 31.74 |
| | Total | 50 | 8.8 | 101.25 | 80.65 | 25.54 |
| Chilli (8) | IPM | 5 | 1 | 171.4 | 76.19 | 124.96 |
| | ICM | 5 | 1 | 125 | 82 | 52.44 |
| | IDM | 15 | 5 | 210 | 158.5 | 32.49 |
| | Varietal | 14 | 3 | 103 | 76.17 | 35.22 |
| | **Total** | **29** | **10** | **152.35** | **98.22** | **55.12** |
| Brinjal (4) | INM | 5 | 1 | 122.5 | 108 | 13.43 |
| | IPM | 10 | 3 | 292.78 | 256.88 | 13.98 |
| | Varietal | 20 | 2.8 | 276.88 | 197.7 | 40.05 |
| | Total | 35 | 6.8 | 230.72 | 187.53 | 23.03 |
| Vegetable | ICM | 10 | 2 | 75.6 | 60.3 | 25.37 |
| pea (19) | Varietal | 170 | 17.84 | 113.81 | 91.88 | 23.87 |
| | **Total** | **180** | **19.84** | **94.7** | **76.09** | **24.46** |

| | | | | | | |
|---|---|---|---|---|---|---|
| Okra (14) | ICM | 10 | 1 | 125.5 | 85.5 | 46.78 |
| | INM | 8 | 0.73 | 143.9 | 112.6 | 27.8 |
| | IPM | 16 | 4 | 108.23 | 89.75 | 20.59 |
| | Varietal | 39 | 5.4 | 124.49 | 93.32 | 33.4 |
| | **Total** | **73** | **11.13** | **125.53** | **95.29** | **31.73** |
| Onion (16) | INM | 19 | 4 | 166.43 | 143.7 | 15.82 |
| | IDM | 16 | 3.2 | 193.02 | 166.1 | 16.21 |
| | Varietal | 133 | 10.95 | 208.86 | 185.43 | 12.64 |
| | **Total** | **168** | **18.15** | **189.44** | **165.08** | **14.76** |
| Radish (1) | Varietal | 8 | 2 | 225.8 | 177.8 | 27 |
| | **Total** | **8** | **2** | **225.8** | **177.8** | **27** |
| Cabbage(3) | Varietal | 16 | 3.2 | 353.83 | 278.17 | 27.2 |
| | **Total** | **16** | **3.2** | **353.83** | **278.17** | **27.2** |
| Cauliflower | ICM | 10 | 1.25 | 51.1 | 42 | 21.67 |
| (8) | INM | 31 | 6 | 229.33 | 194.1 | 18.15 |
| | Varietal | 36 | 2.8 | 238.17 | 209.55 | 13.66 |
| | **Total** | **77** | **10.05** | **325.64** | **230.74** | **41.13** |
| **Grand Total** | | **833** | **127.9** | - | - | - |

**Bottle gourd:** The demonstrations were conducted at 33 farmers' fields at 5.4 ha area. Average yield 325.64 q/ha was recorded in demonstrations, which was 41.13 % higher over local check (230.74 q/ha). A net profit of Rs. 187983 / ha was attained by farmers. The highest yield of 345 q/ha was recorded for Pusa Naveen variety in district Saharanpur followed by Azad Harit (320 q/ha) in Badaun.

FLD on low cost pheromone trap in Bottlegourd: KVK Sitapur-I

**Bitter gourd:** The demonstrations yielded 157.74 q/ha against 154.78 q/ha in local check showing an increase of only 1.91% and net return of Rs. 144971/ha in demonstrations over local check. The lower yield advantage may be due to prevalence of hybrid varieties of private companies in the area.

**Pointed gourd:** KVK Meerut conducted 10 demonstrations on 4 ha area. Demonstrated field exhibited yield of 115 q/ha against local check (82.60 q/ha) showing an increase of 39.23% in demonstrations. The net return of Rs. 118010/ha was reported.

**Tomato:** 117 demonstrations by 17 KVKs exhibited 366.04 q/ha of yield against local check (332.45 q/ha) showing an increase of 10.11 % higher. The net return of Rs. 241332 /ha was reported. The highest yield of 670.35 q/ha was recorded in district Lucknow under IPM (Imidachloprid @ 0.750 l/ha + Metarizium @ 5.0 kg/ha) followed by variety NS 585 (560 q/ha) at Rae bareilly and Arka Rakshak (427.43 q/ha) at Kannauj district.

**Frenchbean:** KVK, Bulandshahr and Bijnour laid out 50 demonstrations on 8.8 ha area with IPM and varietal aspects. The average yield was observed 101.25 q/ha showing an increase of 25.54% over local check (80.65 q/ha) and net return of Rs. 92992/ha.

**Chilli:** 8 KVKs laid out twenty nine demonstrations on five different components with average yield 152.35 q/ha showing an increase of 55.12% over local check (98.22 q/ha) and net return of Rs. 148362/ha.

**Brinjal:** Thirty five demonstrations were carried out an area of 6.8 ha by four KVKs on INM, IPM and varietal interventions showed yield potential of 230.12 q/ha against 187.53 q/ha in checks, showing an increase of 23.03 % and net profit of Rs. 222093/ha whereas, variety + IPM resulted yield of 585.85 q/ha at district Lucknow followed by 348.75 q/ha at district Jalaun.

**Vegetable Pea:** A total of 180 demonstrations laid out by 19 KVKs with two interventions namely ICM and Varietal evaluation on 19.84 ha area. The average yield was observed 94.70 q/ha against 76.09 q/ha in local check with an increase of 24.46% and net return of Rs. 75886/ha. The highest yield was obtained by the variety Pusa Pragati (110 q/ha) at Meerut followed by Azad P 3 (94.50 q/ ha) and VL 7 (88.3 q/ha) at Faizabad and Lucknow, respectively.

**Okra:** The fourteen KVKs conducted demonstrations on 15.30 ha are with involvement of 73 farmer's field exhibited average yield of 125.53 q/ha against 95.29 q/ha

in local check with an increase of 31.73% and net return of Rs. 71114/ha. Five KVKs attained the yield more than 100 q/ha on different interventions whereas, 163 q/ha yield obtained under by hybrid variety Deepika at district Mahoba followed by Kuber (140.0 q/ha) at district Rae bareily and 125 q/ha in ICM at district Meerut when grown as intercrop with sugarcane.

**Onion:** The onion demonstrations on different thematic areas were conducted at 168 farmers' fields covering 18.15 ha area by 10 KVKs. The average yield was obtained under demonstration was 189.44 q/ha against local check yield of 165.08 q/ha showing an increase of 14.76% and net return of Rs. 194782/ha. The highest yield 247.2 q/ha was obtained with varity Agri found dark red at district Auraiya followed by 222.56 q/ha with Agri found dark red + sulphur in district Kannauj.

**Radish:** KVK, Rampur conducted eight demonstrations in an area of 2 ha with yield level of 225.8 q/ha against check yield of 177.0 q/ha showing an increase of 27% and net return of Rs. 30000/ha.

**Cabbage:** Three KVKs conducted demonstrations at 16 farmer's fields in an area of 3.2 ha on varietal ealuation with yield level of 353.83 q/ha against check yield of 278.17 q/ha showing an increase of 27.20% and net return of Rs. 165400/ha. The highest yield 610 q/ha was recorded with variety Primero in district Firozabad followed by 267.5 q/ha with Prateek in district Jalaun.

**Cauliflower:** A total of 77 demonstrations were conducted in an area of 10.05 ha by eight KVKs on integrated crop management, integrated nutrient management and varietal evaluation with yield level of 325.64 q/ha against local check yield of 230.74 q/ha showing an increase of 41.13% and net return of Rs. 114144/ha. Highest yield of 251.52 q/ha was recorded with cultivar Sabour Agrim in district Kannauj followed by 248 q/ha with variety Agaheni in Jalaun and 238 q/ ha with early quari + INM in district Kannauj.

### 4.6 FLD on Fruits

**Table 4. 6: Physical achievement of FLD on Fruits**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|---|
| Mango (2) | IPM | 15 | 5 | 170 | 120 | 41.67 |
| Guava (2) | IPM | 25 | 6.98 | 346.25 | 240 | 44.27 |
| | **Total** | **40** | **11.98** | **258.13** | **180** | **42.97** |

Demonstrations on mango and guava were conducted on 40 farmer's field on an 11.98 ha area by four KVKs. The average yield in mango demonstrations was 170 q/ha which was 41.67 % higher than local check yield (120.0 q/ha) with net return of Rs. 207500/ ha while in guava the average yield was obtained by 346. 25 q/ ha which was 44.27 higher than local check. The net return from guava was Rs.268220/ha.

### 4.7 FLD on Spices

In Uttar Pradesh, total 17 demonstrations were conducted on spices in an area of 3.08 ha area.

**Table 4.7: FLD on Spices**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|---|
| Garlic (1) | Varietal | 8 | 0.08 | 74.85 | 53.7 | 39.39 |
| | IPM | 5 | 2 | 58.55 | 53.7 | 9.03 |
| **Total (Garlic)** | | **13** | **2.08** | **66.7** | **53.7** | **24.21** |
| Turmeric (1) | ICM | 4 | 1 | 336.6 | 232 | 45.09 |
| **Total Spice Crops** | | 17 | 3.08 | - | - | - |

**Garlic:** KVK, Mainpuri conducted demonstration at 13 farmers' fields in an area of 2.08 ha resulted yield of 66.70 q/ha against 53.70 q/ha in local check showing an increase of 24.21%. The net return was Rs. 112580/ha.

**Turmeric:** KVK Kaushambi conducted demonstration at 4 farmers' fields in one ha area under guava orchard resulted yield of 336.60 q/ha against 232 q/ha in local check showing an increase of 45.09%. The net return was Rs. 363700/ha with benefit cost ratio of 2.9.

### 4.8 FLD on Commercial crops

**Sugarcane:** The eight KVKs conducted demonstration at 129 farmers' fields in an area of 50.4 ha resulted yield of 725.02 q/ha against 599.94 q/ha in local check showing an increase of 20.85%. The net return was Rs. 146600/ha. The highest yield of 850q/ha obtained by variety CoS 07250 in district Muzaffarnagar followed by 825q/ha with IPM components in district Meerut Nagar and 810 q/ha at Muzaffarnagar.

**Potato:** A total of 249 demonstrations laid out by 14 KVKs with four interventions namely ICM, INM, IPM and IDM on 82.9 ha area. The average yield of 324.86 q/ha with an increase of 16.48 % over local check (269.39 q/ha) was obtained. The net return of Rs. 172421 per ha was realized by the farmers.

**Table 4.8: FLD on Commercial crops**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|---|
| Sugarcane | ICM | 20 | 10 | 714.03 | 6077.93 | 17.45 |
| (8) | INM | 45 | 16 | 635.8 | 478.58 | 32.85 |
| | IPM | 60 | 24 | 700.25 | 563.25 | 24.32 |
| | Varietal | 4 | 0.4 | 850 | 750 | 13.33 |
| | **Total** | **129** | **50.4** | **725.02** | **599.94** | **20.85** |
| Potato (14) | ICM | 6 | 2 | 371.6 | 325.7 | 14.09 |
| | INM | 51 | 11.4 | 316.75 | 284.27 | 11.43 |
| | IPM | 20 | 5 | 297.68 | 252.67 | 17.81 |
| | IDM | 172 | 64.3 | 313.4 | 255.67 | 22.58 |
| | **Total** | **249** | **82.9** | **324.86** | **279.58** | **16.48** |
| Flower (6) | | | | | | |
| Bela | INM | 14 | 0.8 | 52.98 | 49.23 | **7.62** |
| Gladiolus | INM | 19 | 2 | 177499 | 162500 | **9.23** |
| | IDM | 30 | 7.4 | 185800 | 162500 | 14.34 |
| Total | | **49** | **9.4** | **181649.5** | **162500** | **11.78** |
| Marigold | Varietal | 45 | 10.25 | 178.06 | 143.24 | 24.31 |
| **GT (Commercial)** | | **486** | **153.75** | - | - | - |

**Bela:** KVK, Kannauj conducted demonstration at 14 farmers' fields in an area of 0.80 ha area with INM intervention resulted of 52.98 q/ha yield against 53.70 q/ha in local check showing an increase of 7.62%. The net return was Rs. 306665/ha.

FLD on Glaidolus(Frindship):KVK Barabanki

FLD on marigold: KVK Baharaich

### 4.9 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 :** Three KVKs conducted demonstration at 40 farmers' fields in an area of 7.6 ha resulted yield of 478.45 q/ha against 375.97 q/ha in local check showing an increase of 26.6%. The net return was Rs. 41120/ha with benefit cost ratio of 2.84. The highest yield of 663.0 q/ha obtained under variety in district Unnaofollowed by 607.34 q/ha in district Lucknow

FLD on cowpea (Kashi Kanchan)

**Cowpea:** KVK, Kanpur Dehat and Pratapgarh conducted 9 demonstrations at 0.65ha and resulted yield of 140 q/ha against 130 q/ha in local check showing an increase of 7.69%. The net return was Rs. 13412/ha with benefit cost ratio of 2.06.

**Pearl millet:** KVK, Sitapur-2 laid out five demonstrations on 3 ha area.The average yield was obtained by 190 q/ha over local check (158.80 q/ha) which was 19.65 % higher.

**Sudan Grass:** 40 demonstrations were laid out by KVK, Lucknow and Fatehpur in an area of 5.0 ha. The average yield was 246.5 q/ ha which was 20.24 % higher than local check (205 q/ha).

FLD on Berseem: KVK Fatehpur (U.P.)

**Berseem :** The seventeen KVKs conducted 207 demonstrations on 23.5 ha area with an average yield of 541.90 q/ha against 452.60 q/ha in local check. The yield gain was 10.15% higher over local check. A net return of Rs. 40708/ha was obtained under demonstrations. The highest yield (810q/ha) was obtained in district Sitapur with variety BL 10 followed by Unnao (793 q/ha).

**Oat:** A total of 219 demonstrations were laid out by 13 KVKs in an area of 16.6 ha with an average yield of 428.14 q/ha against 359.13 q/ha in local check. The yield gain was 20.38% higher over local check.

A net return ranges from Rs. 15100 to 669132/ha with different varieties and locations was obtained under demonstrations. The highest yield (812 q/ha) was obtained in district Agra with variety Ball green followed by 518q/ha with variety JHO-822 in districts Pratapgarh.

**Nutrified Fodder:** Demonstrations on nutrified fodder was conducted by KVK Saharanpur on one ha area with 15 demonstrations. The yield was 480 q/ha which was 43.28% higher over farmer's practice.

**Table 4.9: Physical achievement of FLD on fodder crops**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|---|
| Sorghum (3) | Varietal | 6 | 0.6 | 165 | 133 | 24.06 |
| | Fodder production | 10 | 2.0 | 663 | 531 | 24.86 |
| | ICM | 24 | 5.0 | 607.34 | 463.92 | 30.91 |
| | **Total** | **40** | **7.6** | **478.45** | **375.97** | **26.61** |
| Cowpea (1) | Varietal | 9 | 0.65 | 140 | 130 | 7.69 |
| | **Total** | **9** | **0.65** | **140** | **130** | **7.69** |
| Pearl millet (1) | Fodder production | 5 | 3.0 | 190 | 158.8 | 19.65 |
| | **Total** | **5** | **3.0** | **190** | **158.8** | **19.65** |
| Sudan (2) | ICM | 10 | 2.0 | 251 | 209 | 20.1 |
| | Fodder production | 30 | 3.0 | 242 | 201 | 20.4 |
| | **Total** | **40** | **5.0** | **246.5** | **205** | **20.24** |
| Berseem (17) | Fodder production | 151 | 18.1 | 588.79 | 455.8 | 29.18 |
| | Varietal | 56 | 5.4 | 495.01 | 449.4 | 10.15 |
| | **Total** | **207** | **23.5** | **541.9** | **452.6** | **19.67** |
| Oat (13) | Fodder production | 158 | 12.6 | 458.17 | 409 | 12.02 |
| | Varietal | 61 | 4.0 | 398.1 | 309.25 | 28.73 |
| | **Total** | **219** | **16.6** | **428.14** | **359.13** | **20.38** |
| Nutrifeed 1 | Fodder production | 15 | 1.0 | 480 | 335 | 43.28 |
| | **G. Total** | **535** | **57.35** | | | |

## 4.10 FLDs on livestock and fishery

Demonstrations on different interventions on livestock were carried out. 3527 demonstrations were laid out on enhancing milk yield, disease management, nutritional management & Diary, etc. 15 KVKs conducted 327 demonstrations on cattle, 16 KVKs on Buffalo with 353 demonstrations, 1 KVK on poultry with 5 demonstrations, 8 KVKs on Sheep & Goat with 1218 demonstration, 7 KVKs on vaccination with 1559 demonstrations, 10 demonstrations were conducted as composite fish culture & 55 as milk production

**Tale 4.10 FLD conducted on livestock**

| Category/No. of KVKs | No. of Farmers | No. of Unites/Area |
|---|---|---|
| Cattle (15) | 327 | 10.84 |
| Buffalo (16) | 353 | 758 |
| Poultry (1) | 5 | 5 |
| Sheep & Goat (8) | 1218 | 12 |
| Vaccination (7) | 1559 | 2037 |
| Composite fish culture (2) | 10 | 10.86 |
| Milk production (3) | 55 | 65 |
| **Total** | **3527** | **2877/21.70** |

## 4.10 FLD on Hybrid crops

**Hybrid Oilseed:** Four KVKs laid out 127 demonstrations on hybrid mustard on 54.40 ha area. The average yield of mustard (15.41 q/ha) was recorded over local check (12.08 q/ha) and percent increase was 27.57 over local check. The highest yield was 17 q/ ha was obtained at Mathura in variety RH 749 followed by 16.5 q/ha with variety NRCHB 101 at district Etah. The net return was Rs. 27905/ ha.

**Hybrid Cereals:** The thirty KVKs laid out demonstrations on paddy, maize and bajra hybrid varieties at 545 farmers' fields in an area of 132.20 ha. The demonstration yield of paddy (61.50 q/ha), maize (90.98 q/ha) and bajra (37.88 q/ha) was recorded. The percentage yield increase was 28.53, 19.90 and 21.92% respectively over local check

FLD on cauliflower: KVK Ghaziabad

FLD on Chilli: KVK Baharaich

**Hybrid Vegetables:** The thirty three KVKs conducted 223 demonstrations on important hybrid vegetable crops in 26.02 ha area. Among the vegetables, brinjal registered yield q/ha (294.80), cabbage (369.73), okra (152.40), cauliflower (235.30), chilli (221.37), tomato (367.59), bitter gourd (128.50), Bottle gourd (323.33), Sponge gourd (373.00) French bean (102.00) and pumpkin (261.00). The percentage yield increase was 7.05, 27.44, 45.38, 32.75, 127.82, 30.43, 35.26, 25.87, 49.20, 33.51 and 46.63 respectively over local check.

**Table 4.11: FLD on Hybrid crops**

| Crop/ No. of KVKs | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase |
|---|---|---|---|---|---|
| **Oilseed** | | | | | |
| Mustard (4) | 127 | 54.4 | 15.41 | 12.08 | 27.57 |
| **Total (Oilseed)** | **127** | **54.4** | **15.41** | **12.08** | **27.57** |
| **Cereal crop** | | | | | |
| Paddy (19) | 304 | 70.55 | 61.5 | 47.85 | 28.53 |
| Maize (4) | 159 | 33.25 | 90.98 | 75.88 | 19.9 |
| Bajra (7) | 82 | 28.4 | 37.88 | 31.07 | 21.92 |
| **Total (Cereal)** | **545** | **132.2** | - | - | - |
| **Vegetable** | | | | | |
| Brinjal (3) | 25 | 4.8 | 294.8 | 274.01 | 7.05 |
| Cabbage (3) | 22 | 3.5 | 369.73 | 290.13 | 27.44 |
| Okra (2) | 15 | 1.74 | 152.4 | 104.83 | 45.38 |
| Cauliflower (3) | 15 | 2.6 | 235.3 | 177.25 | 32.75 |
| Chilli (3) | 19 | 4 | 221.37 | 97.17 | 127.82 |
| Tomato (11) | 78 | 14.18 | 367.59 | 281.84 | 30.43 |
| Bitter gourd (1) | 12 | 2 | 128.5 | 95 | 35.26 |
| Bottle gourd (4) | 21 | 3.75 | 323.33 | 256.87 | 25.87 |
| Sponge gourd (1) | 8 | 0.75 | 373 | 250 | 49.2 |
| French bean (1) | 5 | 0.5 | 102 | 76.4 | 33.51 |
| Pumpkin (1) | 3 | 1 | 261 | 178 | 46.63 |
| **Total Veg. Crops** | **223** | **38.82** | - | - | - |
| **Fodder** | | | | | |
| Makkhan Grass (1) | 5 | 1 | - | - | - |
| **Total (Hybrid)** | **900** | **226.42** | - | - | - |

### 4.12 FLD on Other Enterprises

Five KVKs demonstrated mushroom production (button, oyster and dhingri) at 50 farmers fields covering 150 units and total production was 295.5kg in Uttar Pradesh; whereas 9 KVKs demonstrated value addition covering 189 farmers in 225 units. Bio compost at 120 farmers' fields covering with the production of 4 q/unit

**Table 4.12: Physical achievement of FLD on other enterprises**

| Name of the implement/ No. of KVKs | Uttar Pradesh | | |
|---|---|---|---|
| | No. of Farmer | Area (ha) | No. of units |
| Button Mushroom | 1 | 10 | 10 |
| Oyster Mushroom | 4 | 40 | 140 |
| Value Addition | 9 | 189 | 225 |
| Bio Compost | 4 | 120 | 120 |
| **Total** | **18** | **359** | **495** |

### 4.13 FLD on farm implements & machinery

Twenty two KVKs demonstrated implements (Potato Planter, Rotavator, Power spray, ZT Machine, bed planter, Deep ploughing, Groundnut decorticator, Naveen Sickle, Reeper and Binder, Subsoiler, and maize sheller) covering an area of 211.86 ha by involving 277 farmers in Uttar Pradesh. 4586.72 kg maize and 100 kg groundnut were taken out from maize sheller and groundnut decorticator by involving 24 farmers in 3 KVKs.

Implementation of SRI at farmers field: KVK Azamgarh

FLD on Paddy Drum seeder: KVK Gonda

**Table 4.13: Physical achievement of FLD on Farm implements & machinery**

| Name of the implement/ No. of KVKs | Uttar Pradesh | |
|---|---|---|
| | No. of Farmer | Area (ha) |
| Potato Planter (1) | 5 | 2 |
| Rotavator (2) | 13 | 5 |
| Power spray | 15 | 6 |
| ZT Machine (7) | 63 | 24.76 |
| Bed planter | 10 | 4 |
| Deep ploughing | 20 | 10 |
| Groundnut decorticator | 6 | 5.6 |
| Groundnut stripper | 10 | 0 |
| Naveen Sickle (1) | 110 | 110 |
| Reeper and Binder (1) | 5 | 1 |
| Subsoiler (1) | 5 | 2.5 |
| Maize sheller | 15 | 41 |
| **Total** | **277** | **211.86** |
| Maize Sheller (2) | 19 | 4586.72 |
| Groundnut Decorticator (1) | 5 | 100 |
| **Total** | **24** | **4686.72** |
| **Grand Total** | **301** | **4898.58** |

### 4.14 FLD on Kitchen Gardening

A total 177 demonstrations in 257 sq meter area at 9 districts in farmers fields were organized with production of 143.02 q/ha.

**Table 4.14: FLD on Kitchen Gardening**

| Name of the technology demonstrated | No. of KVKs | No. of Farmer | Area (sq m) | Yield (q/ha) | | % change in yield |
|---|---|---|---|---|---|---|
| | | | | Demon. | Check | |
| Growing of some leafy vegetable | 1 | 20 | 20 | 88 | 40 | 120 |
| Nutrition Food Security | 5 | 67 | 67 | 88.75 | 26 | 241.35 |
| Layout of kitchen garden and improved variety | 3 | 90 | 170 | 252.33 | 158 | 59.7 |
| **Total** | **9** | **177** | **257** | - | - | - |

**State: Uttarakhand**

### 4.15 FLD on Pulses

**Pigeonpea:** Two KVKs organized demonstrations on pigeonpea variety VL Arhar-1. The variety gave the 12.76/ha yield which was 166.39% higher over local checks were (4.79 q/ha). The net return was observed Rs. 33620/ha with cost benefit ratio of 2.97.

**Blackgram:** An average yield of 8.62 q/ha was reported in demonstrations against 5.38 q/ha in local checks. The net return was Rs. 17193/ha with cost benefit ratio of 1.95.

**Lentil:** The four KVKs conducted 109 demonstration on varietal evaluation in 6.3 ha area. The variety VLM 126 gave highest yield (7.9 q/ha) over local check (6.5 q/ha) followed by VLM 103 (6.9 q/ha) over local check with net return of Rs. 18136/ ha.

**Horsegram and Black Soybean:** The demonstrations on horsegram (7.84 q/ha) and black soybean (10.11 q/ha) indicated significant gains. The yield advantage of 40.48 percent in horse gram and 57.72 % in Black soybean was observed.

**Table 4.15: FLD on Pulses**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|---|
| Pigeonpea (5) | Varietal | 39 | 3 | 12.76 | 4.79 | 166.39 |
| | **Total** | **39** | **3** | **12.76** | **4.79** | **166.39** |
| Blackgram (3) | ICM | 25 | 5 | 8.62 | 5.38 | 60.22 |
| | **Total** | **25** | **5** | **8.62** | **5.38** | **60.22** |
| Lentil (2) | Varietal | 109 | 6.3 | 7.4 | 6.16 | 20.03 |
| | **Total** | **109** | **6.3** | **7.4** | **6.16** | **20.03** |
| Horsegram (3) | Varietal | 43 | 1.5 | 9.19 | 8.2 | 12.07 |
| | ICM | 15 | 3 | 8.19 | 5.83 | 40.48 |
| | **Total** | **58** | **4.5** | | | |
| Black Soyabean (2) | ICM | 15 | 3 | 10.11 | 6.41 | 57.72 |
| | **Total** | **15** | **3** | **10.11** | **6.41** | **57.72** |
| **G.T.(Pulses)** | | **246** | **21.8** | - | - | - |

### 4.16 FLD on Oilseeds

**Mustard:** Four KVKs conducted 66demonstrations on 9.66 ha area with average yield of 17.64 q/ha which was 57.22% higher over local check (11.45 q/ha).

**Toria:** KVK Champawat conducted 22 demonstration on variety VL 3. The highest yield of 9.5 q/ha was observed which was 24.18% higher over local checks. The net return was Rs. 11950/ ha with cost benefit ratio of 2.33.

**Soybean:** Nine KVKs laid out demonstrations on various interventions like ICM, INM, weed management and varietal evaluation. The average yield was 16.85 q/ha which was 30.88 % higher over farmer's practice (13.04 q/ha). The INM + variety PS 1347 resulted yield of 20.83 q/ha followed by varietal VLS 47 (16.63 q/ha)

**Table 4.16: Thematic area wise physical achievement of FLD on oilseeds**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|---|
| Mustard | ICM | 40 | 6 | 16.5 | 10.22 | 61.45 |
| (4) | Varietal | 6 | 2 | 19.8 | 12 | 65 |
| | IPM | 20 | 1.66 | 16.63 | 11.45 | 45.2 |
| | **Total** | **66** | **9.66** | **17.64** | **11.22** | **57.22** |
| Toria | Varietal | 22 | 0.5 | 9.5 | 7.65 | 24.18 |
| | **Total** | **22** | **0.5** | **9.5** | **7.65** | **24.18** |
| Soybean | INM | 14 | 1 | 20.78 | 17.37 | 19.63 |
| (9) | Varietal | 101 | 3.6 | 15.26 | 11.5 | 32.7 |
| | ICM | 92 | 7 | 15.3 | 11.27 | 35.76 |
| | IWM | 25 | 0.5 | 16.06 | 12 | 33.83 |
| | **Total** | **232** | **12.1** | **16.85** | **13.04** | **30.48** |
| **Grand Total** | | **320** | **22.46** | - | - | - |

### 4.17 FLD on Cereals and Millets

**Paddy:** 338 demonstrations were laid out in an area of 29.26 ha. Average yield in demonstrations varied between 27.06 to 55.66 q/ha under different thematic areas showing an increase of 13.75 to 56.90 % with average productivity of 38.66 q/ha. The yield gain obtained was 26.54%.

FLD on wheat : KVK Dehradun

**Wheat:** Nine KVKs conducted 429 demonstrations on 34.70 ha area on timely and late sown wheat with varietal and ICM interventions. An average yield of 28.75 q/ha was reported showing an increase of 32.99% over local check.

**Maize :** Three KVKs conducted 32 demonstrations on variety Vivek maize 1which yielded 22.0 q/ha against 16.5 q/ha in local check with increase of 33.33% higher..

**Millets:** Three KVKs conducted demonstrations on millets varieties obtained average yield of 15.64 q/ha. The barnyard millet resulted yield of 14.55 q/ha and 2 KVKs organized finger millet demonstrations with yield of 16.74 q/ha. The yield advantage was ranges between 43 to 70 % over local checks. 106 demonstrations on barnyard millet showed yield levels of 14.55 q/ha against 9.15 q/ha of local checks showing increase of 61.38%.

**Table 4.17: Thematic area wise physical achievement of FLD on Cereals & Millets**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|---|
| Paddy (12) | ICM | 100 | 11 | 35.57 | 28.23 | 26 |
| | INM | 17 | 5 | 55.66 | 45.45 | 22.39 |
| | IPM | 20 | 1.66 | 43.25 | 35.15 | 23.04 |
| | IWM | 68 | 2.6 | 27.06 | 23.1 | 17.14 |
| | Varietal | 108 | 8 | 43.18 | 27.52 | 56.9 |
| | IDM | 25 | 1 | 27.3 | 24 | 13.75 |
| | **Total** | **338** | **29.26** | **38.66** | **30.58** | **26.54** |
| Wheat (9) | ICM | 189 | 19.6 | 23.8 | 19 | 25.26 |
| | Varietal | 240 | 15.1 | 33.65 | 24.2 | 39.05 |
| | Total | 429 | 34.7 | 28.75 | 21.6 | 32.99 |
| Maize(3) | Varietal | 32 | 1 | 22 | 16.5 | 33.33 |
| | Total | 32 | 1 | 22 | 16.5 | 33.33 |
| **Total (Cereals)** | | **799** | **65.36** | - | - | - |
| Millets | | | | | | |
| Barnyard | Varietal | 100 | 6 | 11.6 | 6.8 | 70.59 |
| Millet (3) | ICM | 6 | 0.75 | 17.5 | 11.5 | 52.17 |
| | Total | 106 | 6.75 | 14.55 | 9.15 | 61.38 |
| Finger | Varietal | 60 | 5 | 13.97 | 9.72 | 43.72 |
| millet (2) | ICM | 34 | 2 | 19.5 | 12.5 | 56 |
| | Total | 94 | 7 | 16.74 | 11.11 | 49.86 |
| **Total (Millet)** | | **200** | **13.75** | **15.64** | **10.13** | **55.62** |

### 4.18 FLD on Vegetables

A total of 651 demonstrations were carried out in vegetable crops namely on 26.29 ha area. Higher yield gains ranging between 6.90 to 67.78% was obtained in different thematic areas.

The average yield levels tomato (242.53 q/ha), frenchbean (78.91q/ha), capsicum (119.30 q/ha), chilli (138 q/ha), brinjal (465 q/ha), vegetable pea (65.22 q/ha), okra (79.66 q/ha), spinach (161.36 q/ha) and amaranthus (12.67 q/ha) were reported in demonstrations.

**Table 4.18: Thematic area wise physical achievement of FLD on Vegetables**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|---|
| Tomato (5) | Varietal | 51 | 2.2 | 242.531 | 170.7 | 42.08 |
| | **Total** | **51** | **2.2** | **242.531** | **170.7** | **42.08** |
| Frenchbe- | Varietal | 45 | 1.59 | 87.82 | 69.33 | 26.67 |
| an (6) | ICM | 15 | 1 | 70 | 40 | 75 |
| | Total | 60 | 2.59 | 78.91 | 54.67 | 50.84 |
| Capsicum | Varietal | 105 | 1.1 | 119.3 | 90.67 | 31.58 |
| (6) | | | | | | |
| | **Total** | **105** | **1.1** | **119.3** | **90.67** | **31.58** |
| Chilli (1) | Varietal | 64 | 0.7 | 138 | 91 | 51.65 |
| Brinjal (1) | Varietal | 10 | 0.2 | 465 | 308 | 50.97 |
| Vegetable | ICM | 90 | 3 | 50.5 | 37 | 36.49 |
| pea (10) | IDM | 15 | 1 | 49.06 | 37.53 | 30.72 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | IPM | 18 | 0.8 | 64 | 46 | 39.13 |
| | Varietal | 61 | 4 | 97.33 | 77.354 | 25.82 |
| | Total | 184 | 8.8 | 65.22 | 49.47 | 33.04 |
| Okra (1) | Varietal | 10 | 0.2 | 79.66 | 74.52 | 6.9 |
| **Total** | | | | | | |
| Spinach | Varietal | 25 | 0.1 | 180 | 120 | 50 |
| (1) | Varietal | 16 | 0.5 | 142.71 | 124 | 15.09 |
| | **Total** | **41** | **0.6** | **161.36** | **122** | **32.55** |
| Amranth- | Varietal | 36 | 4 | 13.9 | 10.15 | 36.95 |
| us | ICM | 32 | 5 | 10.5 | 7.5 | 40 |
| | IPM | 20 | 0.7 | 13.6 | 9.5 | 43.16 |
| | Total | 88 | 9.7 | 12.67 | 9.05 | 40.04 |
| Kale (1) | ICM | 38 | 0.2 | 151 | 90 | 67.78 |
| | Total | 38 | 0.2 | 151 | 90 | 67.78 |
| **Grand Total** | | **651** | **26.29** | | | |

### 4.19 FLD on Fruits

The demonstrations on ICM in Mango (10) showed yield of 218.50 q/ha in demonstrations over 123.7 q/ha in local check, a difference of 76.54%.

**Table 4.19: FLD on Fruits**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|---|
| Mango | ICM | 10 | 1 | 218.5 | 123.77 | 76.54 |
| | **Total** | **10** | **1** | **218.5** | **123.77** | **76.54** |

### 4.20 FLD on Commercial crop

Demonstrations were laid out on IWM and IPM in sugarcane and potato, respectively on 4.58 ha area.Sugarcane demonstrations yielded 762 q/ha over local check (630 q/ha) which was 21 % higher over it. While Potato yield potential of 190.88 q/ha showed percentage gain of 45.47% over local check. Potato demonstrations were laid in hill areas. The net profit of Rs. 62850 per ha from potato were realized

**Table 4.20: FLD on Commercial crop**

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|---|
| Sugarcane (8) | IWC | 5 | 2 | 762 | 630 | 21 |
| Potato (14) | IPM | 77 | 2.58 | 190.88 | 128.55 | 45.47 |
| **Grand Total** | | **82** | **2.58** | | | |

### 4.21 FLD on Fodder

Five KVKs conducted 25 demonstrations on different Barseem crops in an area of 2 ha. The average yield was 316.4 (q/ha) was obtained which was 37.20 % higher over local check (279.20 q/ha)

| Crop/ No. of KVKs | Thematic Area | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|---|
| Berseem-F (5) | ICM | 25 | 2 | 316.4 | 279.2 | 37.2 |
| **Total** | | **25** | **2** | **316.4** | **279.2** | **37.2** |

FLD on Berseem (Vardhan) and Gahat: KVK Almora

### 4.22 FLD on livestock

A total of 60 demonstrations were laid out on enhancing milk yield, disease management, nutrition management & Dairy in cattle and buffalo etc., 75 demonstrations were conducted on poultry farming and 10 demonstrations were conducted as composite fish culture.

**Table 4.22: FLD on livestock**

| Category/ No. of KVKs | Thematic Area | No. of Farmers | No. of Units |
|---|---|---|---|
| Cattle (5) | Milk Production | 10 | 25 |
| | Nutrition management | 30 | 30 |
| | Total (Cattle) | 40 | 55 |
| Buffalo | Nutrition management | 20 | 40 |
| Poultry (6) | Poultry farming | 10 | 500 |
| | Breed | 65 | 1150 |
| | **Total (Poutry)** | **75** | **1650** |
| Fishery (2) | Composite Fish Culture | 10 | 5005 |
| | **GT (Livestock)** | **145** | **6750** |

### 4.23 FLD on Hybrid crops

**Hybrid Oilseed:** One KVK laid out demonstrations on mustard hybrid at 10 farmers' fields in an area of 2.00 ha. The demonstration yield was 20.40 q/ha which was 45.71% higher over local check (14.0 q/ha).

**Hybrid Cereals:** Four KVKs conducted demonstrations on paddy and maize hybrids in 34 farmer's field in an area of 8 ha. The paddy demonstration yield (92.40 q/ha) and maize yield (48.60 q/ha) was observed in demonstrated fields. Percentage yield increase of 84.06 and 133.65 % higher over local check.

**Hybrid Vegetables:** Demonstrations were conducted by 5 KVKs at 334 farmers' fields in an area of 9.95 ha on cabbage, capsicum, tomato & summer squash, brinjal, okra and cauliflower.Cauliflower resulted 491.34 q/ha yield followed by tomat resulted 478.86 q/ ha. The percentage yield increase was 26.76 and 54.19 q/ha over local check.

**Table 4.23 : FLD on Hybrid crops**

| Crop/ No. of KVKs | No. of Farmers | Area (ha) | Demo Yield (q/ha) | Check Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|
| **Oilseed** | | | | | |
| Mustard (1) | 10 | 2 | 20.4 | 14 | 45.71 |
| Cereal crop | | | | | |
| Paddy (3) | 30 | 6 | 92.4 | 50.2 | 84.06 |
| Maize (1) | 4 | 2 | 48.6 | 20.8 | 133.65 |
| **Total (Cereal)** | **34** | **8** | | | |
| **Vegetable** | | | | | |
| Cabbage (2) | 25 | 1.3 | 379.66 | 301.44 | 25.95 |
| Chilli (1) | 10 | 0.5 | 80.6 | 64.26 | 25.43 |
| Tomato (2) | 119 | 2.15 | 478.86 | 310.57 | 54.19 |
| Summer Squash (1) | 47 | 1 | 270 | 177.5 | 52.11 |
| Brinjal (3) | 113 | 3 | 361.11 | 281.95 | 28.08 |
| Okra (2) | 10 | 1 | 204.06 | 146.32 | 39.46 |
| Cauliflower (2) | 10 | 1 | 491.34 | 387.62 | 26.76 |
| **Total (Veg)** | **334** | **9.95** | - | - | - |
| **GT (Hybrid)** | **368** | **17.95** | - | - | - |

### 4.24 FLD on Other Enterprises

Four KVKs demonstrated mushroom trench opener and maize sheller at 20 farmers fields covering 15.0 ha area while two KVKs conducted low tunnel poly house demonstrations with involvement of 10 farmers on 10 ha area for raising disease free nursery of vegetable crops.

**Table 4.24: FLD on Other Enterprises**

| Name of the implement/ No. of KVKs | Uttar Pradesh | |
|---|---|---|
| | No. of Farmer | Area (ha) |
| Trench opener (2) | 10 | 5 |
| Maize seller (2) | 10 | 10 |
| Low tunnel poly house (2) | 10 | 10 |
| Total | 30 | 25 |

### 4.25 FLD on Kitchen Gardening :

105 demonstrations laid out at 105 farmers field for nutritional gardens for adequate availability of fresh vegetables for the nutritional security of the family.

**Table 4.25: FLD on Kitchen Gardening**

| Category/ No. of KVKs | KVK | Demon. | Area | Units |
|---|---|---|---|---|
| Poly tunnel | 1 | 5 | 5.0 | 5 |
| Nutritional Garden | 3 | 100 | 2.0 | 2 |
| **Total** | **4** | **105** | **7.0** | **7** |

# TECHNOLOGY ASSESSMENT AND REFINEMENT

## 5.1 Crop Related Technology Assessment

KVKs of Zone IV, conducted on farm trials in 13 major thematic areas. In both the states (Uttar Pradesh and Uttarakhand) of this zone, 280 technologies were tested with involvement of 2149 farmers. The KVKs of Uttar Pradesh assessed 224 technologies with active participation of 1804 farmers while KVKs of Uttarakhand assessed 56 technologies with involvement of 345 farmers. Cereals, pulses, oilseeds, vegetables, fruits, cash crops, etc. were assessed under different thematic areas namely Integrated nutrient management (41), integrated pest management (34), integrated disease management (43), integrated crop management (34), weed management (11), varietal evaluation (54), resource conservation technologies (27), drudgery reduction (5), farm machinery (3), integrated farming system (6) and post harvest management (4) etc.

Control of Pod borer in Pigeon pea :KVK Baharaich

OFT on paddy: KVK Mainpuri

**Table 5.1 : Crop related technologies assessed by KVK**

| Thematic Area | Uttar Pradesh | | | Uttarakhand | | | Grand Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | C | T | TR | C | T | TR | C | T | TR |
| Integrated Nutrient Management | 17 | 36 | 254 | 5 | 5 | 37 | 22 | 41 | 291 |
| Varietal evaluation | 24 | 35 | 515 | 16 | 19 | 89 | 40 | 54 | 604 |
| IPM | 21 | 29 | 196 | 5 | 5 | 22 | 26 | 34 | 218 |
| ICM | 15 | 30 | 196 | 4 | 4 | 41 | 19 | 34 | 237 |
| IDM | 14 | 30 | 243 | 10 | 13 | 98 | 24 | 43 | 341 |
| Weed Management | 9 | 9 | 91 | 2 | 2 | 7 | 11 | 11 | 98 |
| RCT | 8 | 24 | 97 | 3 | 3 | 15 | 11 | 27 | 112 |
| Farm Machinary | 3 | 3 | 9 | - | - | - | 3 | 3 | 9 |
| Integrated Farming System | 3 | 6 | 21 | - | - | - | 3 | 6 | 21 |
| Small Scale Income Generation | 2 | 8 | 43 | - | - | - | 2 | 8 | 43 |
| Post Harvest/ Value Addition | 4 | 4 | 58 | - | - | - | 4 | 4 | 58 |
| Drudgery reduction | 3 | 4 | 23 | 1 | 1 | 5 | 4 | 5 | 28 |
| Storage Technique | 2 | 3 | 45 | 1 | 1 | 5 | 3 | 4 | 50 |
| Others | 3 | 3 | 13 | 3 | 3 | 26 | 6 | 6 | 39 |
| **Total** | **128** | **224** | **1804** | **50** | **56** | **345** | **178** | **280** | **2149** |

*C: No. of crops; T: No. of Technologies; TR: No. of Trials*

OFT on Fish: KVK Allahabad

### 5.2 Assessment of Livestock Technologies

A total of 57 technologies were assessed under livestock management by KVKs of Uttar Pradesh and Uttarakhand with active participation of 690 beneficiaries. The technologies related to different thematic areas like disease management (10), evaluation of breeds (8), feed and fodder management (7), nutritional management (13), production and management (13) and others (6) were assessed.

**Table 5.2 : Assessment of livestock technologies**

| Thematic Area | Enterprises | Uttar Pradesh | | Uttara khand | | Grand Total | |
|---|---|---|---|---|---|---|---|
| | | T | TR | T | TR | T | TR |
| Disease management | Cattle, Buffalo, Goat, Sheep, Poultry | 10 | 239 | - | - | 10 | 239 |
| Evaluation of breeds | Goat, Sheep, Poultry | 3 | 31 | 5 | 117 | 8 | 148 |
| Feed and fodder management | Cattle Paddy straw Berseem Fodder | 6 | 31 | 1 | 36 | 7 | 67 |
| Nutrition management | Cattle, Buffalo, Goat, Sheep, Poultry, Fisheries | 12 | 116 | 1 | 10 | 13 | 126 |
| Production and management | Cattle, Buffalo, Goat, Sheep, fish, poultry Poultry | 10 | 50 | 3 | 8 | 13 | 58 |
| Others | Feeding of probiotics Fisheries Poultry | 6 | 52 | - | - | 6 | 52 |
| | Total | 47 | 519 | 10 | 171 | 57 | 690 |

*T: No. of Technologies; TR: No. of Trials*

### 5.3 Assessment of Technologies related to Enterprises

Thematic areas like household food security (2) and nutritional garden (4) were taken up for assessment. 109 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.


Variatal evaluation of Tomato: KVK Kannauj

Stem Borer Treatment in Mango at Farmer's Field : KVK Budaun

**Table 5.3 : Assessment of livestock technologies**

| Thematic Area | Enterprises | Uttar Pradesh | | Uttara khand | | Grand Total | |
|---|---|---|---|---|---|---|---|
| | | T | TR | T | TR | T | TR |
| Nutritional garden | Kitchen garden | 2 | 33 | 2 | 16 | 4 | 49 |
| House hold food security | Iron rich diet, growing seasonal fruits & vegetables | 2 | 60 | - | - | 2 | 60 |
| | Total | 4 | 93 | 2 | 16 | 6 | 109 |

*T: No. of Technologies; TR: No. of Trials*

*Tomato crop infected with bacterial wilt: KVK Dehradun*

Infestation of shoot and fruit borer : KVK Dehradun

## 5.4 Refinement of Technologies

KVKs took initiatives for refinement of technologies related to crop and livestock components in different agro-climatic situations. 123 technologies were addressed for refinement under different thematic areas like integrated pest management (20), integrated nutrients management (21), integrated crop management (10), integrated disease management and weed management (14) each, varietal evaluation (32), resource conservation technology (4), etc. Under livestock component, 11 technologies were tested including feed and fodder management (1), nutritional management (2), production management (1), disease management (4) and Breed Evaluation (3) etc. 222 trials were conducted covering thematic areas like Disease management, livestock management and nutrition management, etc

**Table 5.4 : Refinement of crop related technologies**

| Thematic Area | Uttar Pradesh | | | Uttarakhand | | | Grand Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | C | T | TR | C | T | TR | C | T | TR |
| INM | 12 | 14 | 94 | 5 | 7 | 45 | 17 | 21 | 139 |
| Varietal Evaluation | 13 | 15 | 114 | 16 | 17 | 511 | 29 | 32 | 625 |
| IPM | 12 | 13 | 42 | 7 | 7 | 50 | 19 | 20 | 92 |
| ICM | 8 | 8 | 45 | 2 | 2 | 14 | 10 | 10 | 59 |
| IDM | 6 | 9 | 46 | 4 | 5 | 49 | 10 | 14 | 95 |
| Weed Management | 11 | 11 | 61 | 2 | 3 | 86 | 13 | 14 | 147 |
| RCT | 3 | 3 | 20 | 1 | 1 | 15 | 4 | 4 | 35 |
| Farm Machinary | 1 | 1 | 4 | | | | 1 | 1 | 9 |
| Integrated Farming System | 2 | 2 | 9 | 1 | 1 | 5 | 3 | 3 | 14 |
| Post Harvest/ Value Addition | 1 | 1 | 10 | 0 | 0 | 0 | 1 | 1 | 10 |
| Drudgery reduction | | | | 1 | 1 | 15 | 1 | 1 | 15 |
| Storage Technique | 2 | 2 | 35 | 0 | 0 | 0 | 2 | 2 | 35 |
| **Total** | **71** | **79** | **480** | **39** | **44** | **795** | **110** | **123** | **1275** |

*C: No. of crops; T: No. of Technologies; TR: No. of Trials*

**Table 5.5 : Livestock related technologies Refinement by KVKs**

| Thematic Area | Enterprises | Uttar Pradesh | | Uttara khand | | Grand Total | |
|---|---|---|---|---|---|---|---|
| | | T | TR | T | TR | T | TR |
| Disease Management | Cattle, Buffalo, Calves | 4 | 86 | - | - | 4 | 86 |
| Evaluation of Breed | Goat, Sheep, Poultry | - | - | 3 | 60 | 3 | 60 |
| Feed and Fodder management | Buffalo | 1 | 45 | - | - | 1 | 45 |
| Nutrition Management | Cow and buffalo | 2 | 22 | - | - | 2 | 22 |
| Production Management | Calves | 1 | 9 | - | - | 1 | 9 |
| **Total** | | **8** | **162** | **3** | **60** | **11** | **222** |

*T: No. of Technologies; TR: No. of Trials*

## 5.5 Results of selected On Farm Trials

**State: Uttar Pradesh**

### INTEGRATED NUTRIENT MANAGEMENT

### Integrated Nutrient management in garlic

Garlic is a cash crop of district Farrukhabad. The soil pH is high due to salinity problem. Farmers do not use sulphur or gypsum for bulbous crop. KVK Farrukhabad conducted on farm trial to know the efficacy of sulphur and gypsum on quality and productivity of garlic crop in saline soils. The results revealed that application of 200 kg/ha gypsum (T3) giving highest i.e. 71.88 q ha-1 yield and showing highest BCR i.e. 1.83 followed by T2 (30 kg S 90%) giving the yield of 65.63 q ha-1 and showing the BCR 1.66. But non availability of Gypsum, hindered this practice thus not becoming more popular. Use of sulphur (30 kg ha-1) is socially accepted due to availability and relatively high return.

| Technology Option | No. of Trials | Yield qt/ha | % Increase Yield | Gross Cost (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| $T_1$ : Farmer's Practice (Compost 25-30 ton, N:P:K 100:50:50 and $ZnSO_4$ 25kg ha-1) | 5 | 56.25 | - | 78125 | 112500 | 34375 | 1.44 |
| $T_2$ : Standard dose +30 kg S ha-1 | | 63.63 | 13.12 | 79175 | 131260 | 52085 | 1.66 |
| $T_3$ : Standard dose + 200 kg Gypsum ha-1 | | 71.88 | 27.78 | 78325 | 143760 | 65435 | 1.83 |

### Nutrient management in mustard crop

KVK, Jalaun conducted on-farm trial on nutrient management practice in mustard productivity. The application of @ NPKS 120:60:60:40 kg/ha was found better and enhanced 18.18 % yield over local practice.

### Nutrient management in mustard crop

| Technology Option | No. of Trials | Plant population/m² | No. of siliqua/ plant | No. of branches/plant | Yield (q/ha) | Increase in Yield (%) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : (Farmers Practice) 80 Kg DAP/ ha | | 25 | 350 | 30 | 5.5 | -- | 1.3 |
| T2 : NPK ( 120:60:60 ) kg/ha | | 21 | 390 | 33 | 6 | 9.09 | 1.5 |
| T3 : NPKS (120:60:60:40) kg/ha | 3 | 15 | 416 | 40 | 6.5 | 18.18 | 1.6 |

### Assessment of foliar application of nitrogenous fertilizers in wheat

KVK, Kaushambi in Uttar Pradesh conducted on-farm trial to find out appropriate fertilizers application practice to enhance the wheat production, fertilizers use efficiency and reduce cost of cultivation. The results evidently showed comparative status of different methods of fertilizer application. T2 the treatment (Foliar spray of nitrogenous fertilizer –Urea @24% at 25 & 35 Spray and 45 DAS broadcasting) gave highest yield and net income of Rs 14810 over Farmers' practice of Rs. 11425. It also reduced fertilizer doses and thereby the cost of cultivation.

### Nutrient management in mustard crop

| Technology Option | No. of trials | Yield (q/ha) | Gross cost (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|
| T1 : Farmers Practice ( Broadcasting method) | | 24.5 | 24100 | 35525 | 11425 | 1.5 |
| T2 : Foliar spray of nitrogenous fertilizers-urea @ 2% at 25 and 35 DAS + 45 DAS Broadcasting | 4 | 25.8 | 22600 | 37410 | 14810 | 1.65 |
| T3 : Foliar spray of nitrogenous fertilizers-slow release urea @ 1.5% at 25 and 35 DAS + 45 DAS broadcasting | | 25.6 | 22500 | 37120 | 14620 | 1.64 |

### Assessment of water soluble fertilizer for increasing productivity of wheat

KVK, Balrampur conducted on-farm trial to assess the use of water soluble fertilizers for increasing productivity of wheat. The result indicated that the 3 spray of N:P:K (18:18:18) gave maximum yield (20.5 qt/ha) in (T3) followed by T2 (18.9 q/ha) and T1 (15.7 q/ha).The maximum number of tillers was found in T3(4). The farmers were much convinced with T3 (3 Spray of N:P:K 18:18:18) due to maximum net profit of Rs 10750 & B:C Ratio (1.0) over farmers' practice.

| Technology Option | No. of Trials | No. of Tillers | Grain yield per plant (g) | No of effective tillers | Yield (q/ha) | Net Profit (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1: Farmers practice Nitrogen & phosphorous @ 140 & 40 kg/ha | | 3 | 5 | 315 | 15.7 | 7040 | 0.72 |
| T2 : Farmers practice+ 3 spray of urea phosphate @ 1% | 5 | 3 | 7 | 370 | 18.9 | 10365 | 0.99 |
| T3 : Three spray of N:P:K (18:18:18) | | 4 | 8 | 378 | 20.5 | 10750 | 1.0 |

### Effect of Potash on bolting of Rabi onion

KVK Sultanpur conducted on farm trial to know the efficacy of potash on bolting of onion crop. Application of potash as basal dose and foliar spray with NPK (18:18:18) @ 5 kg/ha were assessed. Bolting of Onion in *rabi* crop affect the quality of onion as well as storage durability. The application of 100kg MOP as basal dose gave higher yield of 173 q/ha, whereas spray of NPK @ 5 kg/ha along with farmers' practice gave maximum yield 196 q/ha. Net return of Rs. 176280 per ha was realized by the farmers under T3 with 3.99 benefit-cost ratio.

| Technology Option | No. of Trials | Yield (t/ha) | Affected Plant (%) | Increase in Yield | Net Returns (Rs/ha) | B:C Ration |
|---|---|---|---|---|---|---|
| $T_1$ :FP – DAP @ 110 kg/ha and Urea 80 kg/ha | 12 | 12.8 | 6.6 | - | 94950 | 2.61 |
| $T_2$ :FP + 100 Kg MOP/ha | | 17.3 | 1.1 | 35.15 | 147230 | 3.43 |
| $T_3$ :FP + Spray of NPK (18:18:18) @ 5 kg /ha | | 19.6 | 1.3 | 53.125 | 176280 | 3.99 |

### Response of micro nutrients on the yield of citrus

KVK, Mirzapur in Uttar Pradesh conducted on-farm trial to assess appropriate nutrient management practice to enhance the citrus productivity and profits from its cultivation. The assessed practice of application of Zinc, copper and boron (@50g+25g+15g, respectively/plant) mixed with 5kg FYM as basal application was found to be best with 40.39 % increase in yield.

| Technology Option | No. of Trials | Yield (t/ha) | Increase in Yield (%) | B:C Ration |
|---|---|---|---|---|
| $T_1$: No application of micronutrient (Farmers Practice) | 4 | 5.67 | -- | 1.63 |
| $T_2$: Application of zinc @50g/plant as basal application | | 7.32 | 29.1 | 1.74 |
| $T_3$: Application of zinc and copper (@50g+25g, respectively/plant) mixed with 5kg FYM/plant as basal application | | 7.48 | 31.92 | 1.76 |
| $T_4$: Application of zinc, copper and boron (@50g+25g +15g, respectively /plant) mixed with 5kg FYM/plar t as basal application | | 7.96 | 40.32 | 1.8 |

### Assessment of micro nutrient on Mango

KVK Hastinapur (Meerut) conducted on farm trial on Impact assessment of micro nutrient of Mango at the farmer's field in the vicinity of Hastinapur area. On the basis of yield performance and B: C ratio, application of NPK, zinc, boron and CuSo4 @ 1000,750,750, 250,250 and 150 g/tree (T3) provide higher yield in field condition was judged as the best one and recommended to farming community to adopt.

| Technology Option | No. of Trials | Yield qt/ha | Increase Yield % | Cost Cultivation (Rs/ha) | Gross Income (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1: Imbalance use of fertilizers | 3 | 77.7 | - | 20200 | 194250 | 174050 | 9.61 |
| T2 : Use of NPK 1000,750 &750 g/tree | | 107.5 | 38.35 | 24200 | 268750 | 247550 | 11.1 |
| T3: T2 +zinc, boron & CuSo4 @ 250,250 & 150 g/tree | | 126 | 63.06 | 27500 | 315000 | 287500 | 11.4 |

## VARIETAL EVALUATION

### Assessment of wheat varieties in sodic soil

Hardoi district has dominance in sodic soil. Farmers grow wheat on these soils but due to non-adoption of suitable varieties, the productivity of wheat is low. KVK Hardoi coducted on farm trial to assess wheat varieties suitable for sodic land. Wheat variety KRL 213 recorded 30.19 q/ha which was 22.22% higher as compared to local check (PBW 343). The net economic gain of Rs. 20335 per ha was obtained by the farmers. KRL 210 was also found suitable to grow in sodic lands with 20.44 q/ha yield and net gain of Rs, 19675 per ha.

| Technology Option | No. of Trials | Grain Yield (q/ha) | Increase in yield in % | Gross Cost (Rs./ha) | Gross Return (Rs./ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 Farmers Practice (PBW 343) | | 24.7 | - | 23500 | 37050 | 13550 | 1.41 |
| T2 : KRL 210 | 5 | 29.75 | 20.44 | 24950 | 44625 | 19675 | 1.78 |
| T3 : KRL 213 | | 30.19 | 22.22 | 24950 | 45285 | 20335 | 1.81 |

### Performance Late sown wheat varieties

Kannauj district is major potato growing area. The farmers of the district also grow wheat crop after harvesting of the early potato crop in December and January. They grow the variety Halna after harvesting of the potato crop which gave low yield and have shattering problem. The results revealed that the variety Golden Halna gave highest yield 39.65 q/ha with net return of Rs. 22028 and cost benefit ratio is 1.70 over farmers' practice.The variety Unnat Halna was also found suitable for growing in late sown condition during December and January with 38.55 q/ ha and net gain of Rs. 20543 as to farmer's practice.

| Technology Option | No. of Trials | Spike Length (cm) | Number of grains/spkie | Yield (q/ha) | Gross Cost (Rs./ha) | Gross Return (Rs./ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|
| T1 : FP ( Halna) | 15 | 7.7 | 36.9 | 36.12 | 30800 | 48762 | 17962 | 1.58 |
| T2 : Unnat Halna | | 7.8 | 38.1 | 38.55 | 31500 | 52043 | 20543 | 1.65 |
| T3 : Golden Halna | | 8.1 | 39.4 | 39.65 | 31500 | 53528 | 22028 | 1.70 |

### Suitable hybrid varieties of tomato for summer season

KVK Kannauj assessed the performance of hybrid variety of tomato for productivity and profatibility in summer season. The results revealed that the tomato variety Himsona gave highest yield 451.86 q/ha with net return of Rs. 409536 and cost benefit ratio is 6.8 over farmer's practice.The variety Namdhari-2535 was also found suitable to grow with 415.76 q/ ha yield and net gain of Rs. 298956 in comparison to farmer's practice

| Technology Option | No. of Trials | No. of fruit per plant | Fruit per plant (kg) | Fruit weight (g) | Days to first picking | Yield (q/ha) | Gross Cost (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|---|
| T1 : Kuber geeta | | 43.8 | 2.23 | 46.4 | 60 | 345.66 | 69044 | 217936 | 4.2 |
| T2 : Himsona | 15 | 64.8 | 4.3 | 65.2 | 68 | 451.86 | 71044 | 409536 | 6.8 |
| T3 : Namdhari 2535 | | 57.4 | 3.42 | 56.4 | 73.6 | 415.76 | 71044 | 298956 | 5.2 |

### Assessment of papaya varieties

KVK Kanpur Dehat coducted on farm trial to assess papaya varieties suitable for higher yield and quality.

The highest yield was obtained in Red Lady variety i.e. 375q/ ha and net return of Rs. 319500/ ha which was much higher than farmers practice. The fruits of the varieties were elongated shape and very attractive fruit colour.

| Technology Option | No. of Trials | Grain Yield (q/ha) | Increase in yield in % | Gross Cost (Rs./ha) | Gross Return (Rs./ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : Farmer Practice (Gol) | | 27 | 255 | 71000 | 255000 | 184000 | 3.59 |
| T2 : Pusa delicious | 4 | 33 | 310 | 83500 | 310000 | 226500 | 3.71 |
| T3 : Surya | | 39 | 330 | 89700 | 330000 | 240300 | 3.67 |
| T4 : Red Lady | | 44 | 375 | 93000 | 412500 | 319500 | 4.43 |

### Evaluation of paddy varieties for reclaimed sodic soil

Rice is a major Kharif crop of district Mainpuri. There is dominance of sodic soil in the district. Farmers had reclaimed the sodic soil and they grow rice on this soil but due to non-adoption of suitable variety the productivity of rice is low. KVK Mainpuri conducted on-farm trial to evaluate the variety suitable for rice in reclaimed sodic soil to enhance the productivity of rice. Cultivar CSR-43 recorded 18.49 percent higher yield of rice in comparison to cultivar Usar Dhan-1. This variety is suitable for rice in reclaimed sodic soil to enhance the productivity of rice

| Technology Option | No. of Trials | Yield (qt/ha) | Increase in yield (%) | Net Returns (Rs./ha) | B:C Ratio |
|---|---|---|---|---|---|
| $T_1$ : Farmer's Practice (usar dhan-1) | 5 | 36.5 | - | 15105 | 1.56 |
| $T_2$ : CSR 36 | | 41.8 | 14.52 | 22310 | 1.8 |
| $T_3$ : CSR 43 | | 43.25 | 18.49 | 24050 | 1.86 |

### Assessment of high yielding and wilt resistant varieties.

Chickpea is major pulse crop of district Allahabad. However the high incidence of wilt causes heavy losses to the crop. Disease prone varieties are the major remedies for this problem. The variety JAKI 9218 gave highest yield 8.26 q/ha and enhanced the yield of chickpea 63.24% over farmer's practice and no wilt problem. The net profit of Rs. 24450/ha was obtained by the farmer in comparision to local check.

| Technology Option | No. of Trials | Yield qt/ha | Yield Increase (%) | Cost of Cultivation (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| $T_1$ : Radhey (FP) | | 5.06 | - | 10320 | 22770 | 12450 | 1.79 |
| $T_2$ : JAKI-9218 | 5 | 8.26 | 63.24 | 12720 | 37170 | 24450 | 2.9 |
| $T_3$ : GNG-1581 | | 6.4 | 26.48 | 12720 | 26880 | 14160 | 2.11 |

### Performance of Scented paddy cultivar Kala Namak.

KVK Basti conducted OFT in tarai region to find out suitable paddy cultivar Kala Namak Local, Kala Namak 101& Kala Namak 102 and 103 in Tarai region. Kala Namak cultivar 101 yielded 40.2 q/ha which was 43.46 % higher than farmer's practice. Net return of Rs. 72090 per ha was realized with Kala Namak 101. It may be promoted in the area to increase the profatibility of farmers.

| Technology Option | No. of Trials | Yield qt/ha | Cost of Cultivation (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | % Increase in Yield | B:C Ratio |
|---|---|---|---|---|---|---|---|
| $T_1$ Kala Namak Local (FP) | | 28.02 | 40225 | 84060 | 43835 | - | 2.08 |
| $T_2$ Kala Namak 101 | 12 | 40.2 | 48510 | 120600 | 72090 | 43.46 | 2.48 |
| $T_3$ Kala Namak 102 | | 38.5 | 47215 | 115500 | 68285 | 37.4 | 2.44 |
| $T_4$ Kala Namak 103 | | 37.8 | 46370 | 113400 | 67030 | 34.9 | 2.44 |

### Assessment of HYV of pointed gourd in river bed

Pointed gourd is a high remunerative cucurbitaceous crop grows on river beds in district Basti. But the productivity of this crop is low due to traditional varieties and lack of technical knowledge. KVK Basti conducted an on farm trial for the performance of newly released varieties to get higher income. The variety Narendra Parwal 307 gave highest yield 74 q/ha with net return of Rs. 88800/ha and Narendra Parwal 260 gave 70 q/ ha yield with net return of Rs. 105000/ha. Due to round shape and big size of fruits the market rate is high so farmers like this variety. The variety Narendra Parwal 260 is highly remunerative and may be used for replacement of traditional varieties of pointed gourd in the district.

| Technology Option | No. of Trials | Yield qt/ha | Cost of Cultivation (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | % Increase in Yield | B:C Ratio |
|---|---|---|---|---|---|---|---|
| $T_1$ : Farmer Practice (F.P.) | 15 | 60 | 40500 | 80600 | 40100 | - | 1.99 |
| $T_2$ : Narendra Parwal 260 | | 70 | 45800 | 105000 | 59200 | 16.66 | 2.29 |
| $T_3$ : Narendra Parwal 307 | | 74 | 45600 | 88800 | 43200 | 23.33 | 1.96 |

### Varietal evaluation of aromatic rice

Rice is a major *kharif* crop of district Kushinagar. Due to use of local varieties the farming community could not get high profit. On farm trial was conducted to evaluate suitable scented rice variety. Pusa Sugandha 5 gave highest yield (45.35 q/ha) and net return of Rs.39000 followed by Pusa Sugandha 6 over farmers practice. The variety Pusa Sugandh 5 was found best suited under the conditions and favorite of the farmers due to short duration and high yielder (45.35 q/ha).

| Technology option | Plant height (cm) | No. of tillers/ $m^2$ | Yield q/ha | No. of hills/$m^2$ | No. of plant/ hill | Ear length (cm) | Matur -ity (days) | yield (q/ha) | Gross Cost (Rs/ha) | Net Return (Rs/ha | B:C Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $T_1$ : BPT 5204 | 101.05 | 201.05 | 25.05 | 24.45 | 7.85 | 9.25 | 155 | 30.26 | 28725 | 8850 | 1.31 |
| $T_2$ : Pusa Sugandha 5 | 110.75 | 257.50 | 45.35 | 26.45 | 10.25 | 11.35 | 122 | 44.35 | 28725 | 39300 | 2.37 |
| $T_3$ : Pusa Sugandha 6 | 104.35 | 245.45 | 40.75 | 25.15 | 9.75 | 10.45 | 140 | 42.25 | 28725 | 32400 | 2.13 |
| $T_4$ : Kala Namak 3 | 197.25 | 222.54 | 30.05 | 26.25 | 8.75 | 12.50 | 180 | 65.75 | 28725 | 19355 | 1.67 |

### Varietal Evaluation of basmati rice

KVK Muzaffarnagar conducted on farm trial for the performance of scented and basmati rice which is getting popularity in the district for its high return. But due to use of local varieties the farming community could not get the high profit. Pusa Punjab Basmati gave highest yield (51q/ha) and net return of Rs.95600 followed by Vallabh 22, which gave 46.33 q/ha yield and net return of Rs. 81590 to the farmers. In comparison to local variety PB1 the variety Pusa 1509 gave 17.24% and Vallabh-22 gave 6.50% additional yield. Both varieties were resistant to insect and pest.

| Technology Option | No. of Trials | Yield (q/ha) | Increase in Yield (%) | Net Income (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|
| $T_1$ : Farmers practice practice | | | | | |
| Pusa Basmati 1 | 3 | 43.5 | - | 68860 | 2.11:1 |
| $T_2$ : Pusa Panjab Basmati 1509 | | 51 | 17.24 | 95600 | 2.66:1 |
| $T_3$ : Vallabh 22 | | 46.33 | 6.5 | 81590 | 2.42:1 |

### Varietal Evaluation of gladiolus for high return

Production potential of gladiolus varies with the variety grown. Therefore, on farm trial was conducted by KVK Meerut to evaluate the various varieties of gladiolus under field condition. Data revealed that Pusa Kiran was adjudged as better performer in terms of yield.This variety gave highest spikes 134000 with net return of Rs. 192500 and cost benefit ratio was found 2.35 over farmers' practice.The length of the spike is also larger than the other varieties tested with it. As per BC ratio and net return, Pusa Kiran was found to have maximum yield and other economic parameters in comparison to Sancerre and Pusa Chandini.

| Technology option | No. of trials | No. of spikes/ plant | No. of flowers/ spike | Length of spike (cm) | Spike Yield (No./ha) | Percent increase | Cost of Cultivation (Rs/ha) | Gross Return (Rs/ha) | Net Returns (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| $T_1$ :Sancerre (FP) | 03 | 1.00 | 10.15 | 46.80 | 100810 | - | 128200 | 252025 | 123825 | 1.96 |
| $T_2$ : Pusa Kiran | | 1.14 | 13.50 | 56.72 | 134000 | 32.92 | 142500 | 335000 | 192500 | 2.35 |
| $T_3$ : Pusa Chandini | | 1.12 | 13.20 | 55.81 | 122000 | 21.01 | 142500 | 305000 | 162500 | 2.14 |

### Evaluation of mentha variety

Mentha is an aromatic and medicinal crop and grown for its oil. Because of short duration and high remuneration it is getting popularity in the farming community. But due to growing of low mentha oil containing varieties, farmers are not getting benefit from this crop. KVK, Rampur in U.P. conducted on-farm trial to find out suitable variety to enhance the mentha productivity in the district. The result indicated that cultivar Sim Saryu1 gave highest mentha oil yield of 119.20 kg / hectare which was 32% higher than the old variety Shivalik growing in the district. The net return of Rs. 53300/ ha was obtained by the farmer in comparision to Shivalik which gave only Rs. 33000/ ha. The Koshi variety was also found superior over farmer's practice in terms of oil and net reurn.

| Technology Option | No. of Trials | Mentha Oil Yield (kg/ha) | Increase in Yield (%) | Net Return (Rs/ha) |
|---|---|---|---|---|
| $T_1$ : Shivalik (FP) | 05 | 90 | - | 33000 |
| $T_2$ : Koshi | | 108.2 | 20 | 45000 |
| $T_3$ : SimSaru 1 | | 119.2 | 32 | 53300 |

### Assessment of tuberose varieties

In the cultivation of tuberose, selection of variety is always having been the utmost importance. Keeping this in view, a trial was conducted on varietal evaluation of tuberose at farmer's field to find out the yield potential of different varieties. Based on the observations, the variety Vaibhav was adjudged as better performer in terms of yield.This variety gave highest spikes 120000 with net return of Rs. 154800 and cost benefit ratio of 2.81 over farmers practice. The length of the spike is also larger than the other varieties tested with it. As per BC ratio and net return, Suhasini was also found better performer over farmers practice.

| Technology Option | No. of trials | No. of spikes/ clumps | No. of flowers/ spike | Length of spike (cm) | Spike Yield (No./ha) | Percent increase | Cost of Cultivation (Rs/ha) | Gross Return (Rs/ha) | Net Returns (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| $T_1$ : Pearl double (FP) | 03 | 1.50 | 19.76 | 61.18 | 85230 | - | 67500 | 170460 | 102960 | 1.92 |
| $T_2$ : Vaibhav | | 2.10 | 32.20 | 67.46 | 120000 | 40.79 | 85200 | 240000 | 154800 | 2.81 |
| $T_3$ : Suhasini | | 1.85 | 30.24 | 64.21 | 113000 | 32.58 | 85200 | 226000 | 140800 | 2.65 |

## INTEGRATED CROP MANAGEMENT

### Ridge sowing and staking enhance tomato production

Tomato is grown in all the seasons of the district Aligarh and gave high profit to the farming community. Majority of vegetable growers of district are cultivating tomato crop. But the farmers could not get the high benefit from this crop due to low production and poor fruit quality. The quality of fruit is depending on the planting techniques. The farmers are adopting the flat bed method of planting.

KVK Aligarh and Lalitpur conducted on-farm trial to assess ridge and staking method in tomato production. Ridge planting and staking method in tomato production increased tomato yield gave highest yield 335 q/ha which was 48 % higher as compared to Flat bed planting method. Planting tomato on ridge without staking is also found better over farmers practice

| Technology Option | No. of trials | Poor quality fruit % | Yield (q/ha) | Increase inYield (%) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|
| $T_1$ : Flat planting of tomato (Farmers practice) | 9 | 12 | 225 | - | 72500 | 1.81 |
| $T_2$ : Ridge Planting | | 7 | 310 | 37 | 107000 | 2.22 |
| $T_3$ : Planting on ridges and staking of the crop | | 2.5 | 335 | 48 | 115500 | 2.31 |

### Performance of intercropping of turmeric and elephant foot yam in mango orchard

KVK Sitapur-1 conducted on farm trial to assess the performance of intercropping of turmeric and elephant foot yam in mango orchard during, 2014 in Mishni village. The trials comprised T1 Farmer's practice (Mango orchard sole crop), T2 Mango orchard (15-20 years old orchard) + Elephant foot yam, T3 Mango orchard (15-20 years old orchard) + Turmeric, T4 Mango orchard (30-35 years old orchard)+ Elephant foot yam and T5 Mango orchard (30-35 years old orchard)+ Turmeric were conducted by adopting improved package and practices of cultivation on 2nd week of April, 2014 in 3 Mango orchards. The performance of intercrop is given below which is slef-explanatory.

| Technology Option | No. of Trials | % Increase Yield | Gross Cost (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|
| $T_1$ : Farmers Practices (Mango orchard sole crop) | 3 | - | - | - | - | - |
| $T_2$ : Mango orchard (15-20 years old orchard) + Elephant foot yam | 3 | 345 | 115492 | 405375 | 289883 | 3.5 |
| $T_3$ : Mango orchard (15-20 years old orchard) + Turmeric | 3 | 173 | 39758 | 155700 | 115942 | 3.91 |
| $T_4$ : Mango orchard (30-35 years old orchard) + Elephant foot yam | 3 | 211 | 115492 | 247925 | 132433 | 2.14 |
| $T_5$ : Mango orchard (30-35 years old orchard) + Turmeric | 3 | 120 | 39758 | 108000 | 68242 | 2.71 |

### Evaluation of 14 days old seedlings of paddy under SRI technology

SRI techniques of rice establishment improve the yield potential of paddy cultivars in eastern plain zone. KVK Faizabad conducted on-farm trials and FLDs on SRI technology and area is increasing in the district under this technique. But the transplantation of 8-10 days old seedlings was quite reluctant to farmers to adopt the practice. Therefore, an on-farm trial was conducted to refine the age of seedling to 14 days old under this technology. The transplanting of 14 days old seedling increases the yield as compared to Farmer's practice ie. Transplanted rice upto 37.5% but did not surpass with the recommended practice of SRI technology (ie. transplanting of 10 days old seedlings). However, in terms of monetary gain the recommended practice has only Rs. 3150/- more net return as compared to refined practice (ie. transplanting of 14 days old seedlings).

| Technology Option | No. of Trials | Yield (t/ha) | Increase in Yield (%) | Gross Cost (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| $T_1$: Transplanted rice (Farmer's practice) | 3 | 4.8 | - | 28500 | 60000 | 31500 | 2.1 |
| $T_2$: SRI tech with 10 days old seedling transplantation (recommended practice) | | 6.9 | 43.75 | 31120 | 86250 | 55130 | 2.77 |
| $T_3$: SRI tech with 14 days old seedling transplantation (refined practice) | | 6.6 | 37.5 | 30520 | 82500 | 51980 | 2.7 |

### Intercropping of mustard in lentil under rainfed condition

KVK, Mirzapur in Uttar Pradesh conducted on-farm trial to assess effect of intercropping on net return in lentil under rainfed conditions. The intercrop system of sowing of lentil with mustard in the row ratio of 6:1 had realized a net return of Rs. 0.311 lakh/ha as compared to the farmers' practice with net returns of Rs. 0.234 lakh/ha (62.17% increase in net return per ha).

| Technology Option | No. of Trials | Mentha Oil Yield (kg/ha) | Net Return (Rs/ha) |
|---|---|---|---|
| $T_1$:Sole Cultivation of lentil (Farmers' Practice) | 4 | 10.34 | 23407 |
| $T_2$ : Intercropping of lentil (Malviya Vishwanath) +mustard (Pusa Jaikisan) in 4:1 row ratio | | 14.40 (Lentil 10.4o and mustard 4.0) | 29996 |
| $T_3$ : Intercropping of lentil (Malviya Vishwanath) + mustard (Pusa Jaikisan) in 6:1 row ratio | | 14.28 (Lentil 11.4 and mustard 3.14) | 31125 |

### Assessment of different intercrop with sugarcane

KVK Ghaziabad conducted on-farm trial to refine the effect of different intercropping systems on net return in sugarcane. The intercrop systems of planting of sugarcane as paired row at 90 cm spacing and growing okra and cucumber between two pairs had realized a net return of Rs. 2.3 and 2.09 lakh/ha with cucumber and okra respectively as compared to the recommended practice with net returns of Rs. 1.27 lakh/ha

| Technology Option | No. of Trials | Yield (q./ha) | | Net Return (Rs in Lakh/ha) | B:C Ratio |
|---|---|---|---|---|---|
| | | Sugarcane | Intercrop | | |
| $T_1$ : Sole planting of sugarcane 75 cm row spacing | 4 | 750 | -- | 1.27 | 3.1 |
| $T_2$ : Intercropping of okra with 90 cm paired row spacing | | 737.5 | 180 | 2.09 | 4.2 |
| $T_3$ : Intercropping of cucumber with 90 cm paired row spacing | | 762.5 | 150 | 2.3 | 4.5 |

### 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), T2- Soil application of pachlobutrazol (3.2 ml/m canopy) and T3- Soil application of pachlobutrazol (1.6 ml/m canopy). Application of pachlobutrazol was applid on 23.09.2013 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 38.46% yield followed by 26.15% in Soil application of pachlobutrazol (1.6 ml/m canopy). As compared with on season height net return Rs. 1.65 lakhs was achieved in Soil application of pachlobutrazol (3.2 ml/m canopy).

| Technology Option | No. of Tri-als | Yield (ton /ha) | % Yield achieved | Total cost | Net (In Lakh) | B:C Ratio |
|---|---|---|---|---|---|---|
| T:1 No treatment (Farmer's Practice) | 1 | 8 | -- | 45000 | 1.01 | 2.24 |
| T:2 3.2 ml/meter canopy diameter (Pachlobutrazol) | | 13 | 38.46 | 51000 | 1.65 | 3.23 |
| T:3 1.6 ml/meter canopy diameter (Pachlobutrazol) | | 11.4 | 26.15 | 48000 | 1.38 | 2.87 |

## INTEGRATED PEST MANAGEMENT

### Management of termite and white grub in summer groundnut

Groundnut is an important oilseed crop of district Farrukhabad. However, there is high incidence of termite and white grub in groundnut resulting losses in yield. KVK, Farrukhabad conducted an on-farm trial to refine the control measure. The refined technology of one application of *Steinernema seemae* @10 kg/ha in soil before sowing gives better results over control of termite and white grub, followed by two application of *Steinernema carpocapciae* 10 x 109 ha-1.

| Technology Option | No. of Trials | Yield (q/ha) | (%) Increase Yield | Gross Cost (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1: No use of Bio -pesticides (Farmer's Practice) | 5 | 30 | - | 16750 | 51000 | 34250 | 3 |
| T2: Use of *Steinernema seemae* @ 10 kg/ha | 5 | 35.25 | 25 | 17025 | 59925 | 42900 | 3.5 |
| T3: Use of *Steinernema carpocapciae* 10 x 109 ha-1 | | 33.45 | 17 | 17000 | 56865 | 39865 | 3.3 |

### Assessment of suitable control measures for fruit and shoot borer of okra.

Okra is a high remunerative vegetable crop. The attack of fruit and shoot borer badly affect the yield and profitability of this crop. KVK Kanpur Dehat conducted on farm trial to assees best possible measure to manage this insect. Application of two spray of Imidacloprid @.0.3 ml/l water was found most effective in managing the fruit and shoot borer of okra which gave net return of Rs. 88800/ ha over farmers practice. Allthough T3 was most effective, while T2 was proved economical and eco-friendly.

| Technology Option | No. of Trials | No. of Larvae/ m² (7 days after spray) | Yield (q/ha) | Gross Cost (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : Farmer Practice (use cypermethrin at heavy infestation) | 3 | 4 | 107 | 36900 | 117700 | 80800 | 3.18 |
| T2 : NSKE @5% after infestation | 3 | 5 | 104 | 33800 | 114400 | 80600 | 3.38 |
| T3 : Imidacloprid @.0.3 ml/lit water 2 spray after infestation | | 3 | 112 | 34400 | 123200 | 88800 | 3.58 |

### Management of early shoot borer in sugarcane

Sugarcane is one of the most important crop of Lakhimpur kheri. Heavy infestation of early shoot borer during second fortnight of April to first fortnight of May lead to loss in yield. KVK, Lakhimpur kheri conducted an on farm trial to assess the insecticide and trichoard against early shoot borer. The technology application of coragen @ 375 ml/ha reduced infestation from 28% to 9.6% and yield was increased by 17.68%.

| Technology Option | No. of Trials | Incidence % | Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|
| T1 : Farmers Practices (chloropyriphos+ cypermethrin @ 2.01/ha) | 3 | 28 | 752 | -- |
| T2 : Use of trichocard @ 5 cards/ha | | 14.5 | 823 | 9.44 |
| T3 : Spray of coragen @375ml/ha. | | 9.6 | 885 | 17.68 |

### Management of Leaf curl virus in chilli

KVK Chitrakoot conducted OFT to assess the synthetic insecticide and bio pesticide to control the CLCV disease in chilli. The result revealed that spray of Imidachloprid one ml/3 lit of water at one month interval get higher production in relation to bio pesticide and control. The farmers are advised that they can use Imidacloprid @ 1.0 ml/3 lit water to control CLCV.

| Technology Option | No. of Trials | Plant height (cm) | No. of branches/ plant | Yield (q/ha) | % Increase in yield | Gross Cost (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|---|
| T1 : Farmers practice | 4 | 27.8 | 24 | 46 | - | 60000 | 87600 | 27600 | 1.45 |
| T2 : Neem oil | | 38.6 | 30 | 51 | 10.87 | 64300 | 116700 | 52400 | 1.82 |
| T3: Imidachloprid one ml/3 l water | | 43.4 | 30 | 58 | 26.09 | 65300 | 142700 | 77400 | 2.19 |

### Control of early shoot borer in sugar cane

Krishi vigyan Kendra, Siddharthnagar conducted on farm trial to find out appropriate technology to reduce the infestation of early shoot borer in sugar cane. Use of trichocard and chlorantranlliprole reduced the early shoot borer incidence from 47 to 8 % and increased the millable cane by 33.3 percent. Assessed technology increased the S.Cane yield by 25.14 percent.

| Technology Option | No. of Trials | % Infested plant | No. of millable cane/set | Yield (q/ha) | % Increase | Gross Cost (Rs/ha) | Gross Return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|---|
| T1 : Farmer's practice (Spray of diamethoate @2.5 ml/lit) | 5 | 47 | 9 | 521 | - | 69000 | 119830 | 50830 | 1.74 |
| T2 : Use of trichocard (Corcyra eggs parasites + chlorantranlliprole @ 500ml./ha | | 8 | 12 | 652 | 25.14 | 76000 | 149960 | 73960 | 1.97 |

### Biological management of borers in sugarcane

Sugarcane is an important commercial crop of District Kushinagar. However, there is high incidence of borer infestation and subsequent indiscriminate and injudicious use of pesticides due to lack of awareness resulting in high yield losses. KVK, Kushinagar conducted on-farm trial to assess the eco-friendly control measures. The assessed technology of using trichocards for borer management i.e. 2 card/ acre or 50000 eggs/ha reduced the percentage of pest infestation from 8.6, 14.2 and 10.3 to 4.7, 4.4, and 3.9 respectively for top borer, inter node borer and stalk borer. Yield increased by 37.72 per cent over farmers practice.

| Technology Option | No. of Trials | Insects | Incidence of borer infestation in % | Yield (q/ha) | % Increase in yield |
|---|---|---|---|---|---|
| T1 : Farmers Practice no use of bioagents | 10 | Top borer<br>Internode borer<br>Stalk borer | 8.6<br>14.2<br>10.3 | 721.25 | - |
| T2 : Trichogramma @ 50000/ha X 3 at fortnightly interval | | Top borer<br>Internode borer<br>Stalk borer | 5.3<br>5.7<br>4.8 | 864.37 | 19.8 |
| T3 : Trichogramma @ 50000/ha X 4 at fortnightly interval | | Top borer<br>Internode borer<br>Stalk borer | 4.7<br>4.4<br>3.9 | 989.58 | 37.2 |

### White Grub & Top borer Management in Sugarcane through Bio-pesticide

Sugarcane is one of the main commercial crops of distt. Muzaffarnagar. Due to Sugarcane-Wheat-Sugarcane crop rotation, there is high incidence of white grub and top borer insects resulting in yield loss. KVK Muzzafarnagar conducted on farm trial to find out suitable managemaent practice to minimize top borer and white grub in sugarcane. The result indicated that application of *Beauveria bassiana* @ 2.5kg/ha + Metarhizzium anisoplie 2.5 kg/ha + chloropyriphos 20EC@ 3.5 lit/ha before sowing and Trichocards (20 cards/ha) during June & July was most effective in controlling white grub and top borer incidence which resulted in maximum yield of 758.0 q/ha. 26.12 % increase in yield over farmers practice was observed. Application of chemical and bio pesticide together was more effective in controlling white grub in comparison to chemical alone and top borer management by trichocards is very economical and eco-friendly.

| Technology Option | No. of Trials | Incidence of White Grub (%) & Top border | Yield (q/ha) | % Increase in yield | B:C Ratio |
|---|---|---|---|---|---|
| T1:(Farmers practice) Use of chloropyriphos 20 EC@ 3.5 lit/ha | 1 | White grub-26%<br>Top borer-18% | 560 | -- | 2.95 |
| T2: Beauveria *bassiana* @ 2.5kg/ha + Metarhizzium anisoplie @ 2.5kg/ ha + Trichocards @ 20 Cards / ha and chloropyriphos 20EC@ 3.5 lit/ha | | White grub-6%<br>Topborer 5% | 758 | 26.12 | 4 |
| T3 : Beauveria bassiana @ 5 kg/ha + chloropyriphos @ 3.5 lit/ha | | White grub-11% | 640 | 14.28 | 3.38 |

## INTEGRATED DISEASE MANAGEMENT

### Assessment of fungicides for scab disease of potato

Potato is a major crop of district Kannauj. Potatoes are affected with several diseases which reduced the yield as well as quality of tuber. The scab disease has great importance which badly affects the quality of tubers. KVK, Kannauj conducted on farm experiments to assess the fungicides against scab disease of potato. Seed treatment with Monceren (Pencycuran) @ 1.0 l/ha was found very effective and enhanced the yield of potato by 7.8% and provided net return of Rs. 105452/ha. Infected tubers were reduced from 25.45% to 9.24%. Application of Mirador (Azoxysprobil 23 SC) @ 10 ml/ ha was also found effective by reducing the disease up to 10. 05% over farmers practice. These interventions may be further taken in the district under FLDs.

| Technology Option | No. of Trials | Germination % at 10 DAS | Infected tubers (%) | Yield (q/ha) | Gross Cost (Rs./ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : Farmers Practices (No seed treatment) | 15 | 18.25 | 25.45 | 318.45 | 99240 | 75908 | 1.8 |
| T2 : Seed treatment with Mirador (Azoxysprobil-23 SC) @ 100 ml /ha | | 24.75 | 10.05 | 338.23 -6.20% | 100800 (1560) | 102138 | 2 |
| T3 : Seed treatment through Monceren (Pencycuran) @ 1 .0 lit / ha | | 27.25 | 9.24 | 343.42 (7.8%) | 100600 (1360) | 105452 | 2 |

### Management of root rot and powdery mildew in vegetable pea

Vegetable pea in an important vegetable crop of Lucknow district. Root rot and powdery mildew are important diseases which severely affects the crop. Generally farmers do not use any control measures for its management. So, the evaluation of efficacy of different fungicides in vegetable pea for overcoming the problems. KVK conducted on farm trail for management of root rot and powdery mildew in vegetable pea. Result showed that treatment T2 Seed treatment (Carboxin @ 3 gm/kg. seed) and spray of Carathen (1.0 ml/l) showed root rot 1%, powdery mildew 2% followed by T3 Seed treatment (Trichoderma viridae @ 5 gm/kg seed) and spray of wetable sulfur@3.0 gm/l (root rot 1.5%, powdery mildew 3%).

| Technology Option | No. of Trials | % Incidence | | Yield (q/ha) | Gross Cost (Rs./ha) | Gross Income (Rs./ha) | Net Income (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|
| | | Root Rot | Powdery Mildew | | | | | |
| T1-Farmers Practices –No use of pesticides | 5 | 15 | 20.45 | 54.35 | 2446 | 108700 | 76254 | 2.35 |
| T2- Seed treatment (Carboxin @ 3 g/kg seed) and spray of karathen (1.0 ml/l) | | 1 | 2 | 76.55 | 32750 | 153100 | 120350 | 3.67 |
| T3- Seed treatment (Trichoderma viridae @ 5 g/kg seed) and spray of wetable sulfur (3.0 g/l) | | 1.5 | 3 | 75.85 | 2650 | 151700 | 119050 | 3.65 |

### Integrated disease management in chickpea

KVK-II, district Sitapur conducted on-farm trial to assess the disease management in chickpea crop. Seed treatment (Trichoderma 5 g + vitavax 2g/ kg + soil treatment (Trichoderma @ 5 Kg/ ha) gave higher yield (18.8 q/ha) and B:C ratio of 6.2 as compared to farmer practice (4.9).

| Technology Option | No. of Trials | % Disease incidence | % Yield loss | Yield (q/ha) | Gross Cost (Rs./ha) | Gross Return (Rs./ha) | Net Returns (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|
| T1 : Farmer's Practice (No seed treatment) | 1 | 16.6 | 12.2 | 16.5 | 13,485 | 79200 | 65,715 | 4.9 |
| T2 : Seed treatment (carbendazim @ 2g/kg seed + carbendazim @ 2 Kg/ha | | 6.4 | 5.6 | 17.7 | 12,375 | 84960 | 72585 | 5.9 |
| T3 : Seed treatment (Trichoderma 5 gm + vitavax 2g/kg + Soil treatment (Trichoderma @ 5 Kg/ha) | | 2.3 | 0.8 | 18.8 | 12,560 | 90240 | 77680 | 6.2 |

### Assessment of biopesticides against scab disease of potato:

KVK, Kannauj conducted on farm trial on assessment of bio agents against scab disease of potato. Soil and seed treatment with Trichoderma was found very effective in enhancing yield by 9.4% with net returns Rs. 105145/ha. It is also found very effective to reduce the disease infection up to 68.6% over farmers practice. Soil and seed treatment with Trichoderma and Pseudomonas @ 1.5 kg / ha was found very effective in minimizing the disease and obtaining higher return.

### Biological management of borers in sugarcane

| Technology Option | No. of Trials | Germination % at 10 DAS | Disease intensity (%) | Disease reduction n (%) | Yield (q/ha) | Gross Cost (Rs/ha) | Net Returns (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|---|
| T1 : Farmers Practices (No seed treatment) | 20 | 19.58 | 49.8 | - | 312.25 | 99240 | 72496 | 1.7 |
| T2 : Soil and seed treatment with Trichoderma @ 2.5 kg / ha | | 24.21 | 15.6 | 68.6 | 341.6 (9.4%) | 99815 (575) | 105145 | 2.1 |
| T3 : Soil and seed treatment with Pseudomonas @ 1 kg / ha | | 20.4 | 31.2 | 37.34 | 319.43 (2.30%) | 99690 (450) | 91968 | 1.9 |
| T4 : Soil and seed treatment with Trichoderma and Pseudomonas @ 1.5 kg / ha | | 22.43 | 21.4 | 57 | 332.86 (6.60%) | 99815 (575) | 99901 | 2 |

## INTEGRATED WEED MANAGEMENT

### Effect of chemical weedicide in paddy crop

Paddy is an important food crop of the district Fatehpur as well as of U.P. Being a crop of Kharif season, there is very heavy infestation of weeds. Due to improper weed control practice there is heavy loss of crop yield. Keeping in view an OFT laid out on different weedicides in paddy crop. The results, revealed that highest yield of paddy was obtained when Nomine Gold applied @ 200 ml/ha followed by the use of Butachlore @ 1.5 l/ha over Farmers practice in paddy. Treatment resulted yield of 38.85 q/ha which was reduced weed by 85 % and provided net return of Rs. 36430/ hawith B:C ratio 2.08.

| Technology assessd/Refined | No. of Trials | Yield (q/ha) | (%) Increase | Reduction in weed (%) | Gross cost (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : Farmers practice- No chemical | 3 | 27.2 | - | - | 29300 | 19660 | 1.67 |
| T2 : Butachlore @ 1.5 lt/ha | | 31.5 | 15.88 | 58 | 31200 | 25500 | 1.81 |
| T3 : Nomine Gold 200ml/ha | | 38.85 | 42.88 | 85 | 33500 | 36430 | 2.08 |

### Weed control measures on wheat yield.

KVK Hamirpur took up on-farm trial on chemical weed management in wheat. The results indicated that the use of sulfosulfuron 75% WG + met sulfosulfuron 5% WG @ 16 g/acre gave 28.50% yield increase followed by sulfosulfuron 75% WG @ 13.4 g/acre 14.27% yield increase over farmer's practice.

| Technology Option | No. of Trials | Yield (q/ha) | Increase in yield (%) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|
| T1 : Two times hand weeding (Farmers Practice) | 06 | 19.69 | - | 10550 | 1.58 |
| T2 : sulfosulfuron 75% WG + met sulfosulfuron 5% WG @ 16 g/acre | | 25.31 | 28.5 | 16250 | 1.81 |
| T3 : sulfosulfuron 75% WG @ 13.4 g/acre | | 22.5 | 14.27 | 13625 | 1.71 |

### Weed management in wheat through weedicides

KVK, Mathura took up on farm trial on chemical weed management of wheat. The results indicated that the use of sulphosulphuron @ 33 gm/ha controlled 72 % weeds per sqm. and Vesta @ 250 gm/ha controlled 97 % weeds per sqm. respectively whereas the traditional weedicide controlled only 45 % weeds/sqm. This has a direct impact on crop yield showing an increase of 23.07 % and 38.46 % respectively over local check (26 q/ha).

| Technology Option | No. of Trials | % Controlled weed/m² | Yield (q/ha) | Increase in yield (%) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|
| T1 :Farmers practice- Isoprutoron @ 1 kg/ha and 2,4-D @ 625 g/ha | 15 | 45 | 26 | - | 10700 | 1.39 |
| T2 :Sulphasulphuron @ 33 g/ha | | 72 | 32 | 23.07 | 19400 | 1.71 |
| T3 :Vesta 250-300 g/ha | | 97 | 36 | 38.46 | 25200 | 1.93 |

### Efficacy of weedicides against kharif weeds on yield of green gram

KVK, Azamgarh conducted OFT to know the efficacy of weedicides against weeds of greengram. Result reveals that herbicidal control of kharif season weeds enable crop to escape crop weed competition and induce congenial condition for better growth and developments leads to records lowest weed density at 30 DAS and spraying of imazethapyr (10 SL) @ 100 g ai/ha found to be more profitable by enhancing grain yield 80.0 % followed by pendimethalin over check.

| Technology Option | No. of Trials | No. of Weeds m² at 30 DAS | Yield (q/ha) | Increase in yield (%) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|
| T1 : Occasionaly manual weeding (Farmers Practice) | 1 | 221.3 | 7.9 | -- | 13720 | 2.11 |
| T2 :Spraying of pendimethalin @ 1.00 Kg ai/ha at 0 to 3 DAS | | 56 | 12.1 | 53.2 | 25720 | 2.8 |
| T3 :Spraying of imazethapyr @ 100g ai/ha at 30DAS | | 19.1 | 14.6 | 80 | 30455 | 3 |

### Efficiency of herbicides for controlling weeds in lentil

KVK, Balrampur conducted on farm trial to asses efficiency of herbicides for controlling of weeds in lentil. The results indicated that application of pendemethalin followed by quezelofop-p- ethyle (T4) was gave more yield (10.86 q/ha), maximum test weight (23.23 g/100 seeds), net profit (Rs 36911/ha) and B:C Ratio(2.82), followed by application of pendemethaline (T3). It is recommended that farmer should apply pendemethaline @ 1.0 kg ai /ha pre emergance + quezelofop –p – ethyle 5.0 g/ha as post emergence at 20 DAS as it controls maximum number of weeds.

| Technology Option | No. of Trials | No. of Damaged pod /plant | Weed dry wight (g/m²) | Test Weight (g) | Yield (q/ha) | Net Profit (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : Farmers practice (No use of herbicides) | | 187 | 101.25 | 19.25 | 6.25 | 18996 | 1.93 |
| Pendemethaline @ 1.0kg ai/ha (Pre emmergance) | 4 | 25 | 9.0 | 22.45 | 22.45 | 31305 | 2.78 |
| T2 :Quezelofop -p-ethyle (5EC) @ 50 g ai/ha post emergence (at 20 DAS) | | 32 | 10.2 | 20.35 | 8.37 | 26942 | 2.33 |
| T3 : Pendemethaline @ 1.0kg ai/ha ( Preemmergance) + Quezelofof -p-ethyle (5EC) @ 50 g ai/ha post emergence (at 20 DAS) | | 10 | 6.0 | 23.23 | 10.86 | 36911 | 2.82 |

## RESOURCE CONSERVATION TECHNOLOGY

### Assessment of multicrop thresher

The KVK Mirzapur in Uttar Pradesh conducted on-farm trial on use of multicrop thresher for threshing of several crops It was found that use of multicrop thresher was not only efficient in terms of output (483kg/h), but also was most economic means for threshing of more than one crops with B:C Ratio of 1.96 (threshing of 1.96 kg of the produce per rupee)

| Technology Option | No. of Trials | Output (kg/ha) | Cost of threshing (Rs/h) | B:C Ratio |
|---|---|---|---|---|
| T1 :Manual Threshing /Use of local thresher (Farmers Practice) | 4 | 246 | 189 | 1.3 |
| T2 : Use of crop -specific thresher | | 564 | 358 | 1.58 |
| T3 :Use of multicrop thresher | | 483 | 247 | 1.96 |

### Evaluation of different methods of paddy cultivation

KVK, Saharanpur conducted on-farm trial to find out suitable and cost effective paddy cultivation method. Three methods (transplanting as farmer practice, DSR through drum seeded and multi seed drill technology) were assessed. Drum seeded technology was found best because it provided highest yield (62 q/ha) with net return Rs.84600/ha with B:C ratio of 3.10.

| Technology Option | No. of Trials | Gross cost (Rs/ha) | Yield (q/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|
| T1 :Tranrplanting- Farmers Practice | 1 | 32000 | 56 | 68800 | 2.15 |
| T2 :Drum Seeder (DSR) | | 27000 | 62 | 84600 | 3.1 |
| T3 :Multi seed drill (DSR) | | 26000 | 58 | 78400 | 3 |

## INTEGRATED FARMING SYSTEM

### Paddy cum fish culture

KVK, Pratapgarh, Uttar Pradesh took up on-farm trial on Paddy cum fish culture. The results indicated that the Paddy cum fish culture under paddy cultivation gave 3.84 and 5.41 per cent increase in paddy yield over farmer's practice. Farmer achieved Rs. 7600 and 7980 as an additional income from the fish culture in same area. There should be a 10 days gap in between transplanting of paddy and stocking of fish seed in the rice field. Fish seed of 10- 15 cm length (fingerling) is stocked at the rate of 7000- 8000 nos./ ha. Treatment T4 provided yield of 60.30 q/ha of paddy with yield increase of 5.41%. Net return was Rs. 61067/ ha with B:C ratio of 3.6 followed by T3 and T2 treatments.

**Table:Effect of Paddy cum fish culture.**

| Technology Option | No. of Trials | Yield (q/ha) | Increase in yield (%) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|
| T1: Kaveri (Farmers Practice) | 4 | 57.2 | - | 51452 | 3.1 |
| T2: Kaveri + fish culture of Indian carp ( Catla40% + Rohu 30% + Mrigal 30% ) | | 58.3 | 1.92 | 56800 | 3.3 |
| T3: Kaveri+ fish culture of ( Catla 15% + Rohu 20% + Mrigal 20% + Silver carp 25% +Common Carp 20%) | | 59.4 | 3.84 | 58159 | 3.4 |
| T4: Kaveri+ fish culture of ( Catla 15% + Rohu 20% + Mrigal 20% + Silver carp 25% + Common Carp 20%)+Grass Carp | | 60.3 | 5.41 | 61067 | 3.6 |

# LIVE STOCK ENTERPRISES

## DISEASE MANAGEMENT

### Control of mortality in buffalo calf

An OFT was conducted by KVK Chitrakoot to control the mortality of buffalo calf by the use of different dewormers. It was found that the use of the Bandykind to control ecto and endo parasite in buffalo calf gave better performance over L-Ba and farmers' practice.

**Performance Indicator**

| Technology Option | No. of Trials | Mortality | (%) Survival | Cost (Rs /Animal) | Gross Return Rs/Animal after one year |
|---|---|---|---|---|---|
| T1 : Farmers practice (Neam leaf extract) 10 animals in each treatment | | 4 | 60 | - | 4000 |
| T2 : L-Ba 3x30 ml/calves (20, 60, 90 Days of age) | 10 animals in each treat-ment | 1 | 90 | 19 | 10000 |
| T3 : Bandykind 3x30 ml/calves (20, 60, 90 Days of age) | | 0 | 100 | 18 | 8000 |

### Assessment of Clinical & nonclinical remedies in controlling repeat breeding in Buffaloes

KVK, conducted trial to find out suitable control measure of anoestrous in buffaloes. Therefore concentrate feed + mineral mixture + Recepta adopted to cure/minimize the incidence of repeat breeding in Buffaloes.

| Technology Option | No. of trials | Percent conception |
|---|---|---|
| T1: Farmer's practice (Use of choker and common salt) | -- | -- |
| T2:Use of concentrate @ 2.5 kg & mineral mixture @ 50g/d/animal up to 45 days | 3 | 66.66 |
| T3:T2 + inj. Receptal 5ml (72-96 hrs before AI) | 3 | 100 |

## FEED AND FODDER MANAGEMENT

### Enhancement of fish production through supplementation of mineral mixture in fish feed

KVK-II, Sitapur conducted on-farm trial to assess the Nutrient management in supplementation of mineral mixture in fish feed. Use of rice polish @8kg + mustard cake 2 kg/ acre (No use of mineral mixture) + mineral mixture 2% in fish diet gave (740 g/ 150 day body weight gain) and net return of Rs. 204000/ha as compared to Farmer Practice.

### Biological management of borers in sugarcane

| Technology Option | No. of Trials | Fish body wight/month (kg) | Disease incidence (%) | Cost of Cultivation (Rs/ha) | Gross return (Rs/ha) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : Farmers practices- Rice polish @8kg + Mustard cake 2 kg/ Acre (No use of mineral mixture) | 1 | 38.8 q/ha day (550 g /150 body wt gain) | 20% Mortality | 62000 | 232800 | 170800 | 3.7 |
| T2 : Rice polish @8kg + Mustard cake 2 kg/ Acre (No use of mineral mixture) + mineral mixture 2% in fish diet | | 45 q/ha (740 g/ 150 day body wt gain) | 10% Mortality | 66000 | 270000 | 204000 | 4.1 |

## INTEGRATED NUTRIENT MANAGEMENT

### Assessment of mixing of enzyme in poultry feed

Krishi Vigyan Kendra, Siddharthnagar conducted on farm trial to find out suitable technology for maximum weight gain in broiler for higher profit in poultry farming. The recommended technology, mixing 15 g amylase enzyme in 100 kg poultry feed gave 23.40% higher body weight gain over farmers practice and the health of broiler were better as compared to farmers practice.

| Technology | No. of Trials | Average weight gain per day up to 40 days (g) | % increase in gain | Gross cost (Rs/100 birds) | Gross return (Rs/100) birds | Net Return (Rs/100 birds | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : No use of amylase enzyme in poultry feed | 5 | 47 | - | 13500 | 18000 | 4500 | 1.33 |
| T2 : Use of amylase enzyme @ 15 g /100 kg poultry feed | 5 | 58 | 23.4 | 14250 | 21600 | 7350 | 1.52 |

### Assessment of different mineral supplements for improving heat synchronization and conception rate

KVK, Saharanpur conducted trial to find out suitable mineral supplements for improving heat synchronization and conception rate. In this trial IVRI fertisure shows better result and more effective than other mineral supplement.

| Technology Option | No. of Trials | No. of animals | No. of heat animals | No. of serviced animals | No. of pregnant animals | | Conception rate % |
|---|---|---|---|---|---|---|---|
| T1 : Use of salt (Farmers practice) | 1 | 10 | 3 | 3 | 1 | 10 | |
| T2 : Mineral mixture @ 60 g/day/animal | | 10 | 5 | 5 | 3 | 30 | |
| T3 : IVRI Fertisure-I | | 10 | 8 | 8 | 6 | 60 | |

**State: Uttarakhand**

### Assessment of various herbicides for weed control in Transplanted rice

Weeds affect the yield of rice. Keeping in view, KVK Almora conducted OFT to asses the effect of different herbicidal treatments in rice during *kharif 2014*. The result of the study indicated that treatment T3 i.e. Anilofos 1200 ml/ha, 7-10 DAT followed by Almix 20g/ha, 30 DAT recorded maximum yield 30.86 q/ha followed by T2 Pretilachlor 1500 ml/ha, *0-3 DAT* followed by Almix 20g/ha, *30 DAT* and check. The treatment T3 also recorded 22.30% more yield in comparision to check. This treatment has also gave maximum net return and B:C ratio. The major weeds found during trial were *Echinochloa colonum, E. crusgalli, Commelina benghalensis, Cyperus rotundus, Oxalis latifolia etc.*

| Technology Option | No. of Trials | Yield (q/ha) | Increase in yield (%) | Net Return (Rs/ha) | B:C Ratio |
|---|---|---|---|---|---|
| T1 : Farmers practice (Manual weeding or some time use of Butachlor mixed in sand or soil) | 5 | 24.05 | - | 14870 | 1.8 |
| T2 : Pretilachlor 1500 ml/ha, 0-3DAT followed by Almix 20g/ha, 30DAT | | 27.95 | 16.21 | 17580 | 1.82 |
| T3 : Anilofos 1200 ml/ha, 7-10 DAT followed by Almix 20g/ha, 30DAT | | 30.86 | 22.3 | 21404 | 1.98 |

### Assessment of resistant breed of poultry for high hill in district Nainital .

KVK, Nainital conducted trial on poultry breeds in high hill conditions. The recommended practice could not stop recurrence of poultry breeds. The technology recommended was fine breeds of Cari Ddevendra and Cari Nirbhick of suitable in hill condition.

| Technology Option | No. of Trials | Gross cost (Rs) | Gross Return (Rs) | Net Return (Rs) | B:C Ratio | Mortality % |
|---|---|---|---|---|---|---|
| T1 : Rearing of poor quality chicks (Farmers practice) | 5 | 5500 | 18720 | 13720 | 2.1 | 35 |
| T2 : Kariolier breeds use for backyard poultry. (Recommended practice) | | 5500 | 24960 | 19960 | 4.5 | 28 |
| T3 : Recommended practice+ Cari Devendra and Cari Nirbhick. | | 5500 | 28687 | 23187 | 5.4 | 14 |

### Soft and dry rot management in ginger

Ginger is an important commercial crop of Utarakhand. 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 refined technology of seed treatment with carbandazim +mancozeb @ 0.25% seed and spray of carbandazim +mancozeb @ 0.25% during the rainy season @ 0.25ml/l reduced the percentage of disease incidence from 22.5 to 8 and yield was increased by 49.68 per cent.

| Technology Option | No. of Trials | rotting (%) | Yield (qha) | % Increase in yield |
|---|---|---|---|---|
| T1 : Farmers Practice (Traditional method) | 5 | 22.5 | 80.5 | - |
| T2 : use of Himgiri + useof FYM+ biodegradable mulch @20 t/ha + seed treatment with systematic fungicides | | 18.5 | 105.5 | 31.05 |
| T3 : T2 + spray of carbandazim +mancozeb @0.25% during the rainy season | | 8 | 120.5 | 49.68 |

### Management of white fly in summer squash

In district Pithoragarh, white fly is becoming a serious pest affecting not only summer squash but other crops also. Therefore the OFT is designed to mange the white fly so that the loss may be reduced. The results indicated that application of imidachloprid + use of white plastic mulch enhance the yield 34.8% over farmers practice and the insect population was reduced to only 4 per plant which was 24 per plant in farmers practice.

| Technology Option | No. of Trials | rotting (%) | Yield (qha) | % Increase in yield |
|---|---|---|---|---|
| T1 : Farmers practice (No use of insecticide) | 7 | 24 | 194.92 | 1.54 |
| T2 : Application of Imidachloprid | | 6 | 242.14 | 1.87 |
| T3: Application of Imidachloprid + use of white plastic mulch | | 4 | 262.76 | 1.96 |

### Integrated Management of die back disease in Malta

KVK Chamoli conducted on farm trail to mange the die back disease. The results indicated that the incidence of dieback disease was found least in T3 treatment (spray of COC+FYM application + spray of micronutrients after fruit set) and it was found best among all the treatments tested and gave increase in production by 80% over the control with B :C Ratio of 2.40.

| Treatment | Die back % | Cost | Production Kg/tree | Difference in production | Production (Rs/tree) | Increase in Production (%) | B:C Ratio |
|---|---|---|---|---|---|---|---|
| T1 : Farmer's Practice | 10.5 | - | 60 | - | - | - | - |
| T2 : Spray of COC @ 0.25% alongwith application of 30 kg FYM/plant/year | 6 | 250 | 85.5 | 25.5 | 510 | 42.5 | 2.04 |
| T3 : Spray of COC + 30 kg FYM application + 03 sprays of micronutrients after fruit set | 3.2 | 400 | 18 | 48 | 960 | 80 | 2.4 |

### Weed management in spring planted sugarcane

KVK, Dehradun in Uttarakhand conducted on farm trial to assess the efficacy of chemical weed management in sugarcane. The results indicated that the post emergence application of ethoxy-sulfuron @ 20 g/ha at 4 leaves stage gave 89.4 per cent weed control efficiency as against of 53.3 and 63.7 with 2,4-D Na salt and 2, 4- D 58 % ethyl ester respectively.

| Technology Option | No. of Trials | Weed density (no/m²) | | B:C Ratio |
|---|---|---|---|---|
| | | 45 DAP | 60 DAP | |
| T1 : POE of 2,4-D Na salt @0.8 kg (Farmers Practice) | 5 | 8.5 | 10.5 | 53.3 |
| T2 : POE 2,4-D 58 % Ethyl ester @ 0.6kg/ha | | 7.6 | 8.2 | 63.7 |
| T3 :Ethoxy-sulfuron @ 20 g/ha as POE at 4 leaves stage. | | 9.2 | 2.4 | 89.4 |
| T4 :Weedy check | | 8.2 | 22.6 | - |

### Effect of pruning and fertilizer treatment on yield and fruit quality of apple

Apple is one of the most valuable temperate fruits of Tehri Garhwal and response to training and pruning. The quality production is dependent on pruning and schedule fertilizers application. Hence, there is need to demonstrate the effect of pruning intensities and fertilizer treatment on yield and fruit quality of apple. KVK Ranichauri laid out an experiment for the assessment of pruning and fertilizer treatment on Yield and Fruit quality of Apple. Results indicated that the treatment T3 (Pruning +Fertilizer (NPK-100:60:100) / plant/year gave highest yield 35 kg/plant and net return of Rs. 950/ plant and very effective over farmers practice.

| Technology | No. of Trials | Parameters of assessment | Yield (kg/plant |
|---|---|---|---|
| T1: Farmers practice (No Pruning) | 15 | Yield with quality produce | 5 |
| T2: Pruning | | Gross return, net return, B: C ratio | 18 |
| T3: Pruning +fertilizer (NPK 100:60:100) / plant/year | | Acceptance by farmers | 35 |

| Corp | Economics of $T_2$ (Rs/plant) | | | Economics of $T_3$ (Rs/plant) | | | | |
|---|---|---|---|---|---|---|---|---|
| | Gross Cost | Gross Return | BCR (R/C) | BCR (R/C) | Gross Cost | Gross Return | Net Return | BCR (R/C) |
| Apple | 800 | 1750 | 950 | 2.18 | 100 | 125 | 25 | 1.25 |

## Assessement of Fish-Poultry integrated fish farming

Fish-Poultry integrated fish farming, waste recycling based system, is one of the best ways of agricultural diversification. Poultry waste (excreta and spilled feed) act as manure and fish feed in the pond hence reduces cost of fish production. KVK, Champawat organized on farm trial to find out the best combination of poultry (croiler/guinea fowl) and fish integrated farming. The results indicated that Fish-Poultry (croiler- two crops of 50 each) integrated farming highest yield of fish (57.65 kg/100 m2) and bird meat (192 kg) over composite fish farming.

| Treatment | No. Farmers (pond size in $m^2$) | Yield (kg fish/100 $m^2$ | Yield (kg bird meat) | Gross cost (Rs) | Gross income (Rs) | Net income (Rs) | B:C Ration |
|---|---|---|---|---|---|---|---|
| T1 : Composite fish farming | 03 (100) | 53.40 | - | 3500 | 13350 | 9850 | 3.81 |
| T2 : Fish-Poultry (croiler- two crops of 50 each) integrated farming | 03(100) | 57.65 | 192 | 13000 | 52812 | 39812 | 4.06 |
| T3: Fish-Poultry (guinea fowl- two crops of 50 each) integrated farming | 03(100) | 55.25 | 132 | 11800 | 40212 | 28412 | 3.50 |

Chapter-6

# EXTENSION PROGRAMMES

A large number of extension activities were organized by KVKs of Uttar Pradesh and Uttarakhand. The major activities like advisory service (15792), diagnostic visits (4758), field days (627), group discussions (638), kisan gosthies (1827), film shows (419), self help groups (361), kisan mela (251), exhibitions (525), scientist visit (15334), plant/animal health camps (810), farm science clubs (214), ex-trainees meet (212), farmers' seminars (1218), method demonstrations (626), celebrations of important days (176), special days celebration (89), exposure visits (144) and other activities (10518) with the participation of 1011816 farmers and 34623 extension personnel were performed. 34851 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 67 KVKs with 257172 SMSs to 47966 farmers. Voice messages (7222) were delivered to all registered farmers in agropedia. By sending text and voice messages by mobile has enabled the KVKs to reach the unreached farmers in distant and remotely located areas.

Visit of DDG(AE) in Kisan Mela: KVK Mathura

Monitoring of Paddy Seed Production : KVK Maharajganj

**Table 6.1 : Physical achievement of Extension Activities**

| Activities | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Programmes | Participants | Programmes | Participants | Progr-ammes | Partici-pants |
| Advisory Services | 14827 | 69068 | 965 | 3559 | 15792 | 72627 |
| Diagnostic visits | 3793 | 24769 | 965 | 6407 | 4758 | 31176 |
| Field Day | 546 | 21839 | 81 | 2534 | 627 | 24373 |
| Group discussions | 564 | 13043 | 74 | 1074 | 638 | 14117 |
| Kisan Gosthi | 1135 | 92484 | 692 | 69496 | 1827 | 161980 |
| Film Show | 304 | 8668 | 115 | 2332 | 419 | 11000 |
| Self-help groups | 332 | 13837 | 29 | 525 | 361 | 14362 |
| Kisan Mela | 233 | 145491 | 18 | 119592 | 251 | 265083 |
| Exhibition | 485 | 136266 | 40 | 83426 | 525 | 219692 |
| Scientists' visit to farmers field | 11228 | 86517 | 4106 | 24635 | 15334 | 111152 |
| Plant/animal health camps | 800 | 8249 | 10 | 484 | 810 | 8733 |
| Farm Science Club | 208 | 2581 | 6 | 130 | 214 | 2711 |
| Ex-trainees Sammelan | 122 | 3748 | 90 | 929 | 212 | 4677 |
| Farmers' seminar/ workshop | 1210 | 6374 | 8 | 941 | 1218 | 7315 |
| Method Demon-strations | 556 | 6766 | 70 | 2322 | 626 | 9088 |
| Celebration of important days | 146 | 19954 | 30 | 917 | 176 | 20871 |
| Special day celebration | 74 | 6452 | 15 | 435 | 89 | 6887 |
| Exposure visits | 114 | 9954 | 30 | 1315 | 144 | 11269 |
| Others | 6274 | 81098 | 4244 | 5195 | 10518 | 86293 |
| **Total** | **42951** | **757158** | **11588** | **326248** | **54539** | **1083406** |

**Table 6.2: Physical achievement of other extension activities :**

| Activities | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Number | No. of KVKs | Number | No. of KVKs | Number | No. of KVKs |
| Electronic Media (CD./DVD) | 487 | 19 | - | 13 | 487 | 32 |
| Extension Literature | 23042 | 48 | 58 | 13 | 23100 | 61 |
| News paper coverage | 3145 | 59 | 248 | 13 | 3393 | 72 |
| Popular articles | 503 | 52 | 88 | 13 | 591 | 65 |
| Radio Talks | 541 | 47 | 60 | 13 | 601 | 60 |
| TV Talks | 454 | 39 | 96 | 13 | 550 | 52 |
| Animal health amps (Animals Treated | 5613 | 33 | 274 | 13 | 5887 | 46 |
| Others | 240 | 15 | 2 | 2 | 242 | 41 |
| **Total** | **34025** | - | **826** | - | **34851** | - |

## Mobile Advisory Services

| Uttar Pradesh | | | Uttarakhand | | | Grand Total | | |
|---|---|---|---|---|---|---|---|---|
| No. of Calls (Voice) | No. of Messages (Text) | No. of Farmers Covered | No. of Calls (Voice) | No. of Messages (Text) | No. of Farmers Covered | No. of Calls (Voice) | No. of Messages (Text) | No. of Farmers Covered |
| 7222 | 256693 | 43466 | - | 479 | 4500 | 7222 | 257172 | 47966 |

## Extension activities in Uttar Pradesh

233 Kisan melas and 485 exhibitions were organized registering 275555 farmers and 5749 extension officials. Kisan gosthies (1135), scientists visit to farmers field (11228) and advisory services (14827) drew participation of 84992, 778055 and 52088 farmers. 304 films related to farm technologies were shown to 8394 farmers and officers. Radio (541) and TV talks (454) were delivered on farm and animal husbandry related improved technologies.

Extension literature (23042 numbers) was published by the KVKs for distribution among farmers. Scientists visit to farmers' fields and farmers' visit to KVKs were regularly conducted by KVKs. 3793 diagnostic visits were made wherein the problems of 20780 farmers were solved. 43466 farmers were benefited under mobile advisory services.

Diagnostic visit – Identification of nematode in paddy crop: KVK Kannauj

Kisan Samman Divas: KVK Jhansi

**Table 6.3 : Extension activities organized in Uttar Pradesh**

| Activities | No. of programmes | No. of farmers | No. of Extension Personnel | Total |
|---|---|---|---|---|
| Advisory Services | 14827 | 52088 | 4878 | 69068 |
| Diagnostic visits | 3793 | 20780 | 1613 | 24769 |
| Field Day | 546 | 20406 | 1172 | 21839 |
| Group discussions | 564 | 12014 | 816 | 13043 |
| Kisan Ghosthi | 1135 | 84992 | 6949 | 92484 |
| Film Show | 304 | 7099 | 1295 | 8668 |
| Self-help groups | 332 | 13449 | 300 | 13837 |
| Kisan Mela | 233 | 142063 | 3360 | 145491 |
| Exhibition | 485 | 133492 | 2389 | 136266 |
| Scientists' visit to farmers field | 11228 | 77805 | 2506 | 86517 |
| Plant/animal health camps | 800 | 7302 | 198 | 8249 |
| Farm Science Club | 208 | 2393 | 118 | 2581 |
| Ex-trainees Sammelan | 122 | 3561 | 154 | 3748 |
| Farmers' | | | | |

| | | | | |
|---|---|---|---|---|
| seminar/workshop | 1210 | 4764 | 437 | 6374 |
| Method Demonstrations | 556 | 6404 | 265 | 6766 |
| Celebration of important days | 146 | 19136 | 767 | 19954 |
| Special day celebration | 74 | 5970 | 455 | 6452 |
| Exposure visits | 114 | 9618 | 287 | 9954 |
| Others | 6274 | 72169 | 4260 | 81098 |
| **Total** | **42951** | **695505** | **32219** | **757158** |

Problem Discussion (Paddy): KVK Basti

Monitoring of pegionpea (NA-I) seed production field: KVK Sitapur-II

**Table 6.4: Physical achievement of other extension activities**

| Activities | Number | No. of KVKs |
|---|---|---|
| Electronic Media (CD./DVD) | 487 | 19 |
| Extension Literature | 23042 | 48 |
| News paper coverage | 3145 | 59 |
| Popular articles | 503 | 52 |
| Radio Talks | 541 | 47 |
| TV Talks | 454 | 39 |
| Animal health amps (Animals Treated | 5613 | 33 |
| Others | 240 | 15 |
| **Total** | **34025** | - |

## Mobile Advisory Services

| No. of Calls (Voice) | No. of Messages (Text) | No. of farmers Covered | Type of Messages | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Crop | Live-Stock | Weather | Marketing | Awareness | Other Enterprise |
| 7222 | 256693 | 43466 | 9073 | 13492 | 3139 | 511 | 481 | 786 |

## Extension activities in Uttarakhand

Kisan Gosthies (692) were organized, with participation of 69496 farmers & extension officials. Kisan melas (18) and exhibition (40) were organized for providing a platform of learning. 115 films on farm technologies were shown to the farmers and farm women. Radio (60) and TV talks (96) were delivered by experts of KVKs. Extension literature (58) on different aspect of agriculture and allied fields were prepared and distributed among the farm families. 965 diagnostic visits were organized


Livestock Health Camp : KVK Bageshwar

Kisan Mela: KVK Chamoli

**Table 6.5: Extension activities organized in Uttarakhand**

| Activities | No. of programmes | No. of farmers | No. of Extension Personnel | Total |
|---|---|---|---|---|
| Advisory Services | 965 | 3487 | 107 | 3559 |
| Diagnostic visits | 965 | 5383 | 59 | 6407 |
| Field Day | 81 | 2404 | 49 | 2534 |
| Group discussions | 74 | 968 | 32 | 1074 |
| Kisan Ghosthi | 692 | 67343 | 1461 | 69496 |
| Film Show | 115 | 2153 | 64 | 2332 |
| Self-help groups | 29 | 496 | 0 | 525 |
| Kisan Mela | 18 | 118825 | 149 | 119592 |
| Exhibition | 40 | 83180 | 310 | 83426 |
| Scientists' visit to farmers field | 4106 | 20492 | 37 | 24635 |
| Plant/animal health camps | 10 | 3471 | 3 | 484 |
| Farm Science Club | 6 | 124 | 0 | 130 |
| Ex-trainees Sammelan | 90 | 830 | 9 | 929 |
| Farmers' seminar/ workshop | 8 | 889 | 44 | 941 |
| Method Demonstrations | 70 | 2233 | 19 | 2322 |
| Celebration of important days | 30 | 849 | 38 | 917 |
| Special day celebration | 15 | 420 | 0 | 435 |
| Exposure visits | 30 | 1265 | 20 | 1315 |
| Others | 4244 | 1499 | 3 | 5195 |
| **Total** | **11588** | **316311** | **2404** | **326248** |

**Table 6.6: Physical achievement of other extension activities :**

| Activities | Number | No. of KVKs |
|---|---|---|
| Electronic Media (CD./DVD) | - | 13 |
| Extension Literature | 58 | 13 |
| News paper coverage | 248 | 13 |
| Popular articles | 88 | 13 |
| Radio Talks | 60 | 13 |
| TV Talks | 96 | 13 |
| Animal health amps (Animals Treated | 274 | 13 |
| Others | 2 | 26 |
| **Total** | **826** | - |

**Mobile Advisory Services :** KVKs of Uttarakhand have sent 479 Text messages covering 4500 farmers

## Other Activities

### Soil/Water/Plant/Manure samples analysis

In all, 25062 samples of soils, water plant, manures and others were analyzed by 44 KVKs. Total 24752 samples were collected from 1317 villages and 17515 farmers in Uttar Pradesh whereas, in Uttarakhand 310 soil water samples were collected and analyzed from 52 villages.

SAC: KVK Haridwar

### Scientific Advisory Committee (SAC) Meetings

Scientific Advisory Committee meetings were organized by 65 KVKs in U.P. and 13 KVKs in Uttarakhand. 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. In total 78 SAC meetings were conducted during the reprinting period.

### Technology week celebrations

In Uttar Pradesh, 1815 activities were organized by KVKs by benefiting 56788 farmers & distribution of 92.00 q seeds, bio-fertilizers and bio-products 50.00 q to 2685 farmers. In the technology week, various types of activities were organized viz., gosthies (75), lectures (88), exhibition (37), film show (45), Fair (29), farm visits (881), diagnostic practicals (66), distribution of literature (248), distribution of planting materials (2460), distribution of fingerlings, distribution of livestock specimen (14). In Uttarakhand, 99 activities were conducted benefiting 15505 farmers.

### Newsletter publications

In Uttar Pradesh, 24 KVKs published newsletters and developed 3435 copies for distribution to the farmers, other stakeholders and institutions. Whereas, in Uttarakhand 4 KVKs published newsletters and distributed to the 2750 farmers. In total 28 KVKs are publishing newsletters and it is being distributed to the farmers, line departments, students, SAUs and ICAR.

### Publications

In total 190 research papers 75 technical bulletins, 310 technical reports and 398 other publications were developed in both states (U.P. and Uttarakahnd). In Uttar Pradesh, KVKs published 162 research papers, 59 technical bulletins, 274 technical reports and 309 other publications. Similarly in Uttarakhand 28 research papers, 16 technical bulletins, 36 technical reports and 89 others were published.

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

49 training programmes were organized by 4 SAUs, in which 87 KVK experts participated from their area jurisdiction. Such programmes were organized at the University level to provide technological backstopping in frontier areas of the technologies. Similarly, ZPD, Zone-IV organized 10 programmes in which 405 participants from various KVKs of this zone were benefitted. KVKs may take technological support from ICAR research institutes for experimenting new technologies at field level.

### Rain water harvesting & micro irrigation system

In total, 9 trainings and 2 demonstrations were conducted 1059 farmers and 119 officials visited the system under the zone in context to rain water harvesting and micro irrigation system. In Uttarakhand, One KVK have organized the activities one training programme, demonstrations (1), visit by the farmers (82) and visit by the officials (62). In Uttar Pradesh, two KVKs conducted the activities like organization of training programmes (9), visits by the farmers (977) and visits by the officials (57).

Chapter-7

# SEED AND PLANTING MATERIAL PRODUCTION

## 7.1 Seed Production

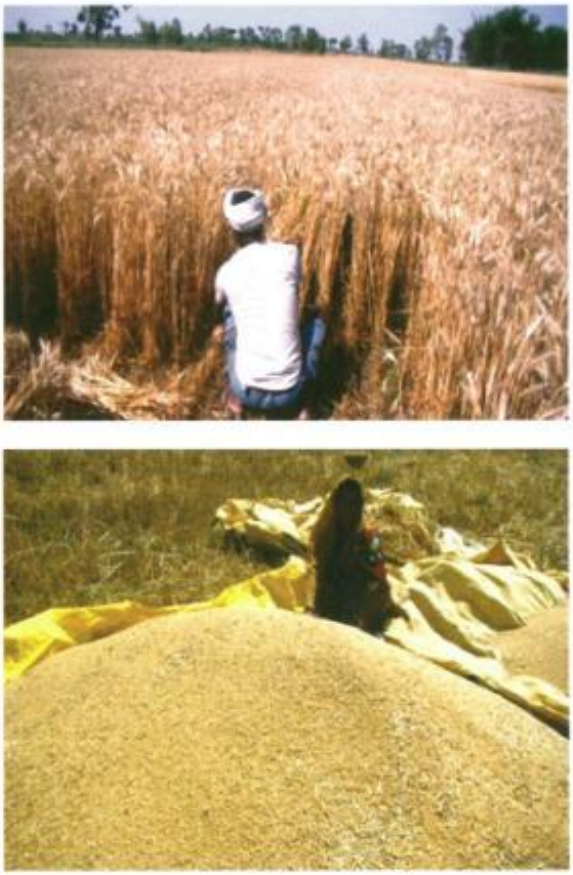
Seed production is one of the important activity of KVKs, they engaged quality seed production which may play a greater role in enhancing production and productivity of different crops. During the year 2014-15, KVKs of this zone (Uttar Pradesh & Uttarkand) produced 19394.73 q seed including cereals (13760.41q), oilseeds (337.92 q), pulses (490.67 q), commercial crops (4500.63 q), etc. State wise seed production at a glance is given in the following table.

**Table 7.1: Physical achievements of seed production**

| Enterprises | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) |
| Cereals | 13034.26 | 279.6 | 726.15 | 3.87 | 13760.41 | 283.47 |
| Oilseeds | 232.33 | 9.17 | 105.59 | 0.2 | 337.92 | 9.37 |
| Pulses | 449.42 | 23.26 | 41.25 | 1 | 490.67 | 24.26 |
| Vegetables | 15.03 | 0.12 | 19.47 | 0.54 | 34.5 | 0.67 |
| Commercial | 607.37 | 2.25 | 3893.26 | 0.25 | 4500.63 | 2.5 |
| Spices | 252.45 | 0.42 | 7.43 | 0 | 259.88 | 0.42 |
| Fodder | 10.52 | 1.54 | 0.2 | 0 | 10.72 | 1.54 |
| **Total** | **14601.38** | **316.35** | **4793.35** | **5.87** | **19394.73** | **322.23** |

### Cereals

The seed (q) of important cereal crops produced paddy (5917.48 ), wheat (7746.9), barley (20.25), bajra (62.0), etc. Important varieties of paddy in seed production programme included Kaveri, NDR-359, BPT 5204, Pusa 1509, 1121, NDR-3112, 8501, CSR-30, 36, 43, NDR-2008, Sarwana Sub1, MTU 7029, Jalmagan, Kala Namak, , PS-6, PNR-519, Pant-12, P-834, S-4, Pusa-1121, 1460, VL Dhan 154, Sarju 52, Improved Basmati-1, Lajawab-111, 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 and state wise data is given in table.



Production of wheat (HD2733): KVK Kushingar

**Table 7.2: Seed production of different cereal crops**

| Cereals | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) |
| Wheat | 7185.63 | 199.29 | 561.27 | 2.95 | 7746.9 | 202.24 |
| Paddy | 5766.38 | 80.2 | 151.1 | 0.04 | 5917.48 | 80.24 |
| Maize | - | - | 10.15 | 0.83 | 10.15 | 0.83 |
| Jower | - | - | - | - | - | - |
| Bajra | 62 | - | - | - | 62 | - |
| Barley | 20.25 | 0.11 | - | - | 20.25 | 0.11 |
| Mandua | - | - | 3.63 | 0.05 | 3.63 | 0.05 |
| **Total** | **13034.26** | **279.6** | **726.15** | **3.87** | **13760.41** | **283.47** |

## Oilseeds

The KVKs of the zone produced seed 337.92q of oilseeds. The important oilseed crops like Sesame (148.47 q), mustard (180.25 q), groundnut (0.26 q), soybean (3.32 q), linseed (2.11 q), and toria (3.51 q ) were taken up under seed production programme. The important varieties of mustard selected for seed production were NRCHB 101, 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 7.3: Seed production of different oilseed crops**

| Oilseed | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) |
| Mustard | 170.31 | 5.60 | 9.94 | - | 180.25 | 5.6 |
| Toria | 2.89 | 0.17 | 0.62 | 0.02 | 3.51 | 0.19 |
| Linseed | 2.11 | 0.15 | - | - | 2.11 | 0.15 |
| Seasum | 57.02 | 3.25 | 91.45 | - | 148.47 | 3.25 |
| Groundnut | - | - | 0.26 | 0.01 | 0.26 | 0.01 |
| Soybean | - | - | 3.32 | 0.17 | 3.32 | 0.17 |
| Total | 232.33 | 9.17 | 105.59 | 0.2 | 337.92 | 9.37 |

## Pulses

The total quantity of pulses seed production was 490.67 q. The seed production programme on pulses were taken up on chick pea (KGD-1168, DCP-92-3, P-1103, Avrodhi, 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).

**Table 7.4: Seed production of different pulse crops**

| Pulses | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) |
| Pigeon pea | 91.4 | 10.41 | 6.3 | 0.54 | 97.7 | 10.95 |
| Lentil | 82 | 2.69 | 3.1 | 0.2 | 85.1 | 2.88 |
| Moongbean | 19.18 | 1.06 | 0.2 | 0.02 | 19.38 | 1.07 |
| Field pea | 139.96 | 4.08 | 1.61 | 0.1 | 141.57 | 4.18 |
| Chick pea | 36.77 | 2.5 | 1.57 | 0.03 | 38.34 | 2.52 |
| Cowpea | - | - | 0.01 | - | 0.01 | 0 |
| Urdbean | 79.44 | 2.47 | 27.37 | 0.04 | 106.81 | 2.52 |
| Rajmash | 0.67 | 0.05 | - | - | 0.67 | 0.05 |
| Horse gram | - | - | 0.59 | 0.05 | 0.59 | 0.05 |
| Other | - | - | 0.5 | 0.03 | 0.5 | 0.03 |
| Total | 449.42 | 23.26 | 41.25 | 1 | 490.67 | 24.26 |

## Vegetables

The KVKs produced 34.5q of seeds of vegetables. During the year under report KVKs of this zone 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).

Production of Brinjal: KVK Kushingar

Production tomato: KVK Champawat

**Table 7.5: Seed production of different vegetable crops**

| Oilseed | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) |
| Vegetable | | | | | | |
| Pea | 9.96 | 10800.62 | 17.98 | 24300 | 27.94 | 35100.62 |
| Okra | - | - | 1.1 | 22000 | 1.1 | 22000 |
| Suran | 4 | - | - | - | 4 | - |
| French bean | - | - | 0.025 | 500 | 0.025 | 500 |
| Radish | 0.4 | 640 | 0.015 | 375 | 0.415 | 1015 |
| Onion | - | - | 0.045 | 3600 | 0.045 | 3600 |
| Chilli | - | - | 0.14 | 840 | 0.14 | 840 |
| Other | 0.67 | 1005 | 0.165 | 2475 | 0.835 | 3480 |
| Total | 15.03 | 12445.62 | 19.47 | 54090 | 3[illegible] | 66535.62 |

## Spices

The total quantity of spices seeds produced was 259.88q. 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 and state wise data is given in table.

Intercropping of turmeric & Yam in mango orchard: KVK Sitapur-I

**Table 7.6: Seed production of spices**

| Spices | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) |
| Turmeric | 247.9 | 32080 | 6.25 | - | 254.15 | 32080 |
| Coriander | 0.38 | 3800 | - | - | 0.38 | 3800 |
| Garlic | - | - | 0.25 | - | 0.25 | - |
| Fenugreek | 3.6 | 2390 | - | - | 3.6 | 2390 |
| Other | 0.57 | 3477 | 0.93 | - | 1.5 | 3477 |
| **Total** | **252.45** | **41747** | **7.43** | **-** | **259.88** | **41747** |

## Fodder and Fibre crops

The seed of fodder and fibre crops to the tune of 102.53 q was produced. In the UP state Dhaincha and Sesbania produced seed of 6.75 and 3.77 q respectively.

**Table 7.7: Seed production of Fodder / Fibre and other crops**

| Fodder and Fibre | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) |
| Dhaincha | 6.75 | 22050 | - | - | 6.75 | 22050 |
| Sesbania | 3.77 | 16965 | - | - | 3.77 | 16965 |
| Others | 91 | - | 0.81 | 2430 | 91.81 | 2430 |
| **Total** | **101.52** | **39015** | **1.01** | **2430** | **102.53** | **41445** |

Sugarcane Production: KVK Muzaffarnagr

## Commercial crops

Mainly two commercial crops potato and sugarcane were taken by KVKs of zone –IV. The seed production of potato (397.6 q) and sugarcane (594.8q) 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 7.8: Seed production of commercial crops**

| Commercial crops | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) | Qty. (q) | Value (Rs in Lakh) |
| Potato | 397.6 | 1.25 | - | - | 397.6 | 1.25 |
| Sugarcane | 205 | 0.57 | 389.8 | 0.25 | 594.8 | 0.82 |
| Onion bulb | - | - | 0.58 | 0 | 0.58 | - |
| Other | 4.44 | 0.03 | - | - | 4.44 | 0.03 |
| **Total** | **607.04** | **1.85** | **390.38** | **0.25** | **997.42** | **2.1** |

## 7.2 Planting Material Production

The planting material/sapling production of vegetable, fruit, ornamental, forestry, medicinal & other plants developed by KVKs. During this year KVKs produced 11205772 planting materials including vegetable seedlings (11067892), fruit saplings (41697) & ornamental (63754), forestry (23128), medicinal & aromatic plants (301), etc.

**Table 7.9: Physical achievement of planting material production**

| Commercial crops | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Number | Value (Rs) | Number | Value (Rs) | Number | Value (Rs) |
| Vegetable | 1252630 | 438168.5 | 9815262 | 653677 | 11067892 | 1091845.5 |
| Fruits | 29521 | 343972 | 12176 | 180000 | 41697 | 523972 |
| Ornamental | 57854 | 27961 | 5900 | - | 63754 | 27961 |
| Medicinal & Aromatic | 101 | 500 | 200 | - | 301 | 500 |
| Forestry/ plantation | 23128 | 69090 | - | - | 23128 | 69090 |
| Other | - | - | 9000 | 180000 | 9000 | 180000 |
| **Total** | **1363234** | **879691.5** | **9842538** | **1013677** | **11205772** | **1893369** |

Aonla Production: KVK Lalitpur

Banana Production by farmer: KVK Gonda

Production of papaya: KVK Bahraich

### Production of Vegetable Seedlings

KVKs produced large number of vegetable seedlings (11130584) of brinjal, chilli, tomato, cabbage, cauliflower, sroccoli, capsicum, onion, cucumber and summer squash etc. Quality seedlings made available to the farmers for enhancing their profitability and livelihood. The state wise, vegetable crops with quantity of seedlings produced are given in table.

**Table 7.10: Seedling production of different vegetables**

| Commercial crops | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Number | Value (Rs) | Number | Value (Rs) | Number | Value (Rs) |
| Brinjal | 196668 | 68858 | - | - | 196668 | 68858 |
| Chilli | 233363.1 | 140290 | 4800 | 350 | 238163.1 | 140640 |
| Tomato | 421945 | 132405 | 64550 | 13000 | 486495 | 145405 |
| Cabbage | 84675 | 29890 | 74170 | 4239 | 158845 | 34129 |
| Cauliflower | 104313 | 17863 | 47430 | 1080 | 151743 | 18943 |
| Broccoli | 5675 | 2922.5 | 20947 | 398 | 26622 | 3320.5 |
| Capsicum | - | - | 36245 | 3910 | 36245 | 3910 |
| Onion | 204935 | 44390 | 9516600 | 426500 | 9721535 | 470890 |
| Cucumber | 1050 | 1250 | 48330 | 203300 | 49380 | 204550 |
| Summer Squash | - | - | 2190 | 900 | 2190 | 900 |
| Mushroom | 6 | 300 | - | - | 6 | 300 |
| **Total** | **1278300** | **442608.5** | **9852284** | **654767** | **11130584** | **1097376** |

Production of capsicum: KVK Pauri Garhwal

Small Scale nursery: KVK Muzaffarnagar

## Production of Fruit Saplings

The total fruit saplings were 41697produced in both the states. 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 state wise, fruit saplings produced is given in table.

| Fruit Saplings | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Number | Value (Rs) | Number | Value (Rs) | Number | Value (Rs) |
| Aonla | 2070 | 37335 | - | - | 2070 | 37335 |
| Litchi | 37 | 1440 | - | - | 37 | 1440 |
| Mango | 5932 | 141245 | - | - | 5932 | 141245 |
| Papaya | 15672 | 91540 | 9000 | 180000 | 24672 | 271540 |
| Guava | 2224 | 23235 | - | - | 2224 | 23235 |
| Jack fruit | 295 | 2174 | - | - | 295 | 2174 |
| Beal | 1401 | 17348 | - | - | 1401 | 17348 |
| Citrus | 1104 | 9680 | - | - | 1104 | 9680 |
| Lemon | 126 | 2610 | - | - | 126 | 2610 |
| Karonda | 525 | 2035 | - | - | 525 | 2035 |
| Pomegranate | 78 | 1030 | - | - | 78 | 1030 |
| Custard apple | 5 | 100 | - | - | 5 | 100 |
| Ber | 12 | 14200 | - | - | 12 | 14200 |
| Jamun | 40 | - | - | - | 40 | - |
| Peach | - | - | 80 | | 80 | - |
| Others | - | - | 3096 | - | 3096 | - |
| **Total** | **29521** | **343972** | **12176** | **180000** | **41697** | **523972** |

## Production of ornamental, forestry medicinal & other plant saplings

KVKs of this zone produced 23128 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 state wise details are given in table.

**Table 7.12: Sapling production of ornamental, forestry medicinal & other plants**

| Ornamental /Forestry, etc. | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Number | Value (Rs) | Number | Value (Rs) | Number | Value (Rs) |
| Marigold | 27605 | 9020 | 4000 | - | 31605 | 9020 |
| Chrysanthmum | 2650 | 2075 | 900 | - | 3550 | 2075 |
| Rose (Kalkatia desi) | 750 | 2500 | 1000 | - | 1750 | 2500 |
| Crotan | 82 | 1350 | - | - | 82 | 1350 |
| Calandula | 100 | 50 | - | - | 100 | 50 |
| Baugain villia | 2 | 50 | - | - | 2 | 50 |
| Poppy | 2000 | 600 | - | - | 2000 | 600 |
| Sweet William | 1500 | 450 | - | - | 1500 | 450 |
| Other ornamental | 300 | - | - | - | 300 | 0 |
| Others | 22841 | 11786 | - | - | 22841 | 11786 |
| **Total** | **57830** | **27881** | **5900** | **-** | **63730** | **27881** |
| **Medicinal & Aromatic** | | | | | | |
| Lemon Grass | - | - | 100 | - | 100 | - |
| Others | 100 | 500 | 100 | - | 200 | 500 |
| **Total** | **100** | **500** | **200** | **-** | **300** | **500** |
| **Forestry/ plantation** | | | | | | |
| Poplar | 1350 | - | - | - | 1350 | - |
| Arjun | 200 | - | - | - | 200 | - |
| Neem (desi) | 320 | - | - | - | 320 | - |
| Teak (local) | 8958 | 69090 | - | - | 8958 | 69090 |
| Eucalyptus (local) | 10500 | - | - | - | 10500 | - |
| Seasum (desi) | 500 | - | - | - | 500 | - |
| Cajurina | 100 | - | - | - | 100 | - |
| Ashok | 24 | 80 | - | - | 24 | 80 |
| Other | 1200 | - | - | - | 1200 | - |
| **Total** | **23152** | **69170** | **-** | **-** | **23152** | **69170** |
| Others | | | | | | |
| Paddy seedling | - | - | 9000 | 180000 | 9000 | 180000 |
| **Total** | **-** | **-** | **9000** | **180000** | **9000** | **180000** |
| **Grand Total** | **81082** | **97551** | **15100** | **180000** | **96182** | **277551** |

## Production of Bio-Products

The KVKs of Uttar Pradesh produced 70926.45 kg of bio-products whereas the KVKs of Uttrakhand produced 244.65 kg of bio-products. It included vermicompost (46435 kg), NADEP compost (20727.5 kg), FYM (82.15 kg). Besides, KVKs also produced 650 kg bio pesticides. The state wise details are given in table.

**Table 7.13: Production of Bio-Products**

| Bio Products | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty (kg) | Value (Rs) | Qty (kg) | Value (Rs) | Qty (kg) | Value (Rs) |
| **Bio-fertilizer** | | | | | | |
| Vermicompost | 46275 | 233222 | 160.0 | 95300 | 46435 | 328522 |
| Nadep compos | 20725 | 21600 | 2.50 | 1250 | 20727.5 | 22850 |
| FYM | - | - | 82.15 | 8215 | 82.15 | 8215 |
| Other | 104.0 | 8043 | | | 104.0 | 8043 |
| **Total** | **67104** | **262865** | **244.65** | **104765** | **67348.65** | **367630** |
| **Bio-pesticide** | | | | | | |
| Beauveria-bassiana | 50.0 | - | - | - | 50.0 | - |
| Trichoderma Viridi | 50.0 | - | - | - | 50.0 | - |
| Metarrhizium anisoplae | 50.0 | - | - | - | 50.0 | - |
| Botanicals | 500 | - | - | - | 500.0 | - |
| **Total** | **650.0** | **-** | **-** | **-** | **650.0** | **-** |
| **Bio-fungicide** | | | | | | |
| Trichoder maharzianum | 19.0 | - | - | - | 19.0 | - |
| Other | 6.0 | - | - | - | 6.0 | - |
| **Total** | **25.0** | **-** | **-** | **-** | **25.0** | **-** |
| Other bio -product | | | | | | |
| Bio Agents | 80.0 | 1600 | - | - | 80.0 | 1600 |
| Honey | 570.0 | 6840 | - | - | 570.0 | 6840 |
| Lemon pickle | 1224.45 | 73440 | - | - | 1224.45 | 73440 |
| Vermiculture | 9.0 | 1800 | - | - | 9.0 | 1800 |
| Worms | 264.0 | 97700 | - | - | 264.0 | 97700 |
| Verms | 1000.0 | 10000 | - | - | 1000.0 | 10000 |
| **Total** | **3147.45** | **191380** | **-** | **-** | **3147.45** | **191380** |
| **Grand Total** | **70926.45** | **454245** | **244.65** | **104765** | **71171.1** | **559010** |

Livestock (Chick & CARI Devendra) Production: KVK Sitapur-I

Fish production: KVK Kushinagar

### Livestock & Fingerling Production

KVKs of Uttar Pradesh also produced 102 goat kids (Barbari), 1841 Broiler, 36 piglets (Large White Yorkshire), fingerlings 41.32 lakh. Whereas, in Uttarakhand very meagre production of broilers(222), calves (2) and cows(3). The amount of Rs 44140/- was collected from the produce. The state wise details are given in table.

**Table 7.14: Production of livestock & fingerlings**

| Bio Products | Uttar Pradesh | | Uttarakhand | | Grand Total | |
|---|---|---|---|---|---|---|
| | Qty (kg) | Value (Rs) | Qty (kg) | Value (Rs) | Qty (kg) | Value (Rs) |
| Cows | 8 | 12800 | 3 | 4500 | 11 | 17300 |
| Buffaloes | 4 | - | - | - | 4 | 0 |
| Calves | 16 | 85000 | 2 | 8000 | 18 | 93000 |
| Goat | 102 | 256000 | - | - | 102 | 256000 |
| Others | 2 | 154958 | - | - | 2 | 154958 |
| **Total** | **132** | **508758** | **5** | **12500** | **137** | **521258** |
| Broilers | 1841 | 192740 | - | - | 1841 | 192740 |
| Duals (broiler & layer) | - | - | 222 | 31640 | 222 | 31640 |
| Others | 1770 | 8850 | - | - | 1770 | 8850 |
| **Total** | **3611** | **201590** | **222** | **31640** | **3833** | **233230** |
| Piglets | 36 | 34000 | - | - | 36 | 34000 |
| **Total** | **36** | **34000** | **-** | **-** | **36** | **34000** |
| Indian carp | 4132537 | 741482 | - | - | 4132537 | 741482 |
| Exotic carp | 2 | 5000 | - | - | 2 | 5000 |
| Others | 264 | 66000 | - | - | 264 | 66000 |
| **Total** | **4132803** | **812482** | **-** | **-** | **4132803** | **812482** |
| **Grand Total** | **4136582** | **1556830** | **227** | **44140** | **4136809** | **1600970** |

Sheep unit (Avikalin Breed): KVK Chitrakoot

Chapter-8

# CASE STUDIES/SUCCESS STORIES

**State: Uttar Pradesh**

## Fish farming a way of livelihood development: KVK Chitrakoot

Sri Rambhawan Raikwar S/o Sri Chhotku, village Taraon of district Chtrakoot is a marginal farmer having 1.5 acre cultivated land which is not sufficient to fulfill all the requirement of family members he is belonging to fisherman community of other Backward classes. He is traditionally fish farmers before the contact of KVK he was simply engaged in catching and selling of fishes from river and canals. He contacted with the KVK scientist during 2010 and participated in composite fish farming training programme. After the completion of training programme Mr. Ram bhawan taken village pond on lease for fish farming for 10 years. The area of fish pond is 2.5 acre. KVK provided quality fish seed under FLD programme to get maximum yield from unit area. Feeding and water quality management throughout the year scientifically adopted by them. Even prevailing drought condition from last few year Mr. Ram Bhawan planned sold all the fish stock before drying of the pond. He started fish selling when they attain a size of 400 gram at the time of Deepawali festival from pond site. During rearing period of 10 month he sold all the fish stock. He is earning on an average of Rs.1.00 to 1.25 lakh last three years from a ha. pond area annually. During 2012-13 he got best fish farmers award under Nanaji Deshmukh Utkrisht Krishak Puraskar for getting higher yield and return from seasonal ponds. Now he is very happy with his profession and motivated six farmers of Bhaisondha, Taraon and Bharatkup to adopt his technology and time management to get production approximately 22 q/ha/10 month culture period.

Technology adopted – Manuring and fertilization before stocking

- Stocking of large size fingerlings
- Feeding with locally available supplementary feed.
- Marketing of fish at appropriate time and weight.

## Off Season Cultivation of Cauliflower as Intercrop in Sunflower: KVK Pratapgarh

Mr. Sunil Kumar Maurya, Village Sahabad P.O. Manikpur, District Pratapgar. Mr Maurya is having area of 1 ha upland sandy loam soil. He has started vegetable cultivation in 2008 with the traditional farming system and was not getting the good returns from his field.

Mr. Maurya visited the KVK in 2009 for laser levelling of his vegetable field. During the interaction with the scientist, he expressed his concern about low economic return from the field. The KVK scientist visited his field and chalked out his plan of production for the vegetable cultivation considering the available resources and soil type. The emphasis was given in the crop diversification to produce off season vegetable and arrange the sequence of the crop in such a way that before the maturity of one crop and other crop start fruiting.

Mr. Maurya have planted many combination of the vegetable crop. Cultivation of off season cauliflower as intercrop in sunflower during summer is one. The description of the technology are –

1. Sunflower was sown in the month of February at the distance of 3 m row distance.
2. After 10 days cauliflower was transplanted at the distance of 60x45 cm. as intercrop.

**Economic Analysis**

| Crop | Yield (q/ha.) | Gross Income (Rs.) | Cost of Production (Rs.) | Net Income (Rs.) | B:C Ratio |
|---|---|---|---|---|---|
| Cauliflower | 144 | 172800 | 42500 | 130300 | 4.06 |
| Sun Flower | 5 | 15000 | 4000 | 11000 | 3.75 |
| **Cauliflower+ Sunflower** | | **187800** | **46500** | **141300** | **4.03** |

Four row of cauliflower were planted between the sunflower rows (3 m). during the summer when the temperature is very high which is not conducing for the vegetative growth of the cauliflower crop. The sun flower plant grows high which has been sown at the distance of 3 m row to row provides shed to the cauliflower crop to protect against high scorching sun light and at the same time create humid climate around the cauliflower crop and produce healthy crop during summer.

## Diversity Became the secret of Success: KVK Hardoi

Sri Genda Singh Rawat, R/o Village- Magtai, Block- Murasan, Distt- Hathras, Uttar Pradesh is a small farmer. Because of diversification in agriculture crop and entrepreneur, production and use of NADEP Compost Sri Rawat getting more and more profit from growing cotton, potato, mustard wheat and bajra, Sri Rawat known as an innovative farmer among the farmers of district side by side by the production & use of NADEP and milk production. By this achievement of Sri Rawat the farmers of District are getting inspiration and they are also trying to diversify their agriculture.

Intermediate passed Sri Rawat getting benefit by growing various crops and milk production on his 6 acre land since last four years. The technologies and its application in his field is natural hoby of Sri Rawat. By Producing NADEP Compost Sri Rawat not only getting profit by sale it to farmers but also improving the soil health by applying it to own field. Because of all above the activities Sri Rawat is becoming the source of inspiration among the farmers of the district.

Potato is one of the profitable crops in the District but due to use of imbalance and chemical source of nutriments this crop is becoming the non profiting crop day by day. The another reason for that is its monoculture. Sri Rawat getting profit from potato because of using organic source of nutrient and following suitable crop rotation/diversified crops.

The climate and soil of District is suitable for cotton but the area under cotton decreasing day by day. Sri Rawat started its cropping and getting profit by getting training by Scientist of Krishi Vigyan Kendra.

By getting training from K.V.K. Sri Rawat also started the production of NADEP Compost side by side. In this way this compost is being used in potato crop which is causing improved quality of potato and it also caused an initiative in improving the soil health which is of great concern now-a-days. from last three year Sri Rawat have got Rs. 50000 per year by selling the 100 Qtl of NADEP Compost.

By introducing cotton in crop rotation Sri Rawat not only getting the profit but it also helping in concerning the soil and water.

Since last two years Sri Rawat grows the wheat of in 2 acres for seed production and getting Rs. 1 lac / ha per year. (55 q/ha @ Rs. 1800/q)

By consulting with K.V.K. Sri Rawat diversified agriculture and started animal husbandry. Now-a-days He producing 20 l/day from 3 buffalo of Murrah breed. By selling milk to cooperative Sri Rawat getting an income of Rs. 700-800 per day.

After getting training on integrated nutriment management Sri Rawat started growing summer bajra with INM and got 35-40 q/ha and earning of Rs. 35000/ha.

## Integrated Farming System for economic empowerment

Radhey Shyam Yadav S/O Sri Dinai Yadav is a Farmer belongs to Vill-Vashawa Rai, Block-Parashrampur, Distt.-Basti (U.P.). His Aged 52 Years old and Qualification has M.A. The Vashawa Rai village located in 30Km away from District Headquarter and 8Km from Vikramjot on NH-28.

**Previous Status of Farming-**

He has 10Acre Land and a small Kachacha House with one Milking Cow initially he adopted simple traditional crop rotation Paddy-Wheat-Sugarcane.

**Intervention by Krishi Vigyan Kendra -**

Sri Yadav Participated in vocational Training Programme

during 2009-10 at Krishi Vigyan Kendra. He emphasized in this training and requests to scientist visit his farm. Scientist advised him to reduce sugarcane area and prepare a fish ponds with duck Farming. The area is situated near his residence.

**Present Status of Farming -**

Sri Yadav starting integrated fish farming after achieving technical knowledge. He has 3 ponds with area 1 ha. and .4 ha as a nursery pond. 250 layer Ducks, 31 Emus, 3 Cows, 2 Buffalos, 1 Gobergas Plant, 35 Papaya Plants, 45 Banana Plants, 4 Anola Plants, 25 Mango Plants and .2 ha Vegetables through out the Year, 1 Motercycle, 1 Diesel Pumping set and 1 Electric Tube well Etc.

**Effect on Socio Economic Status -**

Income from fish ponds 85 q Fish and 73000 eggs annually. He is getting Rs 45000 per month as an additional income from Fish and Duck Farming.His socio economic status is recognized as a Progressive Farmers. He has built a builds a new house and provided better education of Son and daughter.

**Effect on other Farmers -**

37 Farmers are impressed and adopt integrated farming system after viewing the result demonstration of Integrated Fish Farming.

## Mobile sprinkler set for irrigation and foliar spray on crops: KVK Gonda

The farmer Shri Ram Sajiwan of village- Pipra Adai, block- Babhanjot, Gonda has invented a mobile sprinkler set for irrigation and foliar spray on crops. This instrument is very small (portable) and based on low cost technology. He is awarded first prize by President of India among the innovators exhibition 2014 at New Delhi. He has already applied this technology for patent. The Head of department of irrigation and water management, Dr. Ramadhar Singh of CIAE, Bhopal (MP) has visited at their village to see this innovative technology and suggested him to refine this technology for greater benefit to the farmers to save time and water in irrigation. Sri Ram Sajiwan give his full credit to KVK Gonda because KVK support him all time during his innovation.

## Small advice made big difference: KVK Siddharthnagar

Shri Ghiraoo Prasad S/o late Shri Nirahoo Prasad age 6 lived in village Sohna Block Bhanavapur Distric Siddharthnagar farming on his parental agriculture lan about one acre since last 40 years but ispite of his har work he never got sufficient money to spend freely bu any how he able to manage to fulfill the requirement o his 15 members family. In his one acre land he grow ric –wheat for the family and every year. He takes one bigh land on hoonda every year for vegetable cultivation meet the daily expenditure of family. Land on hoonda wa available in the month of February @ Rs.2000 /bigha up month of September. In the first week of March he sow th ladies finger variety Awantika on land borrowed

hoonda. Crop started fruiting after 45 days and gave a good yield upto last June but after than fruiting decreased drastically due infestation of disease and insects and there was no meaning of continuing the crop. He visited the KVK and requested to the scientist for visiting his field for better option. KVK scientist visited his field and advised him to cutting of bhindi plant at height of 2 feet and pruning of the plants with intercropping of sponge gourd which trail on bhindi plant. Farmer convenience with the advice and followed it. After cutting and pruning of bhindi plant weeded out the field and a spray of emidachloprid @0.5 ml/litre was done to control the white fly and other sucking insect. He fertilized the crop @ 25 kg DAP +25 KG urea through broadcasting with a hoeing and earthing. Sponge gourd seed sown in the second week of July. Fruiting in bhindi restarted after 25 days of pruning and in sponge gourd fruiting started after 30 days of sowing. Spray of micronutrient was done at a interval of 15 days and a dose of 25 kg DAP + 25 kg urea also top dressed with shallow hoeing. He recorded 1400 kg bhindi up to June as pure crop and after adopting this technique he produced 675 kg bhindi + 1067 kg sponge gourd with a expenditure of Rs. 7220/bigha.

| S.N. | Details | CostRs./ Bigha | Production Kg/bigha | Gross return /bigha | /ha | Net return (Rs.) /bigha | /ha |
|---|---|---|---|---|---|---|---|
| 1 | Cost of cultivation of Bhindi upto June | 5862 | 1400 | 28000 | 224000 | 22138 | 177104 |
| 2 | Cutting & pruning 4 labour | 400 | - | | | - | |
| 3 | — . | 500 | - | | | - | |
| 4 | Fertilizer 50+ 50 kg DAP & Urea +10 kg MOP | 1760 | - | | | - | |
| 5 | Micronutrient 200 g | 200 | - | | | - | |
| 6 | Labour for spray 2@ Rs. 100 | 200 | - | | | - | |
| 7 | Emidachloprid | 100 | - | | | - | |
| 8 | Hoeing & earthing 5 labour | 500 | - | | | - | |
| 9 | Seed of sponge gourd | 100 | - | | | - | |
| 110 | Sowing 1 labour | 100 | - | | | - | |
| 10 | Irrigation 3 @ Rs.120/hrs | 360 | SG 1067 | 21340 | | | |
| 11 | Harvesting & grading 30 labour | 3000 | Bhindi 675 | 13500 | | | |
| 12 | Total (2 to 11) | 7220 | | 34840 | 278720 | 27620 | 220960 |
| | Grand total | | | 62840 | 502720 | 49758 | 398064 |

Cost of cultivation of bhindi Rs. 38894 /ha. Selling price of bhindi Rs. 20/kg and sponge gourd Rs. 20/kg

He also told that this method produced good quality sponge gourd compared grown with traditional method and generated an extra men days for the family members which were jobless during rainy season. His family members did all the cultural practices themselves so they have saved the labour cost of Rs. 4700/ which increase the family income considerably

## Self employment opportunity in goat farming : Kaushambi

Mr. Masroof s/o sri Maqbool Ahmad and Mr Mobin s/o Hazi Navi Mahammd, residing at Deviganj, tehsil-Sirathu, Kaushambi, U.P. were doing a small scale business at Bombay with local contract delar but did not earned satisfactory. When he came back to home town, he observed that there is good scope in small animal treading like goat and sheep. Same time he joined seven days one training programme organized by BSVS (Baroda Swarojgar Vikas Sansthan) at manjhanpur. After completion of training he contacted further with KVK and also mention their views to start own employment as Goat Farm unit. He was advised to get training on self employment opportunities during 2012. He also attended training on goat farming. After that he got confidence to keep goat rearing farm, he started Al Noor Goat Farm Co-operative Society, Dviganj Bihamidpur, Saini, Sirathu, Kaushambi and registered as a dealer for cattle feed, eggs and livestock fish meat poultry feed etc. With the help of KVK he submitted a project proposal to bank for funding goat farming and got it. With efforts of KVK and bank, he got a project from NABARD (centrally sponsored scheme interrogated development of small ruminant) amount Rs. 24 Lakh with margin money of Rs. 2.5 lakh.

He started to rear goats in semi stall feeding system with other partner Mr. Mobin and with the technical expertise from KVK. He purchased animals from CIRG, Mathura and local market with herd size up to the total stock of 300 animals (500 in future) within year. Then he has planned to sale the animals at about regular interval of one year age of animals and also he has undertaken low cost feed production technology which was given by KVK for improving quality of feed in order to meet daily nutrient requirement of animals.

Last year he sold 65 animals of weight 37-45 kg. The cost of each male goat was Rs. 8000-10,000 and he gained about 4.5 lakh per year. He also makes NADEP compost from litter material as manure to agriculture land. Now he is planned to extended the total stock of the animals at


Al Noor Goat Farm Co. Operative Society, Sirathu Kaushambi

adjacent village to make groups and established new society and also engaged with other NABARD plan key goat producer link for whole district. He is also satisfied from this opportunity and he is going to enhance the farm by new technology under guidance of KVK.

## Story of Chilly Farmer: Bulandshahar

**Title** : Increase production and potential of Chilly.

**Introduction** : Arka Maghena, G-4.

**KVKintervention** : Training, Demonstration.

**Output** : Started with 0.20 ha chilly in 2011 and gained net income Rs. 83495.00/ha and now 0.40 ha. chilly in 2013 and gained net income Rs. 165500.00/ha.

**Outcome Impact** : Started with yield 102.5 qt / ha and extended to 132.6 qt / ha.

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.

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 practices and other such aspects.

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, in next year 2013 again expanded area up to 0.40 ha and flourished yield of 132.6q / ha with net profit of Rs 165500.00. At present time his crop is still there in the field and the area is 0.50 ha.

Now he is quiet satisfied with the production and the income he benefitted with. Earlier he was involved in traditional farming system and so he was dissatisfied with the less earnings. Now he is happy and in regular touch of KVK and eager to introduce some other diversifications in the farming pattern.

**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 | Contd. | | | |

Diversifications of existing cropping system determine the path of food security, economic development and also improve the livelihood security of farming community. The country is endowed with a rich diversity of natural resources. Therefore, there is need to develop crop diversification model for improving the socio-economic status of small and marginal farmers.

Sri Ram Surat Chauhan belongs to a resource poor marginal farmer living in village chak Khairullah of Rani ki Sarai Block of Azamgarh district of Uttar Pradesh. He generates income from 2.1 ha. cultivated land and one milch cattle and any how meets out the need of his family. He utilized available land for production of cereals, pulses and oilseeds etc. In spite of the importance of said crops, he could not generate sufficient income to uplift living standard and to provide better education for children.

Sri Chauhan came in contact with KVK, Azamgarh during 2006 through a vocational training where information about establishment of agro based enterprises along with other technical knowledge were being given by the scientists. Being enthusiastic in nature, he attended frequently more number of seed production, diversification farming, dairy development, bio fertilizer/ organic manure etc related programmes at KVK and finally decided to diverse own traditional farming system and started the same from rabi 2006.

Initially he started poultry production with 500 birds and got some more profit and as a result he enhanced the rearing capacity to the extent of 2000 birds. The by-products like litter was used directly for vermi composting. As he started receiving good income, he constructed 20 vermi compost pits for better utilization of huge quantity of poultry by products. He is now producing and using large quantity of valuable vermi compost in crop production and also earns Rs. 80000 by selling in the market.

In dairy component, three cows and three buffaloes are producing approximately 20 liter milk/day. A huge quantity of rotten FYM is also obtained as by product of dairy unit which also encouraged him to to adopt

sustainable farming by reducing pressure of chemical fertilizer in crop production sector.

He also established horticultural nursery in which teak, papaya, mango, guava, aonla, bael and seasonal vegetables are developed commercially. It also provided daily income along with full utilization of available resources leads to build an ideal nursery in coming future. In crop production sector he commercially raised rice, wheat, pigeon pea, gram, urd for meeting the daily need of food requirement and rest quantities are sell in the market for income.

Out of the agro-based enterprises/enter prenureship development for income generation and wide adoptability that ETV Hyderabad and Doordarshan Mau has covered his efforts and broadcast on respective channels as an model for diversification of existing system.

By observing such a success and property achieved by shri Chauhan, other farmers were also motivated and came into contact with KVK. Looking to the interest and curiosity among the farmers of nearby villages, the KVK organized trainings and other extension activities from time to time. The details about income generation from different units are given as hereunder & the values are in tables also based on farmer perception.

| S.No | Enterprize | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|
| | **Annual Income (Rs) from various enterprises** | | | | | | | |
| 1 | **Crop Production** (cereals,pulses,oilseeds) | 70000 | 60000 | 55000 | 55000 | 62000 | 76250 | **70400** |
| 2. | **Poultry Production** | 12000 | 12000 | 22000 | 22000 | 25000 | – | – |
| 3. | **Dairy Production (Rs/day)** | 200/day | 245/ day | 330/day | 400/day | 400/day | 550/day | **480/day** |
| 4. | **Vegetables** (Veg.Pea, Cucurbits, Cauliflower, Radish etc) | 4000 | 5000 | 5500 | 7000 | 5000 | 63600 | **58350** |
| 5. | **Nursery** | - | - | - | 25000 | 4100 | 144100 | **98780** |
| 6. | **Vermi compost** | - | - | 25000 | 80000 | 54000 | 51000 | **60200** |
| 7. | **Marigold Production** | - | - | - | - | 300 (starting) | 1900 | **20000** |

Lastly he took financial support and help from NABARD in developing the such units for Rs. 3 lakh granted by Kashi Gomati Sanyukt Gramin Bank,Belaisa,Azamgarh. A regular monthly installment of interest is paid by me from gross income and rest amounts are using as per my need and family development. The Krishi Vigyan Kendra had played an ideal role in changing his attitude and livelihood also.

## Dairy Farming as successful Venture

This is the story of Sri Lalsa Yadav now a successful agriculture farmer of village Sidhari Post-Sidhari, Dist-Azamgarh (U.P.) who is earning a lot through the diverse agriculture enterprises such as rice wheat cropping system, vegetable etc. Village Sidhari is situates at 6 Km. away from KVK, headquarter on Mau road. It is an adopted village of Krishi Vigyan Kendra, Azamgarh. Sri Yadav is one such achiever whose story does not finish by achieving success in the field of agriculture after achieving heights in agriculture. There came a turning point one day while the processing of grains was going on, a lot of waste material was generated which he needed to dispose out. It was very cheap in the market. At this point he thought of utilizing it by feeding to livestock.

He visited Krishi Vigyan Kendra in search of more information about animal husbandry. This was the first point at which he became aware about the potential of livestock as a source of income generation after coming to Krishi Vgyan Kendra, he discussed with animal scientists in detail, where he got a lot of information and literature in hindi on various aspect of livestock farming, i.e. breeding, feeding, management, health care, marketing aspect and how to start these enterprises. He became very enthusiastic to open a dairy farm to support of this KVK. After discussing with the scientist at the KVK Sri Yadav started a dairy on his farm land with the technical help of Krishi Vigyan Kendra. Thus his very started with a total four cross breed cow and three female calves. His cross

breed cows yield approximately 12-16 litres milk per day per cow. Among these technologies the most important was the advice of mineral mixture by animal scientist, which he started feeding to his three cows (10-12 month of age) @ 15 gm/day/animal within 26 month these three cows parturated and started giving @ 10-15 lit. of milk/day. Those animals which were not coming into heat, after feeding of mineral mixture these become pregnant.

**Impact:**

At present 5 cows are producing milk @ 11-16 lit and two are pregnant. Total milk production is approximately 65 lit/da. The milk is sold in the local market in near by area @ Rs. 20/lit. The total expenditure at dairy is approximately Rs. 1.8 lakh and he earns a net profit of approximately Rs. 1.15 lakh /year. He vaccinates the animals at regular interval against HS and FMD. He also does regular deworming of his livestock thrice a year and ectoparasital spray for two three time a year. He feed planty of green fodder to his animal viz Berseem, Bajara, Chary and the Dry fodder includes wheat straw and hay. He provides concentrate as per a need of animals i.e. 1-2 Kg for maintenance and half Kg/lit of milk among with 50 gm mineral mixture and salt extra. He is taking all care in respect of prevention and therapeutic management of various kinds of livestock diseases.

Sri Yadav has been awarded "Best Dairy Farmer Award" in 2009-2010 by KVK, Azamgarh for his achievement in livestock sector. A dynamic person Sri yadav proves to be a successful farmer and a moral support to the farmers and livestock owners of his nearby areas. Now his family always appreciated the effort of KVK, Azamgarh for helping, establishing of dairy enterprises.

## Honey bee adding money to farm income

**Introduction**

Name of farmer : Sri Rajanikant (mob.9452784948)

Village : Panditpura Block: Belhari District: Ballia

Sri Rajanikant is 38 year progressive farmer of village panditpura, block- Belhari, District – Ballia (Mob, 9452784948). Once upon a time his wife become ill and doctor advised to take medicine with honey. He incurred lot to purchase honey from local market since then he decided to produce honey at his own. He owned only one acre land. During a Gosthi he meet with scientist of KVK Ballia and expressed his desire to produce honey. For this scientist invited him at KVK and trained him for honey production.

Sicne 2007 he started honey production along with wax. He started his honey bee keeping business with a small amount of Rs. 8600/-. The input – output details are given in Table – 1. Sri Rajnikant has become a source of inspiration for other farmers of the district. Due to limited land resouce he has to transport honey bee boxes to other places such as Buxar, Gazipur, Muzaffarpur (Bihar), Mau, and Malhiabad, etc. Farmers of these places request him to put his boxes in their orchard becouse it increase polination as a result increase in production

**Table: Expenditure – Income details of Sri Rajanikant Bee Keeping business**

| Year | Net of Box | Expenditure, Rs. | Production Kg. Honey | Wax | Total income Rs. | Total profit Rs. |
|---|---|---|---|---|---|---|
| 2007-08 | 10 | 4000 | 210 | 02-May | 12600 | 8600 |
| 2008-09 | 20 | 7000 | 380 | 04-Jul | 25000 | 18000 |
| 2009-10 | 40 | 10000 | 720 | 10-Oct | 47800 | 37600 |
| 2010-11 | 60 | 16200 | 915 | 13-25 | 85000 | 68800 |
| 2011-12 | 70 | 18800 | 1020 | 15-Mar | 106000 | 87300 |
| 2012-13 | 80 | 20450 | 1155 | 17-25 | 128200 | 107750 |
| 2013-14 | 80 | 12000 | 1145 | 17-00 | 130500 | 118500 |

## Bee keeping and Vegetable Production increase the livelihood of small farmer

Sh. Yadvendra Dutta Maurya is a post graduate belonging to village Barsathi under Barsathi block of Jaunpur district in U.P. state. He came in contact with KVK Jaunpur in the year 2007. Till then he had been cultivating vegetables of brinjal, chilli, potato, tomato and cole crop in traditional pattern on total 1.0 acre field and earned only Rs. 40,000 net income per annum. He has undergone training on bee keeping from plant protection scientist of this center and started the bee keeping first time from 5 boxes. Now at this time 2012-13 he has 500 boxes and earn lot. The improved technology for vegetable production based on IPM through training and Front Line Demonstrations. After adoption of bee keeping with improved cultivation of vegetables he earned about Rs. 10 lakh net income per annum. Mr. Maurya also supply the bee boxes, bee colony and waxy sheets to bee keepers. Thus there was overall increase in the livelihood of Mr Maurya and his family.

## Mixed Farming with mushroom enhance the income: Jaunpr (U.P.)

Sh. Santosh Tiwari is intermediate passed and belons to village Dihiyan under Khuthan block of Jaunpur district in U.P. state. He had been cultivating paddy, maize, wheat crops on traditional pattern and earned only Rs. 60,000 net income per annum from own 5.0 acre field. For the first time he came at KVK in a training programme. Mr. Tiwari Started the bee keeping, mushroom production and scientific cultivation of vegetable and cereal crops after training & demonstrations which was provided by KVK scientist. He has also started to provide sprayers with recommended dose of pesticide solution to farmers of the village on custom hiring services. After adoption of bee keeping, mushroom production, scientific cultivation of vegetable & cereal crops and custom hiring system he earned about Rs. 5 lakh net income per annum.

**State: Uttarakhand**

## Profitability by tomato-mustard cropping systems in hills of Almora

Shri Bahadur Singh Kandari, Village- Kumaleshwar, PO-Deghat, Block - Syalde, District – Almora

**Description of innovation**

Like other hilly area farmers h was also growing traditional crops with the rotation of spring rice-wheat/Mustard-Finger millet+ Horse gram /soybean-fallow. The yield obtained with this system is very poor even some time he could not harvest the seed that he had sown in the field. Realizing the problem Shri Kandari has developed an innovation i.e. practice of Tomato- Mustard based cropping system in the area as an alternative to Upland rice/ Mandua based cropping system. In this innovation Sh. Kandari started the cultivation of Tomato followed by mustard instead of traditional cropping system. In tomato (Badshah) by 4-6 pickings usually he gets 15-18 q of tomato in 4 nali area by which he gets a net income of Rs. 2.4 lakh. Similarly in rabi he harvest 15 q/ha mustard (Pant Pili Sarson-1) and get an additional income of Rs. 30,000.00. In this way, through this innovation Sh. Kandari earns Rs. 2.70 Lakh per annum. Contrary to this through traditional system hardly he get Rs. 45,000-50,000 from the same area. Apart from this enterprise, he has a well established dairy with 5 cows. This dairy supports Sh. Kandari in crop and vegetable production.

**Practical utility of innovation :** Tomato-Mustard system and dairy provides cash flow through out the year, improve soil health and proper use of available resources. This approach is sustainable and there is no problem in marketing. This system adopted by farmers is more profitable and is being used as a model for other farmers

## Commercial dairy farming with Cross Breed cows : Haridwar

**Introduction:** Cross breed cows contribute a lot in district milk production system. Majority of cross bred cows are consist of Holstein Friesian blood.

**KVK Intervention:** Mr. R. D. Sharma, resident of Kharanja, Kutubpur, block: Lakhsar (Haridwar) during the year 2011 came in contact of KVK animal scientist and gone through commercial dairy farming training and dairy visits organized by KVK center. Due to his keen interest in commercial dairy farming KVK scientist helped him to prepare a 40 dairy animal's project to get financial assistance from bank. With the help of KVK guidelines he established commercial dairy unit, vermi compost unit and biogas unit at their agriculture land.

**Output:** Mr. R. D. Sharma started commercial dairy with 20 cross bred cows, majority of them consist of HF blood and not less than production of 5000 liter milk per lactation. After production of milk, he supplies the whole quantity to cooperative unit ANCHAL. In Initial stage, through marketing of 200 lt. milk per day getting Rs. 2500/- per day net profit. During September 2012 he started own milk out let at Lakshar. Now due to sale of milk he is getting Rs. 4500/- per day net profit. He is providing vermi compost for their field crops and biogas for cooking purpose through cattle dung.

**Impact:** Integrated farming reduces the production cost of crops as well as food cooking expenditure. Now days he is planning to start production of milk products like Lassi, Khoya, Paneer, etc. to maximize his net profit.

Inauguration of dairy at Kutubpur Village

## Processing and packaging for income enhacement

Krishi Vigyan Kendra, Kashipur under the concept of minimal processing unit is organizing trainings and providing technical information and guidance to rural women on processing and packing of spices. Processing of spices at domestic level is attracting women and they are feeling motivated to start this as home based enterprise. Under the minimal processing unit, established at KVK by ICAR, women are being trained and given method demonstration or grinding of through grinding machine and finally packing them women are being trained and encouraged for processing of turmeric (haldi) and coriander through grinding machine, technical knowledge and spices of packaging and information on marketing of the same. KVK has conducted 3 days training programme on processing of haldi and coriander, in which rural women of Himmatpur village, block kashipur have participated and gained technical know how.

Scientists have also conducted field visit which created awareness among women on processing of spices for income generation woman of these village also motivated women of other villages on this aspect. In this context two women-Smt Kiran Devi, W/o Sri. Shravan Kumar and Smt. Reena Devi W/o Niranjan Singh contacted home scientists of the centre and gained technical information on processing of spices. This technique attracted the two women and they started this as on income generation enterprise at their own level. These women in future want to establish this practice as a source of regular income generation enterprise by involving more women.

Chapter-9

# INFRASTRUCTURE DEVELOPMENT

Most of the KVKs of U.P. and Uttarakhand has developed their infrastructure as per ICAR norms. Administrative building (80), Farmers Hostel (73), Staff Quarters (71), Soil tesing lab (50), Water Harvesting structure (9) are developed at KVK end. Total 68 demonstration units are available at KVKs. In case of vehicles; 80 jeeps, 75 tractors are running under different KVKs. (Table 8.1)

**Table 9.1: Basic infrastructural facilities available in KVKs of U.P. & Uttarakhand**

| S. No | KVK District | Year of establishment | Land with KVK (ha) | Availability of Admin building | Farmers hostel | Staff quarter | Soil testing laboratory | Water harvesting structure | Demonstration Unit-1 (Livestock related) | Demonstration Unit-2(Horticulture/Poly House Related) | Demonstration Unit-3(Vermi Comp./Mushroom U./Others) | Jeep | Tractor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Bahraich | 1983 | 13.60 | Yes | Yes | Yes | Yes | No | Dairy Unit, Fish Unit | Fruit Plant Nursery | - | Yes | Yes |
| 2 | Basti | 1989 | 20.00 | Yes | Yes | Yes | Yes | No | Goatary Unit | Horticulture Unit | Mushroom Unit | Yes | Yes |
| 3 | Ballia | 1984 | 9.6 | Yes | Yes | Yes | Yes | No | Poultry, Goatary | - | - | Yes | Yes |
| 4 | Mau | 1989 | 21.00 | Yes | Yes | Yes | Yes | No | Poultry Unit, Fish Unit | - | - | Yes | Yes |
| 5 | Varanasi | 1989 | 12.35 | Yes | Yes | Yes | Yes | No | Fish Pond | Vegetable Nursery | - | Yes | Yes |
| 6 | Siddharthnagar | 1992 | 16.40 | Yes | Yes | Yes | Yes | No | Poultry Unit | Horticulture | Vermi compost | Yes | Yes |
| 7 | Faizabad | 2004 | 20.00 | Yes | Yes | Yes | Yes | No | Bee keeping | - | Vermi Compost, Nadep Unit | Yes | Yes |
| 8 | Gorakhpur | 2004 | 13.11 | Yes | Yes | Yes | Yes | No | - | - | Vermi Compost | Yes | Yes |
| 9 | Maharajganj | 2004 | 4.00 | Yes | Yes | Yes | Yes | No | Goatary Unit | - | Mushroom Unit, Nadep Unit | Yes | Yes |
| 10 | Sonbhadra | 2004 | 4.80 | No | No | No | Yes | No | - | - | NADEP Unit | Yes | Yes |
| 11 | Azamgarh | 2004 | 17.00 | Yes | Yes | Yes | Yes | No | Goatary Unit | - | Vermi Compost, Nadep Unit | Yes | Yes |
| 12 | Barabanki | 2004 | 12.50 | Yes | Yes | Yes | Yes | No | Goatary Unit | - | Vermi Compost | Yes | Yes |
| 13 | Balarampur | 2005 | 16.32 | Yes | Yes | Yes | No | No | Goatary Unit | Nursery | - | Yes | Yes |
| 14 | Chandauli | 2005 | 8.00 | Yes | Yes | Yes | Yes | No | - | Nursery Unit | Vermi Compost | Yes | Yes |
| 15 | Jaunpur | 2005 | 7.20 | Yes | Yes | Yes | Yes | No | Goatary Unit | - | Agriculture Implement | Yes | Yes |
| 16 | St. Kabir Nagar | 2009 | 24.00 | Yes | Yes | Yes | No | No | - | - | - | Yes | Yes |
| 17 | Ambedkar Ngr | 2010 | 9.735 | Yes | Yes | Yes | No | No | - | - | - | Yes | Yes |
| 18 | Jhansi | 1984 | 22.50 | Yes | No | Yes | Yes | No | - | Nursery | Vermi Compost, NADEP Unit | Yes | Yes |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | Raebareli | 1984 | 9.80 | Yes | Yes | Yes | Yes | No | Poultry Unit, Fish Unit | - | Mushroom Unit | Yes | Yes |
| 20 | Fatehpur | 1989 | 10.20 | Yes | Yes | Yes | Yes | No | Nursery | - | NADEP Unit | Yes | Yes |
| 21 | Aligarh | 1992 | 20.00 | Yes | Yes | Yes | Yes | No | Bee keeping | Nursery, Medicinal Plant | - | Yes | Yes |
| 22 | Kannauj | 2004 | 10.00 | Yes | Yes | Yes | No | No | Dairy Unit | - | Vermi Compost | Yes | Yes |
| 23 | Etawah | 2004 | 6.50 | Yes | No | Yes | No | No | Dairy Unit | - | Vermi Compost | Yes | Yes |
| 24 | Mainpuri | 2004 | 10.00 | Yes | Yes | Yes | Yes | No | Bee keeping | - | Vermi Compost, NADEP Unit | Yes | Yes |
| 25 | Kanpur Dehat | 2004 | 20.00 | Yes | Yes | No | Yes | No | Bee keeping, Poultry | - | Vermi Compost | Yes | Yes |
| 26 | Mahoba | 2004 | 8.00 | Yes | Yes | Yes | Yes | No | Goatary Unit, Poultry Unit | - | - | Yes | No |
| 27 | Firozabad | 2004 | 20.00 | Yes | Yes | Yes | No | No | Poultry | - | Vermi Compost | Yes | Yes |
| 28 | Hamirpur | 2005 | 12.70 | Yes | No | Yes | No | No | Dairy Unit | - | Vermi Compost | Yes | Yes |
| 29 | Lakhimpur Kheri | 2005 | 20.00 | Yes | Yes | Yes | No | No | Dairy Unit | - | - | Yes | Yes |
| 30 | Farrukhabad | 2005 | 20.00 | Yes | Yes | Yes | No | No | - | - | - | Yes | Yes |
| 31 | Jalaun | 2005 | 23.30 | Yes | Yes | Yes | No | No | - | - | Vermi Compost | Yes | Yes |
| 32 | Lalitpur | 2005 | 20.33 | Yes | No | Yes | No | No | - | Nursery, Medicinal Plant | Vermi Compost | Yes | Yes |
| 33 | Hardoi | 2005 | 16.00 | Yes | No | Yes | No | No | Dairy Unit | - | Vermi Compost | Yes | Yes |
| 34 | Banda | 2007 | 8.89 | Yes | Yes | No | No | No | - | - | - | Yes | Yes |
| 35 | Mahamaya Nagar | 2009 | 20.75 | Yes | Yes | Yes | No | No | - | - | - | Yes | Yes |
| 36 | Mathura | 1984 | 21.00 | Yes | Yes | Yes | Yes | No | Dairy Unit | - | Vermi Compost | Yes | Yes |
| 37 | Bijnor | 1992 | 13.35 | Yes | Yes | Yes | Yes | No | - | - | Mushroom Unit, Bio-control Unit | Yes | Yes |
| 38 | Rampur | 1992 | 12.81 | Yes | Yes | Yes | Yes | No | - | Poly House | Vermi Compost, Mushroom Unit | Yes | Yes |
| 39 | Budaun | 1992 | 22.28 | Yes | Yes | Yes | Yes | No | Carp Hatchery | Horticulture Unit | Agro-Forestry | Yes | Yes |
| 40 | Saharanpur | 1992 | 10.10 | Yes | Yes | Yes | Yes | No | - | Nursery | Vermi Compost, Mushroom Unit | Yes | Yes |
| 41 | Ghaziabad | 1992 | 15.64 | Yes | Yes | Yes | No | No | - | - | Mushroom Unit, Bio-control Unit | Yes | Yes |
| 42 | Shahjahanpur | 1994 | 18.31 | Yes | Yes | Yes | Yes | No | - | Horticulture | Mushroom Unit | Yes | Yes |
| 43 | Meerut | 1994 | 8.82 | Yes | Yes | Yes | Yes | No | - | Mango Orchard | Engineering Workshop | Yes | Yes |
| 44 | Muzzafarnagar | 1994 | 10.60 | Yes | Yes | Yes | Yes | No | Honey processing Unit | - | Vermi Compost | Yes | Yes |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | Pilibhit | 1998 | 12.00 | Yes | Yes | Yes | Yes | No | - | Horticulture | Mushroom Unit | Yes | Yes |
| 46 | Baghpat | 2004 | 12.56 | Yes | Yes | Yes | No | No | - | Horticulture | Mushroom Unit | Yes | Yes |
| 47 | Morarabad | 2005 | 17.50 | Yes | Yes | Yes | Yes | No | - | Horticulture | Mushroom Unit | Yes | Yes |
| 48 | G.B. Nagar | 2005 | 15.64 | Yes | Yes | Yes | Yes | No | - | Nursery Unit | Vermi Compost | Yes | Yes |
| 49 | Bulandshahar | 2004 | 15.54 | No | Yes | Yes | No | No | - | - | - | No | No |
| 50 | Sultanpur | 1976 | 73.30 | Yes | Yes | Yes | Yes | No | Fish Unit | Horticulture Nursery | - | Yes | No |
| 51 | Etah | 1992 | 45.50 | Yes | Yes | Yes | Yes | No | Poultry Unit, Goatary Unit, Dairy Unit | - | - | Yes | Yes |
| 52 | Mirzapur | 1984 | 20.00 | Yes | Yes | Yes | Yes | No | - | Horticulture Unit | Vermi Compost | Yes | Yes |
| 53 | Gonda | 1989 | 21.30 | Yes | Yes | Yes | Yes | No | Poultry, Goatary Unit, Dairy Unit, Piggery Unit | Horticulture Unit, Vegetable Nursery | - | Yes | Yes |
| 54 | Chitrakoot | 1992 | 19.65 | Yes | Yes | Yes | Yes | Yes | Goatary Unit, Dairy Unit, Piggery, Poultry | Horticulture | - | Yes | Yes |
| 55 | Allahabad | 1992 | 26.70 | Yes | Yes | No | Yes | No | Piggery | Horticulture | - | Yes | Yes |
| 56 | Pratapgarh | 1999 | 20.11 | Yes | Yes | Yes | No | No | Poultry | Horticulture | IFS | Yes | Yes |
| 57 | Unnao | 1999 | 20.34 | Yes | Yes | Yes | Yes | No | Bee keeping, Dairy Unit, Goatary | - | Vermi Compost | Yes | Yes |
| 58 | Bareilly | 1985 | 6.90 | Yes | Yes | No | Yes | No | Bee Keeping, Fish Unit | - | - | Yes | Yes |
| 59 | Lucknow | 1994 | 20.00 | Yes | No | No | No | No | - | - | Vermi Compost, Farm Machinery | Yes | Yes |
| 60 | Ghazipur | 2002 | 25.20 | Yes | Yes | Yes | Yes | No | Poultry | Horticulture | - | Yes | Yes |
| 61 | Agra | 2002 | 20.00 | Yes | Yes | Yes | Yes | No | - | Horticulture, Vegetable Nursery | Vermi Compost | Yes | Yes |
| 62 | Kushinagar | 2005 | 20.00 | Yes | Yes | Yes | Yes | No | Fish Unit | Horticulture | - | Yes | Yes |
| 63 | St. Ravidas Ngr | 2008 | 18.41 | Yes | Yes | Yes | No | No | - | - | - | Yes | Yes |
| 64 | Deoria | 2009 | 8.16 | Yes | Yes | Yes | No | No | - | - | - | Yes | Yes |
| 65 | Sitapur | 2005 | 12.35 | Yes | Yes | Yes | Yes | No | Dairy Unit | Horticulture | - | Yes | Yes |
| 66 | Kaushambi | 2006 | 16.50 | Yes | Yes | No | No | No | Poultry, Goatary, Fish Unit | Horticulture | - | Yes | Yes |
| 67 | Auraiya | 2007 | 6.50 | Yes | Yes | No | No | No | Goatary | Planting Material | Honey Processing Unit, Vermi compost | Yes | Yes |
| 68 | Sitapur-II | 2011 | 21.05 | Yes | Yes | No | Yes | No | - | - | - | Yes | Yes |
| 69 | Tehrigarhwal | 1983 | 21.00 | Yes | Yes | No | Yes | Yes | - | Horticulture | Mushroom Unit | Yes | Yes |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70 | Champawat | 1994 | 6.00 | Yes | Yes | Yes | Yes | Yes | Fish Unit | Poly House | Mushroom Unit | Yes | Yes |
| 71 | Almora | 2004 | 15.00 | Yes | Yes | Yes | No | Yes | - | Horticulture | Vermi Compost | Yes | Yes |
| 72 | Chamoli | 2004 | 7.78 | Yes | Yes | Yes | No | Yes | - | Horticulture | Vermi Compost | Yes | Yes |
| 73 | Haridwar | 2004 | 24.50 | Yes | Yes | Yes | No | No | - | Horticulture | Vermi Compost | Yes | Yes |
| 74 | Pauri Garhwal | 2004 | 20.00 | Yes | Yes | Yes | Yes | Yes | - | Horticulture | Vermi Compost | Yes | No |
| 75 | Rudra Prayag | 2004 | 13.79 | Yes | Yes | Yes | Yes | Yes | - | Horticulture | - | Yes | Yes |
| 76 | Nainital | 2004 | 9.00 | Yes | No | Yes | No | No | - | Poly House | Vermi Compost | Yes | No |
| 77 | Pithouragarh | 2004 | 17.19 | Yes | Yes | Yes | No | Yes | - | Horticulture | Vermi Compost | Yes | No |
| 78 | Dehradun | 2004 | 24.00 | Yes | Yes | Yes | Yes | No | - | Horticulture, Poly House | - | Yes | Yes |
| 79 | U.S. Nagar | 2004 | 21.44 | Yes | Yes | Yes | No | No | Fish Unit | - | Vermi Compost | Yes | Yes |
| 80 | Uttarkashi | 2004 | 12.62 | Yes | Yes | Yes | No | Yes | Dairy Unit | - | Vermi Compost | Yes | Yes |
| 81 | Bageshwar | 2007 | 7.86 | Yes | Yes | Yes | No | Yes | Dairy Unit | Poly House | - | Yes | Yes |

## 9.2 KVK wise special facilities proposed in XII Plan

KVK wise special facilities has been proposed in XII Plan. Major facilities included are – Rain water harvesting structure, Integrated farming system, Technology information unit, vKVK/KM, e-farmer, genset, mini seed, soil and water testing lab, Technology information unit, minimal processing facility etc. (Table 8.2).

**Table 9.2: KVK wise Special facilities proposed in XII Plan**

| S.No. | KVK District | Special facilities Proposed in XII Plan |
|---|---|---|
| 1 | Bahraich | Rain Water Harvesting Structure, P. Carp H, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 2 | Basti | IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Mini Seed, Genset |
| 3 | Ballia | IFS, vKVK/KM, e-Farmer, Genset |
| 4 | Mau | E-Extension, IFS, vKVK/KM, Genset |
| 5 | Varanasi | Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 6 | Siddharthnagar | Rain Water Harvesting Structure, P. Carp H, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 7 | Faizabad | E-Extension, Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 8 | Gorakhpur | E-Extension, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 9 | Maharajganj | E-Extension, IFS, vKVK/KM, e-Farmer, Genset |
| 10 | Sonbhadra | E-Extension, IFS, Genset |
| 11 | Azamgarh | E-Extension, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 12 | Barabanki | E-Extension, Minimal Processing Facility, IFS, Solar P., Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 13 | Balarampur | E-Extension, S&W, IFS, vKVK/KM, e-Farmer, Genset |
| 14 | Chandauli | IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 15 | Jaunpur | E-Extension, Minimal Processing Facility, IFS, Solar P., Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 16 | St. Kabir Nagar | E-Extension, S&W, Rain Water Harvesting Structure, IFS, vKVK/KM, Genset |
| 17 | Ambedkar Ngr | E-Extension, S&W, IFS, Genset |
| 18 | Jhansi | E-Extension, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 19 | Raebareli | Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |

| | | |
|---|---|---|
| 20 | Fatehpur | E-Extension, Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 21 | Aligarh | IFS, Tech. Information Unit, vKVK/KM, Mini Seed, Genset |
| 22 | Kannauj | E-Extension, S&W, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 23 | Etawah | IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 24 | Mainpuri | E-Extension, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 25 | Kanpur Dehat | Minimal Processing Facility, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 26 | Mahoba | E-Extension, IFS, , Genset |
| 27 | Firozabad | E-Extension, S&W, IFS, , Genset |
| 28 | Hamirpur | E-Extension, S&W, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 29 | Lakhimpur Kheri | E-Extension, S&W, IFS, vKVK/KM, e-Farmer, Genset |
| 30 | Farrukhabad | E-Extension, S&W, IFS, vKVK/KM, Genset |
| 31 | Jalaun | E-Extension, S&W, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 32 | Lalitpur | E-Extension, S&W, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 33 | Hardoi | E-Extension, S&W, IFS, Genset |
| 34 | Banda | E-Extension, S&W, IFS, Genset |
| 35 | Mahamaya Nagar | E-Extension, S&W, IFS, Genset |
| 36 | Mathura | E-Extension, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 37 | Bijnor | Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 38 | Rampur | IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 39 | Budaun | IFS, Tech. Information Unit, vKVK/KM, Mini Seed, Genset |
| 40 | Saharanpur | Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Genset |
| 41 | Ghaziabad | E-Extension, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 42 | Shahjahanpur | E-Extension, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 43 | Meerut | E-Extension, Minimal Processing Facility, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 44 | Muzzafarnagar | Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Genset |
| 45 | Pilibhit | E-Extension, IFS, , Genset |
| 46 | Baghpat | E-Extension, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 47 | Morarabad | E-Extension, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Mini Seed, Genset |
| 48 | G.B. Nagar | E-Extension, IFS, vKVK/KM, Genset |
| 49 | Bulandshahar | E-Extension, S&W, IFS, Tech. Information Unit, Genset |
| 50 | Sultanpur | E-Extension, P. Carp H, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 51 | Etah | E-Extension, Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, Spec. KVK, Mini Seed, Genset |
| 52 | Mirzapur | E-Extension, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 53 | Gonda | Minimal Processing Facility, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 54 | Chitrakoot | IFS, Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Mini Seed, Micro Nutr., Genset |
| 55 | Allahabad | E-Extension, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |

| | | |
|---|---|---|
| 56 | Pratapgarh | Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Micro Nutr., Genset |
| 57 | Unnao | IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 58 | Bareilly | E-Extension, Minimal Processing Facility, P. Carp H, IFS, Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Genset |
| 59 | Lucknow | E-Extension, S&W, Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 60 | Ghazipur | IFS, Tech. Information Unit, vKVK/KM, Genset |
| 61 | Agra | E-Extension, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 62 | Kushinagar | E-Extension, Minimal Processing Facility, IFS, Solar P., Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Genset |
| 63 | St. Ravidas Ngr | E-Extension, S&W, Rain Water Harvesting Structure, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 64 | Deoria | E-Extension, S&W, P. Carp H, IFS, Tech. Information Unit, vKVK/KM, Genset |
| 65 | Sitapur | E-Extension, Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 66 | Kaushambi | E-Extension, S&W, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Mini Seed, Genset |
| 67 | Auraiya | E-Extension, S&W, IFS, vKVK/KM, Genset |
| 68 | Sitapur-II | E-Extension, P. Carp H, IFS, vKVK/KM, Genset |
| 69 | Tehrigarhwal | E-Extension, Minimal Processing Facility, IFS, Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 70 | Champawat | Minimal Processing Facility, IFS, Solar P., Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Genset |
| 71 | Almora | E-Extension, S&W, IFS, Solar P., Tech. Information Unit, Genset |
| 72 | Chamoli | E-Extension, IFS, Solar P., vKVK/KM, e-Farmer, Genset |
| 73 | Haridwar | Minimal Processing Facility, P. Carp H, IFS, Solar P., Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Mini Seed, Genset |
| 74 | Pauri Garhwal | E-Extension, Minimal Processing Facility, IFS, Tech. Information Unit, Genset |
| 75 | Rudra Prayag | E-Extension, IFS, Solar P., vKVK/KM, e-Farmer, Genset |
| 76 | Nainital | E-Extension, S&W, Rain Water Harvesting Structure, IFS, Solar P., Tech. Information Unit, vKVK/KM, e-Farmer, Micro Nutr., Genset |
| 77 | Pithouragarh | E-Extension, S&W, IFS, Solar P., vKVK/KM, e-Farmer, Genset |
| 78 | Dehradun | Minimal Processing Facility, Rain Water Harvesting Structure, IFS, Solar P., Tech. Information Unit, vKVK/KM, Spec. KVK, e-Farmer, Micro Nutr., Genset |
| 79 | U.S. Nagar | P. Carp H, IFS, Solar P., Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 80 | Uttarkashi | E-Extension, S&W, Minimal Processing Facility, P. Carp H, IFS, Solar P., Tech. Information Unit, vKVK/KM, e-Farmer, Genset |
| 81 | Bageshwar | E-Extension, S&W, P. Carp H, IFS, Solar P., Tech. Information Unit, vKVK/KM, e-Farmer, Genset |

### 9.3 Vacany position in ZPD and KVK as on 14.05.2015

ZPD, Zone-IV have filled up 13 staff personnel out of total 20 vacancies. There are still 4 positions of Scientifc, 2 positions of administrative and 1 supporting staff are lying vacant.

KVKs have filled up 1017 staff personal out of total vacany 1215. There are still 279 post are lying vacant under category of PC (10), SMS(86), Prog. Asstt(65), Admin(43), Auxilary(43) and supporting(32). In ZPD there are 1 position in PS, 2 in Sr. Scientist, 1 in Scientist, 2 in Administrative and 1 in supporting staff are lying vacant.

**Table 9.3: Status of staff position in ZPD**

| Sr.No. | Positions | Filled | Vacant |
|---|---|---|---|
| 1 | RMP | 1 | 0 |
| 2 | Principal Scientist | 1 | 1 |
| 3 | Sr. Scientist | 1 | 2 |
| 4 | Scientist | 0 | 1 |
| 5 | Technical | 2 | 0 |
| 6 | Administrative | 7 | 2 |
| 7 | Supporting | 1 | 1 |
| | Total | 13 | 7 |

**Table 9.4: Status of staff position in KVKs of U.P. & Uttarakhand**

| S. No | Name of KVK | PC | | SMS | | Prog. Asstt. | | Admn. | | Aux. | | Supp. | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | V | F | V | F | V | F | V | F | V | F | V | Filled | Vacant |
| 1 | Bahraich | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 2 | Basti | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 3 | Ballia | 1 | 0 | 4 | 2 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 13 | 3 |
| 4 | Mau | 1 | 0 | 6 | 0 | 2 | 1 | 1 | 1 | 2 | 0 | 2 | 0 | 14 | 2 |
| 5 | Varanasi | 1 | 0 | 6 | 0 | 2 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 14 | 2 |
| 6 | Siddharthnagar | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 7 | Faizabad | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 8 | Gorakhpur | 1 | 0 | 6 | 0 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 15 | 1 |
| 9 | Mahrajganj | 1 | 0 | 3 | 3 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 13 | 3 |
| 10 | Sonbhadra | 1 | 0 | 5 | 1 | 3 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 14 | 2 |
| 11 | Azamgarh | 1 | 0 | 5 | 1 | 3 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 14 | 2 |
| 12 | Barabanki | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 13 | Balrampur | 1 | 0 | 5 | 1 | 2 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 13 | 3 |
| 14 | Chandoli | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 15 | Jaunpur | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 16 | Sant Kabir Nagar | 1 | 0 | 5 | 1 | 3 | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 12 | 4 |
| 17 | Ambedkar Nagar | 1 | 0 | 6 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 13 | 3 |
| 18 | Jhansi | 1 | 0 | 3 | 3 | 1 | 2 | 1 | 1 | 2 | 0 | 2 | 0 | 10 | 6 |
| 19 | Raebareli | 1 | 0 | 6 | 0 | 1 | 2 | 2 | 0 | 2 | 0 | 2 | 0 | 14 | 2 |
| 20 | Fatehpur | 1 | 0 | 6 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 15 | 1 |
| 21 | Aligarh | 1 | 0 | 5 | 1 | 1 | 2 | 2 | 0 | 2 | 0 | 2 | 0 | 13 | 3 |
| 22 | Kannauj | 1 | 0 | 6 | 0 | 1 | 2 | 2 | 0 | 2 | 0 | 2 | 0 | 14 | 2 |
| 23 | Etawah | 1 | 0 | 5 | 1 | 1 | 2 | 1 | 1 | 2 | 0 | 2 | 0 | 12 | 4 |
| 24 | Mainpuri | 1 | 0 | 4 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 0 | 10 | 6 |
| 25 | Kanpur Dehat | 1 | 0 | 6 | 0 | 2 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 14 | 2 |
| 26 | Mahoba | 1 | 0 | 2 | 4 | 0 | 3 | 1 | 1 | 2 | 0 | 2 | 0 | 8 | 8 |
| 27 | Firozabad | 0 | 1 | 2 | 4 | 1 | 2 | 0 | 2 | 2 | 0 | 2 | 0 | 7 | 9 |
| 28 | Hamirpur | 1 | 0 | 2 | 4 | 1 | 2 | 2 | 0 | 1 | 1 | 2 | 0 | 9 | 7 |
| 29 | Lakhimpur Kheri | 1 | 0 | 4 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 8 | 8 |
| 30 | Farrukhabad | 0 | 1 | 6 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 14 | 2 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | Jalaun | 1 | 0 | 6 | 0 | 1 | 2 | 1 | 1 | 2 | 0 | 2 | 0 | 13 | 3 |
| 32 | Lalitpur | 1 | 0 | 4 | 2 | 0 | 3 | 0 | 2 | 1 | 1 | 2 | 0 | 8 | 8 |
| 33 | Hardoi | 1 | 0 | 4 | 2 | 1 | 2 | 1 | 1 | 2 | 0 | 1 | 1 | 10 | 6 |
| 34 | Banda | 0 | 1 | 3 | 3 | 1 | 2 | 1 | 1 | 0 | 2 | 2 | 0 | 7 | 9 |
| 35 | Mahamaya Nagar | 1 | 0 | 2 | 4 | 1 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 8 | 8 |
| 36 | Mathura | 1 | 0 | 5 | 1 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 15 | 1 |
| 37 | Bijnore | 1 | 0 | 5 | 1 | 2 | 1 | 2 | 0 | 1 | 1 | 1 | 1 | 12 | 4 |
| 38 | Rampur | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 15 | 1 |
| 39 | Badaun | 1 | 0 | 5 | 1 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 14 | 2 |
| 40 | Saharanpur | 1 | 0 | 6 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 15 | 1 |
| 41 | Ghaziabad | 1 | 0 | 6 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 15 | 1 |
| 42 | Shahjahanpur | 1 | 0 | 5 | 1 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 15 | 1 |
| 43 | Meerut | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 44 | Muzaffarnagar | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 45 | Pilibhit | 1 | 0 | 5 | 1 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 15 | 1 |
| 46 | Baghpat | 1 | 0 | 5 | 1 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 14 | 2 |
| 47 | Moradabad | 1 | 0 | 4 | 2 | 3 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 13 | 3 |
| 48 | G.B. Nagar | 1 | 0 | 6 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 14 | 2 |
| 49 | Bulandshahr | 1 | 0 | 6 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 1 | 1 | 14 | 2 |
| 50 | Sultanpur | 0 | 1 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 15 | 1 |
| 51 | Etah | 0 | 1 | 5 | 1 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 13 | 3 |
| 52 | Mirzapur | 1 | 0 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 12 | 4 |
| 53 | Gonda | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 54 | Chitrakoot | 1 | 0 | 4 | 2 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 13 | 3 |
| 55 | Allahabad | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 56 | Pratapgarh | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 16 | 0 |
| 57 | Unnao | 1 | 0 | 3 | 3 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 12 | 4 |
| 58 | Bareilly | 1 | 0 | 5 | 1 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 14 | 2 |
| 59 | Lucknow | 1 | 0 | 4 | 2 | 0 | 3 | 1 | 1 | 2 | 0 | 2 | 0 | 10 | 6 |
| 60 | Ghazipur | 1 | 0 | 5 | 1 | 3 | 0 | 2 | 0 | 2 | 0 | 1 | 1 | 14 | 2 |
| 61 | Agra | 1 | 0 | 6 | 0 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 15 | 1 |
| 62 | Kushinagar | 1 | 0 | 6 | 0 | 1 | 2 | 1 | 1 | 2 | 0 | 0 | 2 | 11 | 5 |
| 63 | St. Ravidas Ngr | 1 | 0 | 6 | 0 | 3 | 0 | 1 | 1 | 2 | 0 | 0 | 2 | 13 | 3 |
| 64 | Deoria | 0 | 1 | 6 | 0 | 2 | 1 | 0 | 2 | 2 | 0 | 0 | 2 | 10 | 6 |
| 65 | Sitapur0I | 1 | 0 | 4 | 2 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 14 | 2 |
| 66 | Kaushambi | 1 | 0 | 6 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 15 | 1 |
| 67 | Auraiya | 0 | 1 | 5 | 1 | 2 | 1 | 1 | 1 | 2 | 0 | 2 | 0 | 12 | 4 |
| 68 | Sitapur0II | 1 | 0 | 6 | 0 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 15 | 1 |
| 69 | Tehri Garhwal (UUHF) | 0 | 1 | 3 | 3 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 3 | 13 |
| 70 | Champawat | 1 | 0 | 3 | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 0 | 2 | 9 | 7 |
| 71 | Almora | 1 | 0 | 6 | 0 | 3 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 11 | 5 |
| 72 | Chamoli | 0 | 1 | 4 | 2 | 3 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 8 | 8 |
| 73 | Haridwar | 1 | 0 | 6 | 0 | 3 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 12 | 4 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **74** | Pauri Garhwal UUHF) | 0 | 1 | 5 | 1 | 0 | 3 | **0** | **2** | **0** | **2** | **0** | **2** | 5 | 11 |
| **75** | Rudraprayag | 1 | 0 | 4 | 2 | 2 | 1 | **1** | **1** | **0** | **2** | **0** | **2** | 8 | 8 |
| **76** | Nainital | 1 | 0 | 4 | 2 | 3 | 0 | **1** | **1** | **0** | **2** | **0** | **2** | 9 | 7 |
| **77** | Pithoragarh | 1 | 0 | 5 | 1 | 3 | 0 | **1** | **1** | **0** | **2** | **0** | **2** | 10 | 6 |
| **78** | Dehradun | 1 | 0 | 4 | 2 | 3 | 0 | **1** | **1** | **0** | **2** | **1** | **1** | 10 | 6 |
| **79** | U.S. Nagar | 1 | 0 | 3 | 3 | 3 | 0 | **1** | **1** | **0** | **2** | **0** | **2** | 8 | 8 |
| **80** | Uttarkashi | 1 | 0 | 4 | 2 | 1 | 2 | 1 | 1 | 2 | 0 | 2 | 0 | 11 | 5 |
| **81** | Bageshwar | 1 | 0 | 4 | 2 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 13 | 3 |
| | **Total** | **71** | **10** | **400** | **86** | **178** | **65** | **119** | **43** | **119** | **43** | **130** | **32** | **1017** | **279** |

*Note : F : Filled position, V: Vacant position*

Vacancies shown in bold boarder are filled up on contract basis.

| **Total vacancies** | |
|---|---|
| Prog. Coordinator | 10 |
| SMS | 86 |
| Prog. Assistant | 65 |
| Admn. | 43 |
| Auxillary | 43 |
| Supporting | 32 |
| **Total** | **279** |

Chapter-10

# HRD, PUBLICATIONS, RESEARCH PROJECTS AND LINKAGES

## 10.1 Training programmes

- Organization of IPM Training Programme for 30 KVK experts and progressive farmers during 26-27 August, 2014 at ICAR-Zonal Project Directorate, Zone-IV, Kanpur.
- Organization of NAARM Training of III Phase for PCs of Zone-IV held at ICAR-ZPD, Kanpur during 9-13 Dec., 2014.

## 10.2 Workshops/Meetings

- Zonal Workshops of KVKs on Zone –IV (UP and Uttarakhand) held at IIPR, Kanpur from May 19-21, 2014
- Innovators Meet held at IIPR, Kanpur from May 19, 2014
- Mid Term Review Workshop of KVKs NDUAT, Faizabad and area jurisdiction was held at Directorate of Extension, NDUAT, Faizabad during 13-14 Oct., 2014
- Mid Term Review Workshop of KVKs GBPUAT, Pantnagar and SVPUAT, Meerut and area jurisdiction was held at SVPUAT, Meerut during 30-31 October, 2014
- Mid Term Review Workshop of KVKs CSAUAT, Kanpur and area jurisdiction was held at ICAR-ZPD, Kanpur during 26-27 September, 2014
- Meeting on State level Pest Serveillance and Advisory Unit on 30.05.2014 at Krishi Bhawan, Lucknow.
- One day interaction meeting on Sodicity with CSS-RRI, Lucknow on 16th August, 2014 at ZPD, Kanpur
- One day Interactive meeting with KVKs on implementation of Animal Husbandry related activities on 20th Sept., 2014 at Vety. Univ., Mathura
- Meeting on State level Pest Surveillance and Advisory Unit on 18.7.2014 at Krishi Bhawan, Lucknow
- IMC Meeting on 14th Nov., 2014 at ICAR-ZPD, Kanpur
- Meeting of farmers on sodic varieties CSR-30 & 36 under NFSM and CSSRI-RRS Lucknow in collaboration with KVK-II Sitapur on 02.08.2014,
- Interface meeting of NICRA-NMSA on 13th October, 2014 at ICAR, KAB, Pusa, New Delhi .
- Expert Consultation Meet on Strategies for Enhancing Milk Productivity of indigenous Cattle on 20th Oct., 2014 at NASC Complex, New Delhi
- Interaction meet with Shri Radha Mohan Singh Ji, Union Minister of Agril. , Govt. of India, Directors of ICAR Institutes and PCs of selected KVKs on 09.11.2014 at IISR, Lucknow.
- Divisional Meeting of ZPD, under the Chairmanship of DDG (AE) on 23rd Dec at ICAR, KAB, Pusa, New Delhi and Interactive meeting of KVKs on 24th Dec., 2014 at NASC Complex, New Delhi.
- Preparation of organizing Inter Session Meeting of Consultative Committee of the Ministry of Agri. on 17.2.2014 at KVK, Sikohpur, Gurgaon, Haryana
- Organized a meeting with KVKs of CSAUAT, Kanpur & staff of ZPD, Kanpur on 22 Feb., 2015 during the visit of Secretary, DARE & Director General, ICAR

## 10.3 HRD by Directorate of Extension of SAUs

- Review meeting on improvement of KVKs (21 Nos.) held during 2014
- Midterm review workshop of KVKs of SVPUAT, Meerut held during 30-31 October, 2014
- Monthly review meeting (13 Nos.) held at SVPUAT, Meerut held during 2014
- Vallabh advisory core group meeting (13 Nos.) held at SVPUAT, Meerut held during 2014
- Advance training programme on agriculture knowledge management held at GBPUAT, Pantnagar during 2014

## 10.4 Research Papers:

1. A.K.Singh, U.S.Gautam, P. Shrivastava, Jai Singh and A.K.Tomar (2014). Assessment of applicability and efficacy of post emergence herbicides through various nozzle systems in wheat (Triticum Aestivum L.). International Journal of Current Research. Vol.6, Issue 03, Pp. 5619-5622, March, 2014.
2. Alka Singh, U S Gautam, Rajesh Singh & Dinesh Paliwal (2014). Ergonomic of farm women during

wheat harvesting by improved sickle. African Journal of Agricultural Research Vol.9(18) pp.1386-1390.2014.

3 Atar Singh, Ashok Kumar Singh, Lakhan Singh & AK Srivastava(2014). Uttar Pradesh ke Badh Prabhavit Evan Sukhagrasta Kshetro mein dhan ki vibhinna kismo ka pradarshan a prabhav. Krishika.

4. Atar Singh, Ashok Kumar Singh, Lakhan Singh. Uttar Pradesh Evan Uttarakhand mein Sankar Sarso ki Vibhinna Kismon ka pradarshan a prabhav. Krishika.

5. Atar Singh, A.K.Singh and Lakhan Singh (2014). Performance of Front line Demonstrations on mustard. Indian Journal of Extension Education. 49(1&2):115-117

6. S. K. Dubey, R. R. Burman, J. P. Sharma, K. Vijayaragavan, V. Sangeetha, Ishwari Singh and H. S. Gupta. 2014. Can post offices of rural India be the driver for agricultural technology dissemination? Experiences of action research. *Current Science, Vol.* 107, NO. 2(25): 195-202.

7. R. Roy Burman, Sujit Sarkar, V. Sangeetha, S. K. Dubey, J. P. Sharma, Ishwari Singh, K. Vijayaragavan and H. S. Gupta. (2015). Critical Analysis of IARI-Post Office Linkage Extension Model: An Innovative Extension Approach to Reach the Unreached. *Indian Res. J. Ext. Edu.* 15 (1): 12-19.

8. N.V. Kumbhare, S.K. Dubey, M.S. Nain and Ram Bahal. 2013. Micro Analysis of Yield Gap and Profitability on Pulses and Cereals. *Legume Res.*, 37 (5) : 532-536.

9. Rajesh Bishnoi, Premlata Singh, SK Dubey and V. Sangeetha (2014). Gender role in crop and animal husbandry practices and household activities with respect to changing climate in arid ecosystem. *Indian Jour. of Extension Education*, 50 (1 &2): 1-3.

10. Uma Sah, S.K. Dubey and S.K. Singh (2014). Roles and Linkages Analysis of Stakeholders of Pulses Research and Extension in Uttar Pradesh, India. *Journal of Community Mobilization and Sustainable Development* Vol. 9(1), 23-28.

11. Uma Sah, S K Dubey and S K Singh. 2014. Validation of stakeholder analysis as a potential tool for mainstreaming the actors of pulses development. *Journal of Food Legumes* 27(3): 238-245.

12. Uma Sah, Shantanu Kumar Dubey and Hem Saxena. 2014. Indigenous pulse storage methods in Bundelkhand region of Uttar Pradesh: An exploratory study. *Current Advances in Agricultural Sciences* 6(2): 161-164.

13. Uma Sah, SK Dubey and SK Singh. 2014. Empowerment of farm women with pulses production technologies: An empirical framework. *Current Advances in Agricultural Sciences* 6(1): 35-41.

14. Ph. Romen Sharma, Rashmi Singh, Shantanu Kumar Dubey and Sridhar Patil. (2013). Sustaining and Impeding factors of microfinance for micro-enterprise development. *Indian Journal of Extension Education*, 49 (3&4): 54-57.

15. Sangeetha, R Roy Burman, S K Dubey, J P Sharma and Ishwari Singh (2015). Attitude of agricultural stakeholders on use of Short Message Services (SMSs) in transfer of technology. *Indian Journal of Extension Education*, 51 (1&2): 60-65.

16. Rahul Gajbhiye, M.S. Nain, Premlata Singh, S. K. Dubey and J.P. Sharma (2014). Comparative Assessment of Seed Delivery System in Patiala District of Punjab. *Journal of Community Mobilization and Sustainable Development*. Vol. 9(2), 129-133.

17. M.S. Nain, S.K. Dubey, N.V. Kumbhare and Ram Bahal (2014). Adoption gap as the determinant of instability in Indian legume production. *Journal of Food Legumes* 27(2): 146-150.

18. Shantanu Kumar Dubey, SK Singh, SN Nigam, Uma Sah, M. Ali and A S Yadav (2015). Experimenting with farmer' capacity and social institution building for ensuring village level seed sufficiency: A case of chickpea (*Cicer Arietinum* L.). *Indian Journal of Extension Education*, 51 (!&@): 15-21.

19. S. Prakash, Phool Chand & Atar Singh (2015). Interventions in Agriculture to Mitigate the Effect of Climate Change in NICRA village. Paper presented in International Conference on NRM for Food Security & Rural Livelihood during 10-13 Feb., 2015 at New Delhi. P. 397.

### 10.5 Book:

Rashmi Singh, JP Sharma, MS Nain, SK Dubey, RR Burman, BS Tomar and Sudipta Basu. 2015. *Shakiya Beej Utpaadan Dwara Krishak Udyamiyon ka Vikas.* Indian Agricultural Research Institute, New Delhi, p: 100.

### 10.6 Lead Paper:

1. Atar Singh (2015). KVK activities, improved technologies & linkages with farmers. Paper presented at State Level Workshop on 'Improving Productivity & Livelihood in Eastern Uttar Pradesh on 28 Feb. 2015 organized by TATA Trust at Lucknow

2. AK Singh, Atar Singh and SK Dubey (2014). Integration of Extension Agencies for Improving the Impact of Agricultural Extension. Brainstorming session on Integration of Extension Agencies for Improving the Impact of Agricultural Extension Proceedings and Recommendations, held on 08 May, 2014 at UPCAR, Lucknow, p:15-22.
3. Atar Singh (2015). Delivered keynote address on managing crop Productivity for food security in climate changing in climate scenario on National Seminar on 28th March, 2015 held at Janta College, Bakhewar.
4. S. K Dubey and JP Sharma (2015). Agricultural extension education: Evolution and Future perspective. Lead paper. In: VII National Seminar of the Society for Community Mobilization for Sustainable Development on Sustainable Rural Livelihood: Technological and Institutional Perspectives, held on SKAUST of Jammu, January 8-10, 2015., P: 11-21.

### 10.7 Information Folder

Atar Singh, Lakhan Singh, SK Dubey and SN Yemul (2014). Brief Account, ZPD-IV, ICAR-Zonal project Directorate, Zone IV, Kanpuir, P: 6

### 10.8 Popular Articles:

1. Shantanu Kumar Dubey, Sushil Kumar Singh, Sushil kumar Chaturvedi, Uma Sah, A. K. Singh (2014). *Chana Beej Utpadan ke liye sanstut prajatiya.* Bhumija, April-September, p: 3-4.
2. Shantanu Kumar Dubey, Uma Sah, Sushil Kumar Chaturvedi, Sushil kumar Singh and A K Singh. (2014). *Chana Beej Utpadan mein beej ke prakaar evam manak.* Bhumija, January-March, P: 3-4.
3. Shantanu Kumar Dubey, Lakhan Singh and Atar Singh (2014). *Sansadhan Sanrakshan Taknik se Gehun Utpadan.* Bhumija, October- December: 3-4.
4. Uma Sah, Sushil Kumar Singh and Shantanu Kumar Dubey (2014). *Agrim Pankti Pradarshan ke mukhya Vindu.* Krishi Gyan Ganga, October-December, P: 35-37.
5. Uma Sah, Sushil Kumar Singh and Shantanu Kumar Dubey (2014). *Krishi Vikas Hetu Mahila Sashaktikaran.* Krishi Gyan Ganga, October-December, P: 27-29.
6. Shantanu Kumar Dubey, Uma Sah, AK Singh, Sushil Kumar Singh and R K Singh (2014). *Adhik Amdani ke liye Arhar Beeej Utpadan. Ikshu Rajbhasha Patrika,* January-June, 3(1): 51-53.
7. Deepak Rai, R K Singh and Shantanu Kumar Dubey (2014). *Sabjiyyon mein Samanwit Keet prabandhan. Ikshu Rajbhasha Patrika,* January-June, 3(1): 66-70.
8. S. K. Dubey, R. R. Burman, J. P. Sharma, K. Vijairaghavan, V. Sangeetha, H. S. Gupta (2014). Rural Post offices as the Linking Bridge for Unreached Farmers of India. Yojana Web Exclusive, October, 2014: 1-5.
9. Shantanu Kumar Dubey, Uma Sah, AK Singh and SK Singh (2014). *Chana Beej utpadan mein Prakshetra manak.* Kisan Jyoti, 4(4):17-20
10. Shantanu Kumar Dubey, Uma Sah, SK Singh, SK Chaturvedi, and RK Singh (2014). *Chana Beej utpadan mein beej Parikshan evan gunvatta manak.* Kisan Jyoti, 4(4):30-34.
11. Uma Sah, Shantanu Kumar Dubey, and RK Singh (2014). *Krishi takniki Pracsar ki anaupcharik vidhayiein.* Kisan Jyoti, 4(4):104-105.

### 10.9 Technical Reports (Compiled and Edited)

1. Atar Singh, Lakhan Singh and S. K. Dubey (2013-14). Annual Report – 2014 on KVKs (U.P. & Uttarakhand). Published by ICAR- Zonal Project Directorate, Zone-IV, Kanpur p.p. 1-80.
2. Atar Singh, S. K. Dubey and A. K. Shrivastava (2013-14). Annual Report – 2014 on NICRA Published by ICAR- Zonal Project Directorate, Zone-IV, Kanpur p.p. 1-31.
3. Proceedings of Zonal Workshop (1), Mid-Term Review Workshops (3) and SAC meetings of 11 KVKs prepared.
4. Atar Singh, Shantanu Kumar Dubey and Ajit Kumar Srivastava (2014). Annual report on National Initiative on Climate Resilient Agriculture. ICAR-Zonal project Directorate, Zone IV, Kanpur, P: 31

### 10.10 Publications by KVKs

KVKs of U.P. and Uttarakhand published total 973 number of various types of publications including Books (4), Technical Bulletins (75 ), Research Paper (190), Seminar Papers (34), Training Manuals (20), Technical Reports (310), Book Chapter (10), Popular Articles (29), Abstract (53), Leaflets (20), Extension Literature (23), News Paper Coverage (42) & Others(163).

## 10.11 Research Projects

| S.No. | Title of the Project | Principal Investigator | Associates/Co-PIs |
|---|---|---|---|
| (A) | **Completed Projects** | | |
| 1 | Engaging Farmers, Enriching Knowledge-Agropedia 2.0 (2010-2014) | Dr. A.K. Singh | Dr. Lakhan Singh |
| (B) | **On going projects** | | |
| 1 | National Initiative on Climate Resilient Agriculture in U.P.& Uttarakhand 2010 - Continue | Dr. Atar Singh | Dr. Ajit Shrivastava |
| 2 | Production and marketing systems of Off-season vegetable Cultivation and export-led Fruit Production | Dr. A.K. Singh | Dr. Lakhan Singh & Dr.S.K. Dubey |
| 3 | Impact of soil rehabilitation & climate resilience practices adopted by farmers | Dr. Atar Singh | Dr. A.K. Singh, Dr. Lakhan Singh & Dr.S.K. Dubey |
| 4 | Impact of resource conservation technologies | Dr. Lakhan Singh | Dr. Atar Singh, Dr. S.K. Dubey |
| 5 | Impact analysis of crop enterprise diversification and integration (CDI) | Dr. S.K. Dubey | Dr. A.K. Singh, Dr. Lakhan Singh |
| 6 | Harnessing modern communication technologies for sharing available knowledge resources with pulse growing farmers of Uttar pradesh | IIPR, Kanpur | Dr. S. K. Dubey |
| (C) | **New initiatives** | | |
| 1 | National Initiative on Fodder Technology Demonstrations 2014-15 & Continue | Dr. Atar Singh | - |
| 2 | Productivity enhancement of partially reclaimed sodic soil through intervention of resource conservation, salt tolerant cultivars & crop diversification for economical & livelihood security of small holding farmers in Eastern Uttar Pradesh | Dr. V.K. Mishra | Dr. Atar Singh, Dr. Lakhan Singh & Dr. S.K. Dubey |
| 3 | Technological intervention for enhancing sugarcane productivity in U.P. & Uttarakhand through KVKs | All Heads of IISR, Lucknow | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 4 | Popularization of quality planting materials for sub-tropical fruit crops in Uttar Pradesh | Director, CISH, Lucknow | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 5 | Livestock based interventions for productivity enhancement in Uttar Pradesh | Director, IVRI, Bareilly | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 6 | Technological interventions for enhancing vegetable production in UP and Uttarakhand through KVK linkages | Director, IIVR, Varanasi | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 7 | Capacity building of KVK Specialists on soil and moisture conservation related practices | Director CSWCR&TI, Dehradun | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 8 | Popularization of improved crop varieties in Uttarakhand through KVK linkages | Director VPKAS, Almora | ZPD Scientists & Selected KVK ZPD, Zone-IV |

### 10.12 Awards:

i. *Dr .V.K.Vidyarthi Memorial Award* in 2014-15 by Society of Extension Education (SEE) in the year 2015 to Dr. U.S. Gautam

ii. *Bharat Jyoti Award* 2014, Given by Hon'ble Sh. Dr Bhishma Narain Singh ,Former Governor of Tamilnadu & Assam by India International Friendship Society,New Delhi to Dr. U.S. Gautam

iii. *Fellow*, Indian Society of Pulses Research and Development (2014) by Indian Institute of Pulses Research, Kanpur to Dr. S.K. Dubey

iv. *Presidential Appreciation Award* (2015) in VII National Seminar of the Society for Community Mobilization for Sustainable Development on Sustainable Rural Livelihood: Technological and Institutional Perspectives, held on SKAUST of Jammu, January 8-10, 2015 to Dr. S.K. Dubey

v. *Best paper Presentation Award* (2014) on the paper titled "Impact of IARI-post office linkage extension model: An innovative extension approach to reach the unreached" in National extension Education Congress 2014 held from 8-11 November, 2014 at ICAR Research Complex, Umiam, Meghalaya to Dr. S.K. Dubey

vi. KVK Muzaffarnagar awarded *Best Zonal KVK Award* 2014 of SVPUAT, Meerut under ICAR-ZPD, Kanpur.

### 10.13 Linkage and coordination with different line departments, research institutions and SAUs

- Linkage with IIPR, Kanpur for the development of district specific technology modules, quality seed availability and training to KVK staff.
- 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. Voice POP & Knowledge Models have become very effective.
- Fodder development programme initiated in collaboration with IGFRI, Jhansi.
- Linkage with CRIDA, Hyderabad for promoting climate resilient technologies in 13 districts of U.P. & Uttarakhand.
- Linkage with DMR, New Delhi for promoting Quality Protein Maize in 15 districts of Uttar Pradesh.
- IIVR, Varanasi for providing suitable technologies for vegetable production, especially vegetable pea seed production & promotion.
- Senior level interactions and meetings organized with line department officials for better convergence & linkage.
- Linkage initiated with Van Vigyan Kendra of forest department.
- Linkage with National Rainfed Area Authority for development of Bundelkhand region.
- Linkage with MANAGE, Hyderabad for Agri-business & Agri Clinic Scheme & also knowledge up gradation of KVK staff in ICT.
- SAUs (GBPUAT, SVPUAT, CSAUAT & NDUAT) linked for technological backstopping to KVKs of U.P. & Uttarakhand.
- Strong linkage with SCISA for resource conservation technologies.
- Linkage with Nehru Yuva Kendras for training of youths at KVKs.
- Linkage with DWR, Karnal for wheat based FLDs.
- Linkage with IARI, New Delhi for promotion of rice varieties (Basmati) and also post office based extension model.
- Linkage with CSSRI for sodic soil related technology application.
- Mango orchard based strategic planning with CISH, Lucknow.
- Addressing issues of sugar recovery & productivity enhancement in sugarcane through IISR Lucknow.
- Necessary guidance and support to KVK experts for creation of resource & knowledge centre at KVKs.
- Coordinated & facilitated KVKs for using improved technologies, ICT, publishing periodicals, etc.

Chapter-11

# UNTIMELY RAINFALL: IMPACT ON CROP

## Hill Zone

**Dehradun:** Regarding unseasonal heavy rainfall and its impact on rabi season crops in Dehradun heavy rainfall was received in different parts of Dehradun from the last three days (28 February to 2 March). The rainfall occurred in the last three days adversely affected wheat crop by lodging in timely sown situation which tillering has been emerged out in plains of Dehradun. In late sown wheat crop, problem of lodging has been recorded. However, in hills of Dehradun such type of problem was not seen due to topography and light growth of the crop. Hence, the rainfall is beneficial for wheat grown in mountain region of Dehradun. Mustard crop also affected due to loadging and chances of incidence of mustard aphid has increased as climatic conditions become more favourable for its infestation. Vegetable pea is one of the commercially important crop grown in hills of Dehradun from January to May. The severe rainfall was mango & litchi also harmful for vegetable pea. The contiuuous and heavy rainfall may also affect the production of fruit crops as micro climate in the orchards has become very conducive for incidence of mango hopper, powdery mildew in mango orchards and anthracnose disease in litchi orchards. This rainfall is advantageous for temperate fruits like apple, pear, peach, plum, apricot, almond, walnut etc. because it will help in conservation of moisture during summer season when fruit growth takes place. In order to tackle the problems in rabi season crops, best possible advisory services were given to the farmers through KVK itself and Line departments.

## Bundelkhand Zone

**Chitrakoot :** Due to heavy rainfall and hail storm at the end of February (34 millimeter) and in the beginning of March (60 millimeter), farmers faced a very bad situation. On 27 and 28th February water logging spread across several fields at the time of ready crop specially in chickpea & lentil. Major loss have taken place in following areas -

- Hill development Khand (45 villages)
- Karvi Vikas khand (26 villages)
- Mau Vikas Khand (115 villages)
- Ramanagar Vikas Khand (32 villages)

Due to heavy hail storm, crops like wheat, chickpea and mustard were damaged very much and mixed into soil. 70-75% losses have recorded in chickpea, lentil fieldpea and mustard crops. 55-60 % losses recorded in wheat and pigeon pea crop.

KVK experts advised farmers that not to flood the field with water and save the remaining crop from rotten.

**Hamirpur:** In Hamirpur same situation was found

## Central Plain Zone

**Kanpur Dehat:** In Kanpur Dehat 30-35% losses have taken place in wheat crop and 25-30 % losses were recorded in potato crop.

**Lucknow :** Generally about 90% rains occurs in monsoon season only about 10% in the winter season. The winter rains plays an important role in rabi crops. However, heavy rains occurred with long spell severely affected the productivity of crop. About on an average 10-20 per cent yield was reduced irrespective of all rabi crops. Details of probable adverse effect on crops are given below.

*Wheat:i)* Timely sown wheat was severely affected, which was reached at grain filling/milking/maturity stages due heavy lodging of crop, since heavy rains occurred with high wind velocity for long spell duration. Probably yield may be reduced up to 20%.

*ii)* Late sown wheat was benefited with rains in irrigated as well as rain fed conditions crop.

*Gram:* At this time gram reaches final flowering and pod setting stage. So, the rain helped to grain formation and increase the number of pods and bold the grain size. However, vegetative phase of late sown gram will be enhanced and flowering and fruit setting probably may not be occurred with heavy moisture conditions and yield may be reduced up to 10-20%.

*Pigeon pea:* Profuse flowering in Pigeon pea was noticed in farmers' field. Heavy rains affected the dropping of flower pod setting. Loss of yield was estimated about 10-15%. However, less intensity of rain helped for proper seed setting, boldness of seed.

*Lentil:* Lentil was affected by this rain because crops were at flowering and pod setting, stage. During this period heavy rain and high wind velocity affected flower and pollen thus poor grain content in pod. So, yield was reduced severely about 40%

*Pea:* Pea crop is more sensitive to excess moisture. In this period of heavy rainfall and stagnate water in the field, vegetative growth was checked and quality of grain also be poor. So yield of crop was reduced about 20-30%.

*Mustard:* At this stage, mustard crop almost reached at maturity but harvesting was in progress. In some places, harvested mustard in field was severely affected with rains and yield and quality of crop was reduce up to 10-20% and recovery of oil was also reduced.

*Potato:* In potato, the crop has reached at maturity stage. However, after harvesting the crop, probably rotting was observed where field was submerged. In sandy soil, losses were lesser compared to heavy soil. On an average losses in potato yield was about 10-20%.

## Western Plain Zone

**Saharanpur :** In District Saharanpur continuously more than 40 hrs heavy rain fall occurred on 1st & 2nd March, 2015 due to suddenly off-season heavy wind velocity different crops affected in the district.

*Wheat* – Out of 1.25 lakhs ha area under wheat, more than 45000 ha wheat was timely sown (1-15th Nov., 2014) main varieties of wheat HD-2967 were sown by the and. The timely crop was at flowering stage and due to heavy rain fall and wind velocity crop fell down. The yield of this crops was reduced 27-30%.

Affect Wheat Crop

*Mustard* – Late sown mustard crop was on the flowering stage with heavy rain fall and wind velocity. Mustard crop also fell down and yield of mustard was reduced 12-15%. The mustard area are 21560 ha.

Affect Mustard Crop

*Potato and other vegetable crops* – Standing potato crop was more affected by heavy rain fall and wind velocity due to tuber rotting. Yield was reduced 30-35%. Other vegetable crops like tomato, pea & cauliflower were also affected by heavy rain fall and wind velocity about 30-35% yield and quality both was reduced in tomato, pea & other crops.

Affected Potato & Tomato Crop

Out of this mango area is 26000 ha in the district. The flowering stage was started in mango orchard due to this heavy rain fall and wind velocity, heavy flower dropped occurred in the mango orchard. About 15-20% yield was reduced.

**Dainik Jagran News paper coverage of 3rd March, 2015 is given below**


दैनिक जागरण

Chapter-12

# STATUS OF BUDGET & STAFF

## Status of Budget

During the financial year 2014-15, an amount of Rs 6823.38 lakh was utilized /released against the allotted budget of Rs. 6842.15 lakh.

**Table 10.1 : Head wise allocation funds for ZPD and KVKs of Zone-IV for 2014-15**

*(Rs in lakh)*

| S. No | Heads | ZPD | Uttar Pradesh | | | Uttrakhand | | | Grand Total |
|---|---|---|---|---|---|---|---|---|---|
| | | | KVK | DE | Total | KVK | DE | Total | |
| A | **Recurring** | | | | | | | | |
| i) | Pay & Allowances | 120.00 | 5430.20 | 0.00 | 5430.20 | 792.80 | 0.00 | 792.80 | 6343.00 |
| ii) | T.A. | 7.00 | 43.48 | 1.72 | 45.20 | 7.80 | 0.90 | 8.70 | 60.90 |
| iii) | H.R.D. | 2.00 | 0.00 | 1.20 | 1.20 | 0.00 | 1.10 | 1.10 | 4.30 |
| iv) | Contingency | 28.00 | 305.27 | 11.71 | 316.98 | 63.63 | 5.30 | 68.93 | 413.91 |
| | **Total (A)** | **157.00** | **5778.95** | **14.63** | **5793.58** | **864.23** | **7.30** | **871.53** | **6822.11** |
| B | **Non-Recurring** | | | | | | | | |
| i) | Furniture/Equipmt. | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 |
| ii) | Works | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| iii) | Vehicle | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| iv) | Library | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | **Total (B)** | **10.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | 10.00 |
| C | **Revolving Fund** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| D | **TSP** | 0.00 | 3.50 | 0.00 | 3.50 | 6.54 | 0.00 | 6.54 | 10.04 |
| | **Total (A+B+C+D)** | **167.00** | **5782.45** | **14.63** | **5797.08** | **870.77** | **7.30** | **878.07** | **6842.15** |

**Table 10.2 : Actual Expenditure/Release for 2014-15**

*(Rs in lakh)*

| S. No. | Heads | ZPD | Uttar Pradesh | | | Uttrakhand | | | Grand Total |
|---|---|---|---|---|---|---|---|---|---|
| | | | KVK | DE | Total | KVK | DE | Total | |
| A | **Recurring** | | | | | | | | |
| i) | Pay & Allowances | 102.51 | 5430.20 | 0.00 | 5430.20 | 792.80 | 0.00 | 792.80 | 6325.51 |
| ii) | T.A. | 6.64 | 43.48 | 1.72 | 45.20 | 7.80 | 0.90 | 8.70 | 60.54 |
| iii) | H.R.D. | 1.81 | 0.00 | 1.20 | 1.20 | 0.00 | 1.10 | 1.10 | 4.11 |
| iv) | Contigency | 27.33 | 305.27 | 11.71 | 316.98 | 63.63 | 5.30 | 68.93 | 413.24 |
| | **Total (A)** | **138.29** | **5778.95** | **14.63** | **5793.58** | **864.23** | **7.30** | **871.53** | **6803.40** |
| B | **Non-Recurring** | | | | | | | | |
| i) | Furniture & Fixture | 9.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.94 |
| ii) | Works | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| iii) | Vehicle | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| iv) | Library | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | **Total (B)** | **9.94** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | 9.94 |
| C | **Revolving Fund** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| D | **TSP** | 0.00 | 3.50 | 0.00 | 3.50 | 6.54 | 0.00 | 6.54 | 10.04 |
| | **Total (A+B+C+D)** | **148.23** | **5782.45** | **14.63** | **5797.08** | **870.77** | **7.30** | **878.07** | **6823.38** |

## ZPD Staff

### Scientific Staff

1. Dr. U.S. Gautam, Zonal Project Director
2. Dr. Atar Singh, Principal Scientist
3. Dr. Lakhan Singh, Principal Scientist (Agril Extn.) : Transferred to CSWCRI, Dehradun
4. 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

Annexure - i

# List of PCs & SMSs in KVKs

*(Updated on 07.05.2015)*

| S.N. | Name of KVK | Name of Officer | Position | Subject/ Specialization | Mobile No. | Email |
|---|---|---|---|---|---|---|
| 1 | Bahraich | Dr. Om Pakash | PC | Animal Science | 9452489954 | kvkbahraich@gmail.com |
| 2 | Bahraich | Dr. V.P. Singh | SMS | Horticulture | 9415006080 | - |
| 3 | Bahraich | Dr. Rasool Mohd. | SMS | Animal Science | 9839864216 | - |
| 4 | Bahraich | Dr. Sher Singh | SMS | Agronomy | 9450427609 | - |
| 5 | Bahraich | Dr. R.K. Pandey | SMS | Plant Protection | 8795885292 | - |
| 6 | Bahraich | Mrs. Renu Arya | SMS | Home Science | 9415046343 | - |
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| 77 | Dr. C. Tiwari, PC<br>Krishi Vigyan Kendra, Bajpur Rd, Kashipur<br>Distt. Udham Singh Nagar-244713 (Uttarakhand)<br>Email: kvkkashipur@gmail.com | 05947-262771 | 05947-262771 | - | 09412655395 |
| 78 | Dr Tejpal Bist, I/C PC<br>Krishi Vigyan Kendra, GBPUAT,Hill Campus, Ranichauri, Distt. Tehri Garhwal-249199 (Uttarakhand)<br>Email: kvkranichauri@gmail.com | 01376-252101 | 01376-252101 | - | 08476004176 |
| 79 | PC, I/c Krishi Vigyan Kendra<br>VCSGCH, Bharsar, Via Chipalghat<br>Distt. Pauri Garhwal-246123 (Uttarakhand)<br>Email: kvkpaurigarhwal@gmail.com | 01348-226076 | 01348-226058 | - | 09795842175 |

| | | | | | |
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Annexure - iii

# Training Programmes

**State: Uttar Pradesh**
**A. Training programmes for farmers and farm Women**

| Thematic area | ON + OFF CAMPUS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of courses | Participants | | | | | | | | |
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| **I Crop Production** | | | | | | | | | | |
| Weed Management | 180 | 2829 | 204 | 3033 | 867 | 145 | 1012 | 3696 | 349 | 4045 |
| Resource Conservation Technologies | 131 | 2053 | 90 | 2143 | 472 | 65 | 537 | 2525 | 155 | 2680 |
| Cropping Systems | 104 | 1735 | 144 | 1879 | 380 | 100 | 480 | 2115 | 244 | 2359 |
| Crop Diversification | 70 | 1075 | 101 | 1176 | 209 | 27 | 236 | 1284 | 128 | 1412 |
| Integrated Farming | 79 | 1286 | 25 | 1311 | 167 | 14 | 181 | 1453 | 39 | 1492 |
| Micro Irrigation/irrigation | 48 | 700 | 48 | 748 | 187 | 19 | 206 | 887 | 67 | 954 |
| Seed production | 123 | 1964 | 129 | 2093 | 465 | 83 | 548 | 2429 | 212 | 2641 |
| Nursery management | 49 | 762 | 49 | 811 | 206 | 45 | 251 | 968 | 94 | 1062 |
| Integrated Crop Management | 182 | 3027 | 230 | 3257 | 706 | 128 | 834 | 3733 | 358 | 4091 |
| Soil & water conservatioin | 55 | 840 | 64 | 904 | 296 | 35 | 331 | 1136 | 99 | 1235 |
| Integrated nutrient management | 101 | 1582 | 128 | 1710 | 456 | 63 | 519 | 2038 | 191 | 2229 |
| Production of organic inputs | 58 | 939 | 42 | 981 | 220 | 18 | 238 | 1159 | 60 | 1219 |
| Others | 51 | 854 | 38 | 892 | 148 | 10 | 158 | 1002 | 48 | 1050 |
| **Total** | **1231** | **19646** | **1292** | **20938** | **4779** | **752** | **5531** | **24425** | **2044** | **26469** |
| **II Horticulture** | | | | | | | | | | |
| **a) Vegetable Crops** | | | | | | | | | | |
| Production of low value and high valume crops | 134 | 2199 | 253 | 2452 | 364 | 109 | 473 | 2563 | 362 | 2925 |
| Off-season vegetables | 50 | 792 | 54 | 846 | 147 | 42 | 189 | 939 | 96 | 1035 |
| Nursery raising | 100 | 1507 | 205 | 1712 | 397 | 90 | 487 | 1904 | 295 | 2199 |
| Exotic vegetables | 17 | 287 | 8 | 295 | 18 | 5 | 23 | 305 | 13 | 318 |
| Export potential vegetables | 21 | 269 | 39 | 308 | 100 | 36 | 136 | 369 | 75 | 444 |
| Grading and standardization | 31 | 478 | 67 | 545 | 111 | 34 | 145 | 589 | 101 | 690 |
| Protective cultivation | 65 | 1045 | 128 | 1173 | 239 | 51 | 290 | 1284 | 179 | 1463 |
| Others | 48 | 811 | 38 | 849 | 120 | 38 | 158 | 931 | 76 | 1007 |
| **Total (a)** | **466** | **7388** | **792** | **8180** | **1496** | **405** | **1901** | **8884** | **1197** | **10081** |
| **b) Fruits** | | | | | | | | | | |
| Training and Pruning | 37 | 557 | 46 | 603 | 131 | 21 | 152 | 688 | 67 | 755 |
| Layout and Management of Orchards | 69 | 1061 | 78 | 1139 | 285 | 48 | 333 | 1346 | 126 | 1472 |
| Cultivation of Fruit | 47 | 797 | 69 | 866 | 198 | 30 | 228 | 995 | 99 | 1094 |
| Management of young plants/orchards | 38 | 602 | 22 | 624 | 141 | 17 | 158 | 743 | 39 | 782 |
| Rejuvenation of old orchards | 45 | 741 | 75 | 816 | 265 | 35 | 300 | 1006 | 110 | 1116 |
| Export potential fruits | 6 | 111 | 2 | 113 | 14 | 0 | 14 | 125 | 2 | 127 |
| Micro irrigation systems of orchards | 17 | 273 | 28 | 301 | 65 | 4 | 69 | 338 | 32 | 370 |
| Plant propagation techniques | 23 | 377 | 94 | 471 | 93 | 69 | 162 | 470 | 163 | 633 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Others | 7 | 135 | 8 | 143 | 25 | 3 | 28 | 160 | 11 | 171 |
| Total (b) | 289 | 4654 | 422 | 5076 | 1217 | 227 | 1444 | 5871 | 649 | 6520 |
| **c) Ornamental Plants** | | | | | | | | | | |
| Nursery Management | 36 | 538 | 58 | 596 | 86 | 36 | 122 | 624 | 94 | 718 |
| Management of potted plants | 9 | 115 | 32 | 147 | 45 | 13 | 58 | 160 | 45 | 205 |
| Export potential of ornamental plants | 1 | 10 | 5 | 15 | 6 | 4 | 10 | 16 | 9 | 25 |
| Propagation techniques of Ornamental Plants | 8 | 96 | 10 | 106 | 45 | 11 | 56 | 141 | 21 | 162 |
| Others | 12 | 215 | 8 | 223 | 26 | 5 | 31 | 241 | 13 | 254 |
| Total ( c) | 66 | 974 | 113 | 1087 | 208 | 69 | 277 | 1182 | 182 | 1364 |
| **d) Plantation crops** | | | | | | | | | | |
| Production and Management technology | 10 | 137 | 40 | 177 | 26 | 10 | 36 | 163 | 50 | 213 |
| Processing and value addition | 3 | 39 | 5 | 44 | 9 | 2 | 11 | 48 | 7 | 55 |
| Others | 1 | 20 | 0 | 20 | 4 | 0 | 4 | 24 | 0 | 24 |
| Total (d) | 14 | 196 | 45 | 241 | 39 | 12 | 51 | 235 | 57 | 292 |
| **e) Tuber crops** | | | | | | | | | | |
| Production and Management technology | 48 | 705 | 72 | 777 | 144 | 47 | 191 | 849 | 119 | 968 |
| Processing and value addition | 6 | 89 | 14 | 103 | 24 | 11 | 35 | 113 | 25 | 138 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total (e) | 54 | 794 | 86 | 880 | 168 | 58 | 226 | 962 | 144 | 1106 |
| **f) Spices** | | | | | | | | | | |
| Production and Management technology | 46 | 800 | 37 | 837 | 132 | 13 | 145 | 932 | 50 | 982 |
| Processing and value addition | 4 | 71 | 2 | 73 | 14 | 4 | 18 | 85 | 6 | 91 |
| Others | 1 | 19 | 0 | 19 | 1 | 0 | 1 | 20 | 0 | 20 |
| Total (f) | 51 | 890 | 39 | 929 | 147 | 17 | 164 | 1037 | 56 | 1093 |
| **g) Medicinal and Aromatic Plants** | | | | | | | | | | |
| Nursery management | 14 | 323 | 13 | 336 | 80 | 8 | 88 | 403 | 21 | 424 |
| Production and management technology | 37 | 546 | 45 | 591 | 119 | 16 | 135 | 665 | 61 | 726 |
| Post harvest technology and value addition | 8 | 82 | 29 | 111 | 32 | 19 | 51 | 114 | 48 | 162 |
| Others | 1 | 17 | 0 | 17 | 3 | 0 | 3 | 20 | 0 | 20 |
| Total (g) | 60 | 968 | 87 | 1055 | 234 | 43 | 277 | 1202 | 130 | 1332 |
| **GT (a-g)** | **1000** | **15864** | **1584** | **17448** | **3509** | **831** | **4340** | **19373** | **2415** | **21788** |
| **III Soil Health and Fertility Mangmt.** | | | | | | | | | | |
| Soil fertility management | 98 | 1539 | 117 | 1656 | 432 | 79 | 511 | 1971 | 196 | 2167 |
| Integrated water management | 25 | 380 | 35 | 415 | 76 | 25 | 101 | 456 | 60 | 516 |
| Integrated Nutrient Management | 116 | 1881 | 181 | 2062 | 467 | 88 | 555 | 2348 | 269 | 2617 |
| Production and use of organic inputs | 73 | 1044 | 104 | 1148 | 239 | 48 | 287 | 1283 | 152 | 1435 |
| Management of Problematic soils | 30 | 417 | 25 | 442 | 136 | 32 | 168 | 553 | 57 | 610 |
| Micro nutrient deficiency in crops | 30 | 416 | 36 | 452 | 119 | 18 | 137 | 535 | 54 | 589 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Nutrient Use Efficiency | 35 | 466 | 63 | 529 | 126 | 41 | 167 | 592 | 104 | 696 |
| Balance use of fertilizers | 29 | 436 | 45 | 481 | 97 | 13 | 110 | 533 | 58 | 591 |
| Soil and Water Testing | 108 | 1682 | 122 | 1804 | 253 | 69 | 322 | 1935 | 191 | 2126 |
| Others | 32 | 559 | 16 | 575 | 16 | 5 | 21 | 575 | 21 | 596 |
| **Total** | **576** | **8820** | **744** | **9564** | **1961** | **418** | **2379** | **10781** | **1162** | **11943** |
| **IV Livestock Production & Management** | | | | | | | | | | |
| Dairy Management | 141 | 2344 | 416 | 2760 | 795 | 222 | 1017 | 3139 | 638 | 3777 |
| Poultry Management | 76 | 1188 | 70 | 1258 | 316 | 63 | 379 | 1504 | 133 | 1637 |
| Piggery Management | 52 | 809 | 50 | 859 | 159 | 24 | 183 | 968 | 74 | 1042 |
| Rabbit Management | 5 | 79 | 7 | 86 | 13 | 0 | 13 | 92 | 7 | 99 |
| Animal Nutrition Management | 156 | 1993 | 459 | 2452 | 549 | 247 | 796 | 2542 | 706 | 3248 |
| Disease Management | 173 | 2724 | 379 | 3103 | 890 | 254 | 1144 | 3614 | 633 | 4247 |
| Feed & fodder technology | 116 | 1694 | 237 | 1931 | 527 | 164 | 691 | 2221 | 401 | 2622 |
| Production of quality animal products | 37 | 619 | 55 | 674 | 165 | 49 | 214 | 784 | 104 | 888 |
| Others | 32 | 420 | 73 | 493 | 151 | 74 | 225 | 571 | 147 | 718 |
| **Total** | **788** | **11870** | **1746** | **13616** | **3565** | **1097** | **4662** | **15435** | **2843** | **18278** |
| **V Home Science/Women empowerment** | | | | | | | | | | |
| Household food security by kitchen gardening and nutrition gardening | 65 | 101 | 1025 | 1126 | 28 | 330 | 358 | 129 | 1355 | 1484 |
| Design and development of low/minimum cost diet | 47 | 25 | 674 | 699 | 10 | 233 | 243 | 35 | 907 | 942 |
| Designing and development for high nutrient efficiency diet | 32 | 12 | 429 | 441 | 7 | 149 | 156 | 19 | 578 | 597 |
| Minimization of nutrient loss in processing | 38 | 41 | 452 | 493 | 25 | 205 | 230 | 66 | 657 | 723 |
| Processing and cooking | 45 | 0 | 599 | 599 | 17 | 236 | 253 | 17 | 835 | 852 |
| Gender mainstreaming through SHGs | 41 | 94 | 543 | 637 | 44 | 153 | 197 | 138 | 696 | 834 |
| Storage loss minimization techniques | 49 | 87 | 605 | 692 | 8 | 256 | 264 | 95 | 861 | 956 |
| Value addition | 96 | 101 | 1319 | 1420 | 30 | 596 | 626 | 131 | 1915 | 2046 |
| Women empowerment | 50 | 62 | 744 | 806 | 12 | 272 | 284 | 74 | 1016 | 1090 |
| Location specific drudgery reduction technologies | 48 | 75 | 647 | 722 | 11 | 210 | 221 | 86 | 857 | 943 |
| Rural Crafts | 30 | 6 | 427 | 433 | 3 | 167 | 170 | 9 | 594 | 603 |
| Women and child care | 67 | 51 | 965 | 1016 | 9 | 393 | 402 | 60 | 1358 | 1418 |
| Others | 63 | 24 | 1150 | 1174 | 2 | 123 | 125 | 26 | 1273 | 1299 |
| **Total** | **671** | **679** | **9579** | **10258** | **206** | **3323** | **3529** | **885** | **12902** | **13787** |
| **VI Agril. Engineering** | | | | | | | | | | |
| Farm Machinary and its maintenance | 73 | 1345 | 40 | 1385 | 244 | 31 | 275 | 1589 | 71 | 1660 |
| Installation and maintenance of micro irrigation systems | 34 | 641 | 20 | 661 | 133 | 8 | 141 | 774 | 28 | 802 |
| Use of Plastics in farming practices | 6 | 94 | 6 | 100 | 25 | 3 | 28 | 119 | 9 | 128 |
| Production of small tools and implements | 9 | 142 | 0 | 142 | 42 | 0 | 42 | 184 | 0 | 184 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Repair and maintenance of farm machinery and implements | 50 | 785 | 32 | 817 | 224 | 17 | 241 | 1009 | 49 | 1058 |
| Small scale processing and value addition | 12 | 179 | 34 | 213 | 45 | 16 | 61 | 224 | 50 | 274 |
| Post Harvest Technology | 26 | 472 | 26 | 498 | 81 | 13 | 94 | 553 | 39 | 592 |
| Others | 19 | 208 | 41 | 249 | 67 | 27 | 94 | 275 | 68 | 343 |
| **Total** | **229** | **3866** | **199** | **4065** | **861** | **115** | **976** | **4727** | **314** | **5041** |
| **VII Plant Protection** | | | | | | | | | | |
| Integrated Pest Management | 225 | 5045 | 443 | 5488 | 1287 | 528 | 1815 | 6332 | 971 | 7303 |
| Integrated Disease Management | 216 | 3255 | 253 | 3508 | 846 | 158 | 1004 | 4101 | 411 | 4512 |
| Bio-control of pests and diseases | 120 | 1897 | 130 | 2027 | 435 | 76 | 511 | 2332 | 206 | 2538 |
| Production of bio control agents and bio pesticides | 46 | 760 | 53 | 813 | 174 | 30 | 204 | 934 | 83 | 1017 |
| Others | 76 | 1179 | 27 | 1206 | 192 | 11 | 203 | 1371 | 38 | 1409 |
| **Total** | **683** | **12136** | **906** | **13042** | **2934** | **803** | **3737** | **15070** | **1709** | **16779** |
| **VIII Fisheries** | | | | | | | | | | |
| Integrated fish farming | 16 | 239 | 16 | 255 | 253 | 17 | 270 | 492 | 33 | 525 |
| Carp breeding and hatchery management | 2 | 23 | 0 | 23 | 7 | 0 | 7 | 30 | 0 | 30 |
| Carp fry and fingerling rearing | 12 | 139 | 4 | 143 | 49 | 5 | 54 | 188 | 9 | 197 |
| Composite fish culture | 37 | 600 | 19 | 619 | 139 | 13 | 152 | 739 | 32 | 771 |
| Hatchery management and culture of freshwater prawn | 2 | 23 | 0 | 23 | 7 | 0 | 7 | 30 | 0 | 30 |
| Fish processing and value addition | 8 | 162 | 11 | 173 | 44 | 3 | 47 | 206 | 14 | 220 |
| Others | 4 | 72 | 3 | 75 | 34 | 6 | 40 | 106 | 9 | 115 |
| **Total** | **81** | **1258** | **53** | **1311** | **533** | **44** | **577** | **1791** | **97** | **1888** |
| **IX Production of Inputs at site** | | | | | | | | | | |
| Seed Production | 43 | 681 | 63 | 744 | 108 | 29 | 137 | 789 | 92 | 881 |
| Planting material production | 20 | 351 | 21 | 372 | 56 | 4 | 60 | 407 | 25 | 432 |
| Bio-agents production | 3 | 44 | 5 | 49 | 12 | 4 | 16 | 56 | 9 | 65 |
| Bio-pesticides production | 2 | 29 | 5 | 34 | 12 | 4 | 16 | 41 | 9 | 50 |
| Bio-fertilizer production | 7 | 127 | 10 | 137 | 14 | 5 | 19 | 141 | 15 | 156 |
| Vermi-compost production | 23 | 357 | 38 | 395 | 106 | 19 | 125 | 463 | 57 | 520 |
| Organic manures production | 7 | 91 | 12 | 103 | 32 | 14 | 46 | 123 | 26 | 149 |
| Production of fry and fingerlings | 1 | 20 | 5 | 25 | 2 | 8 | 10 | 22 | 13 | 35 |
| Production of Bee-colonies and wax sheets | 1 | 10 | 0 | 10 | 0 | 0 | 0 | 10 | 0 | 10 |
| Production of livestock feed and fodder | 5 | 80 | 10 | 90 | 20 | 1 | 21 | 100 | 11 | 111 |
| Production of Fish feed | 1 | 10 | 5 | 15 | 5 | 2 | 7 | 15 | 7 | 22 |
| Mushroom Production | 2 | 42 | 0 | 42 | 7 | 0 | 7 | 49 | 0 | 49 |
| Apiculture | 1 | 8 | 0 | 8 | 1 | 0 | 1 | 9 | 0 | 9 |
| Others | 2 | 45 | 1 | 46 | 8 | 2 | 10 | 53 | 3 | 56 |
| **Total** | **118** | **1895** | **175** | **2070** | **383** | **92** | **475** | **2278** | **267** | **2545** |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **X Capacity Building and Group Dynamics** | | | | | | | | | | |
| Leadership development | 49 | 613 | 117 | 730 | 142 | 65 | 207 | 755 | 182 | 937 |
| Group dynamics | 56 | 775 | 150 | 925 | 223 | 49 | 272 | 998 | 199 | 1197 |
| Formation and Management of SHGs | 64 | 938 | 288 | 1226 | 245 | 113 | 358 | 1183 | 401 | 1584 |
| Mobilization of social capital | 18 | 261 | 34 | 295 | 59 | 16 | 75 | 320 | 50 | 370 |
| Entrepreneurial development of farmers/youths | 46 | 687 | 67 | 754 | 184 | 27 | 211 | 871 | 94 | 965 |
| WTO and IPR issues | 8 | 73 | 20 | 93 | 37 | 17 | 54 | 110 | 37 | 147 |
| Others | 39 | 550 | 35 | 585 | 115 | 25 | 140 | 665 | 60 | 725 |
| **Total** | **280** | **3897** | **711** | **4608** | **1005** | **312** | **1317** | **4902** | **1023** | **5925** |
| **XI Agro-forestry** | | | | | | | | | | |
| Production technologies | 39 | 617 | 41 | 658 | 142 | 16 | 158 | 759 | 57 | 816 |
| Nursery management | 32 | 543 | 40 | 583 | 117 | 19 | 136 | 660 | 59 | 719 |
| Integrated Farming Systems | 24 | 389 | 31 | 420 | 109 | 12 | 121 | 498 | 43 | 541 |
| Others | 20 | 307 | 24 | 331 | 56 | 23 | 79 | 363 | 47 | 410 |
| **Totale** | 115 | 1856 | 136 | 1992 | 424 | 70 | 494 | 2280 | 206 | 2486 |
| **Grand Total** | **5772** | **81787** | **17125** | **98912** | **20160** | **7857** | **28017** | **101947** | **24982** | **126929** |

**B. Training programmes for Rural youths**

| Area of Training | ON + OFF CAMPUS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of courses | Participants | | | | | | | | |
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Nursery Management of Horticulture crops | 61 | 869 | 127 | 996 | 217 | 63 | 280 | 1086 | 190 | 1276 |
| Training and pruning of orchards | 41 | 463 | 54 | 517 | 126 | 39 | 165 | 589 | 93 | 682 |
| Protected cultivation of vegetable crops | 38 | 536 | 77 | 613 | 151 | 66 | 217 | 687 | 143 | 830 |
| Commercial fruit production | 32 | 374 | 59 | 433 | 77 | 26 | 103 | 451 | 85 | 536 |
| Integrated farming | 27 | 420 | 57 | 477 | 121 | 33 | 154 | 541 | 90 | 631 |
| Seed production | 90 | 1351 | 99 | 1450 | 362 | 69 | 431 | 1713 | 168 | 1881 |
| Production of organic inputs | 47 | 628 | 64 | 692 | 185 | 44 | 229 | 813 | 108 | 921 |
| Planting material production | 14 | 163 | 12 | 175 | 50 | 12 | 62 | 213 | 24 | 237 |
| Vermi-culture | 35 | 463 | 80 | 543 | 140 | 25 | 165 | 603 | 105 | 708 |
| Mushroom Production | 41 | 564 | 82 | 646 | 150 | 52 | 202 | 714 | 134 | 848 |
| Bee-keeping | 31 | 407 | 22 | 429 | 141 | 38 | 179 | 548 | 60 | 608 |
| Sericulture | 9 | 100 | 7 | 107 | 21 | 17 | 38 | 121 | 24 | 145 |
| Repair and maintenance of farm machinery and implements | 28 | 356 | 58 | 414 | 101 | 22 | 123 | 457 | 80 | 537 |
| Value addition | 42 | 200 | 347 | 547 | 33 | 164 | 197 | 233 | 511 | 744 |
| Small scale processing | 12 | 35 | 80 | 115 | 8 | 48 | 56 | 43 | 128 | 171 |
| Post Harvest Technology | 15 | 148 | 76 | 224 | 41 | 21 | 62 | 189 | 97 | 286 |
| Tailoring and Stitching | 17 | 14 | 210 | 224 | 17 | 75 | 92 | 31 | 285 | 316 |
| Rural Crafts | 35 | 93 | 233 | 326 | 35 | 190 | 225 | 128 | 423 | 551 |
| Production of quality animal products | 11 | 139 | 27 | 166 | 54 | 21 | 75 | 193 | 48 | 241 |
| Dairying | 54 | 627 | 109 | 736 | 152 | 55 | 207 | 779 | 164 | 943 |
| Sheep and goat rearing | 34 | 423 | 73 | 496 | 155 | 74 | 229 | 578 | 147 | 725 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Quail farming | 2 | 20 | 0 | 20 | 0 | 0 | 0 | 20 | 0 | 20 |
| Piggery | 4 | 39 | 1 | 40 | 31 | 0 | 31 | 70 | 1 | 71 |
| Rabbit farming | 3 | 28 | 2 | 30 | 3 | 2 | 5 | 31 | 4 | 35 |
| Poultry production | 34 | 445 | 73 | 518 | 145 | 31 | 176 | 590 | 104 | 694 |
| Ornamental fisheries | 19 | 195 | 0 | 195 | 22 | 0 | 22 | 217 | 0 | 217 |
| Composite fish culture | 6 | 84 | 3 | 87 | 9 | 5 | 14 | 93 | 8 | 101 |
| Freshwater prawn culture | 1 | 8 | 2 | 10 | 3 | 2 | 5 | 11 | 4 | 15 |
| Shrimp farming | 1 | 10 | 0 | 10 | 0 | 0 | 0 | 10 | 0 | 10 |
| Pearl culture | 10 | 20 | 87 | 107 | 0 | 23 | 23 | 20 | 110 | 130 |
| Cold water fisheries | 7 | 10 | 56 | 66 | 4 | 25 | 29 | 14 | 81 | 95 |
| Fish harvest and processing technology | 7 | 70 | 4 | 74 | 19 | 2 | 21 | 89 | 6 | 95 |
| Fry and fingerling rearing | 1 | 0 | 10 | 10 | 0 | 0 | 0 | 0 | 10 | 10 |
| Other | 22 | 342 | 34 | 376 | 33 | 9 | 42 | 375 | 43 | 418 |
| **TOTAL** | 831 | 9644 | 2225 | 11869 | 2606 | 1253 | 3859 | 12250 | 3478 | 15728 |

**C. Training programmes fo r Extension Functionaries**

| Area of Training | No. of courses | ON + OFF CAMPUS Participants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Productivity enhancement in field crops | 69 | 1333 | 51 | 1384 | 311 | 36 | 347 | 1644 | 87 | 1731 |
| Integrated Pest Management | 52 | 859 | 46 | 905 | 235 | 44 | 279 | 1094 | 90 | 1184 |
| Integrated Nutrient management | 41 | 685 | 71 | 756 | 140 | 30 | 170 | 825 | 101 | 926 |
| Rejuvenation of old orchards | 26 | 437 | 14 | 451 | 80 | 6 | 86 | 517 | 20 | 537 |
| Protected cultivation technology | 34 | 545 | 109 | 654 | 136 | 26 | 162 | 681 | 135 | 816 |
| Production and use of organic inputs | 32 | 574 | 35 | 609 | 113 | 18 | 131 | 687 | 53 | 740 |
| Care & maintenance of farm machinery & implements | 16 | 144 | 121 | 265 | 25 | 26 | 51 | 169 | 147 | 316 |
| Gender mainstreaming through SHGs | 5 | 54 | 20 | 74 | 21 | 5 | 26 | 75 | 25 | 100 |
| Formation and Management of SHGs | 17 | 205 | 98 | 303 | 58 | 22 | 80 | 263 | 120 | 383 |
| Women and Child care | 24 | 38 | 328 | 366 | 2 | 72 | 74 | 40 | 400 | 440 |
| Low cost and nutrient efficient diet designing | 16 | 184 | 84 | 268 | 59 | 8 | 67 | 243 | 92 | 335 |
| Group Dynamics and farmers organization | 24 | 335 | 29 | 364 | 61 | 23 | 84 | 396 | 52 | 448 |
| Information networking among farmers | 3 | 32 | 0 | 32 | 0 | 0 | 0 | 32 | 0 | 32 |
| Capacity building for ICT application | 9 | 53 | 101 | 154 | 7 | 14 | 21 | 60 | 115 | 175 |
| Management in farm animals | 30 | 564 | 16 | 580 | 79 | 1 | 80 | 643 | 17 | 660 |
| Livestock feed and fodder production | 21 | 336 | 85 | 421 | 81 | 10 | 91 | 417 | 95 | 512 |
| Household food security | 21 | 285 | 27 | 312 | 60 | 8 | 68 | 345 | 35 | 380 |
| Other | 209 | 2655 | 515 | 3170 | 376 | 104 | 480 | 3031 | 619 | 3650 |
| **TOTAL** | **649** | **9318** | **1750** | **11068** | **1844** | **453** | **2297** | **11162** | **2203** | **13365** |

**D. Sponsored Training Programmes**

| Area of Training | No. of courses | Participants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| **Crop production and management** | | | | | | | | | | |
| Increasing production and productivity of crops | 64 | 2159 | 183 | 2342 | 608 | 106 | 714 | 2767 | 289 | 3056 |
| Commercial production of vegetables | 31 | 708 | 44 | 752 | 262 | 21 | 283 | 970 | 65 | 1035 |
| **Production and value addition** | | | | | | | | | | |
| Fruit Plants | 29 | 822 | 69 | 891 | 189 | 15 | 204 | 1011 | 84 | 1095 |
| Ornamental plants | 3 | 95 | 0 | 95 | 23 | 0 | 23 | 118 | 0 | 118 |
| Spices crops | 23 | 750 | 93 | 843 | 148 | 44 | 192 | 898 | 137 | 1035 |
| Soil health and fertility management | 30 | 937 | 314 | 1251 | 362 | 151 | 513 | 1299 | 465 | 1764 |
| Production of Inputs at site | 5 | 165 | 14 | 179 | 61 | 15 | 76 | 226 | 29 | 255 |
| Methods of protective cultivation | 4 | 145 | 5 | 150 | 20 | 0 | 20 | 165 | 5 | 170 |
| Others | 72 | 3531 | 620 | 4151 | 1630 | 389 | 2019 | 5161 | 1009 | 6170 |
| **Total** | 261 | 9312 | 1342 | 10654 | 3303 | 741 | 4044 | 12615 | 2083 | 14698 |
| **Post harvest technology and value addition** | | | | | | | | | | |
| Processing and value addition | 6 | 236 | 65 | 301 | 51 | 18 | 69 | 287 | 83 | 370 |
| Others | 5 | 88 | 0 | 88 | 12 | 0 | 12 | 100 | 0 | 100 |
| **Total** | 11 | 324 | 65 | 389 | 63 | 18 | 81 | 387 | 83 | 470 |
| **Farm machinery** | | | | | | | | | | |
| Farm machinery, tools and implements | 3 | 140 | 0 | 140 | 19 | 0 | 19 | 159 | 0 | 159 |
| Others | 13 | 429 | 36 | 465 | 93 | 16 | 109 | 522 | 52 | 574 |
| **Total** | 16 | 569 | 36 | 605 | 112 | 16 | 128 | 681 | 52 | 733 |
| **Livestock and fisheries** | | | | | | | | | | |
| Livestock production and management | 4 | 114 | 23 | 137 | 15 | 8 | 23 | 129 | 31 | 160 |
| Animal Nutrition Management | 1 | 78 | 0 | 78 | 22 | 0 | 22 | 100 | 0 | 100 |
| Animal Disease Management | 4 | 82 | 1 | 83 | 75 | 29 | 104 | 157 | 30 | 187 |
| Fisheries Nutrition | 3 | 62 | 3 | 65 | 20 | 0 | 20 | 82 | 3 | 85 |
| Fisheries Management | 5 | 63 | 5 | 68 | 46 | 2 | 48 | 109 | 7 | 116 |
| Others | - | - | - | - | - | - | - | - | - | - |
| **Total** | 17 | 399 | 32 | 431 | 178 | 39 | 217 | 577 | 71 | 648 |
| **Home Science** | | | | | | | | | | |
| Household nutritional security | 5 | 135 | 28 | 163 | 15 | 30 | 45 | 150 | 58 | 208 |
| Economic empowerment of women | 4 | 0 | 69 | 69 | 0 | 26 | 26 | 0 | 95 | 95 |
| Drudgery reduction of women | - | - | - | - | - | - | - | - | - | - |
| Others | 1 | 0 | 18 | 18 | 0 | 12 | 12 | 0 | 30 | 30 |
| **Total** | 10 | 135 | 115 | 250 | 15 | 68 | 83 | 150 | 183 | 333 |
| **Agricultural Extension** | | | | | | | | | | |
| Capacity Building and Group Dynamics | 25 | 603 | 65 | 668 | 263 | 41 | 304 | 866 | 106 | 0 |
| Others | 3 | 93 | 32 | 125 | 17 | 18 | 35 | 110 | 50 | 160 |
| **Total** | 28 | 696 | 97 | 793 | 280 | 59 | 339 | 976 | 156 | 160 |
| **GRAND TOTAL** | **343** | **11435** | **1687** | **13122** | **3951** | **941** | **4892** | **15386** | **2628** | **17042** |

**E. Vocational Training programmes for Rural youths**

| Area of Training | No. of courses | Participants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| **Crop production and management** | | | | | | | | | | |
| Commercial floriculture | 12 | 141 | 18 | 159 | 27 | 9 | 36 | 168 | 27 | 195 |
| Commercial fruit production | 14 | 202 | 9 | 211 | 63 | 9 | 72 | 265 | 18 | 283 |
| Commercial vegetable production | 17 | 257 | 27 | 284 | 53 | 20 | 73 | 310 | 47 | 357 |
| Integrated crop management | 13 | 179 | 4 | 183 | 70 | 2 | 72 | 249 | 6 | 255 |
| Organic farming | 10 | 155 | 11 | 166 | 37 | 8 | 45 | 192 | 19 | 211 |
| Others | 6 | 59 | 0 | 59 | 14 | 0 | 14 | 73 | 0 | 73 |
| **Total** | 72 | 993 | 69 | 1062 | 264 | 48 | 312 | 1257 | 117 | 1374 |
| **Post harvest technology and value addition** | | | | | | | | | | |
| Value addition | 14 | 81 | 113 | 194 | 32 | 40 | 72 | 113 | 153 | 266 |
| Others | 7 | 41 | 27 | 68 | 8 | 16 | 24 | 49 | 43 | 92 |
| **Total** | 21 | 122 | 140 | 262 | 40 | 56 | 96 | 162 | 196 | 358 |
| **Livestock and fisheries** | | | | | | | | | | |
| Dairy farming | 10 | 137 | 25 | 162 | 38 | 15 | 53 | 175 | 40 | 215 |
| Composite fish culture | 5 | 112 | 0 | 112 | 18 | 0 | 18 | 130 | 0 | 130 |
| Sheep and goat rearing | 11 | 128 | 33 | 161 | 46 | 26 | 72 | 174 | 59 | 233 |
| Poultry farming | 11 | 157 | 14 | 171 | 51 | 13 | 64 | 208 | 27 | 235 |
| Others | 3 | 42 | 7 | 49 | 10 | 0 | 10 | 52 | 7 | 59 |
| **Total** | 40 | 576 | 79 | 655 | 163 | 54 | 217 | 739 | 133 | 872 |
| **Income generation activities** | | | | | | | | | | |
| Vermicomposting | 17 | 204 | 37 | 241 | 67 | 19 | 86 | 271 | 56 | 327 |
| Production of bio-agents, bio-pesticides, | 11 | 128 | 15 | 143 | 29 | 5 | 34 | 157 | 20 | 177 |
| bio-fertilizers etc. | 1 | 11 | 4 | 15 | 2 | 3 | 5 | 13 | 7 | 20 |
| Repair and maintenance of farm machinery | 11 | 163 | 11 | 174 | 50 | 12 | 62 | 213 | 23 | 236 |
| and implements | 1 | 12 | 0 | 12 | 3 | 0 | 3 | 15 | 0 | 15 |
| Rural Crafts | 4 | 30 | 32 | 62 | 10 | 17 | 27 | 40 | 49 | 89 |
| Seed production | 24 | 355 | 24 | 379 | 116 | 26 | 142 | 471 | 50 | 521 |
| Sericulture | 1 | 14 | 0 | 14 | 6 | 0 | 6 | 20 | 0 | 20 |
| Mushroom cultivation | 14 | 220 | 56 | 276 | 59 | 22 | 81 | 279 | 78 | 357 |
| Nursery, grafting etc. | 8 | 60 | 6 | 66 | 41 | 10 | 51 | 101 | 16 | 117 |
| Tailoring, stitching, embroidery, dying etc. | 4 | 0 | 54 | 54 | 0 | 45 | 45 | 0 | 99 | 99 |
| Agril. para-workers, para-vet training | 6 | 68 | 43 | 111 | 5 | 11 | 16 | 73 | 54 | 127 |
| Others | 11 | 148 | 21 | 169 | 66 | 10 | 76 | 214 | 31 | 245 |
| **Total** | 113 | 1413 | 303 | 1716 | 454 | 180 | 634 | 1867 | 483 | 2350 |
| **Agricultural Extension** | | | | | | | | | | |
| Capacity building and group dynamics | 4 | 44 | 31 | 75 | 16 | 9 | 25 | 60 | 40 | 100 |
| **Total** | 4 | 44 | 31 | 75 | 16 | 9 | 25 | 60 | 40 | 100 |
| **Grand Total** | **250** | **3148** | **622** | **3770** | **937** | **347** | **1284** | **4085** | **969** | **5054** |

**State: Uttarakhand**

**A. Training programmes for farmers & farm women**

| Thematic area | No. of courses | ON + OFF CAMPUS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Participants | | | | | | | | |
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| **I Crop Production** | | | | | | | | | | |
| Weed Management | 30 | 304 | 175 | 479 | 78 | 46 | 124 | 382 | 221 | 603 |
| Resource Conservation Technologies | 7 | 6 | 89 | 95 | 21 | 37 | 58 | 27 | 126 | 153 |
| Cropping Systems | 21 | 150 | 231 | 381 | 28 | 22 | 50 | 178 | 253 | 431 |
| Crop Diversification | 1 | 2 | 18 | 20 | 0 | 0 | 0 | 2 | 18 | 20 |
| Integrated Farming | 1 | 0 | 20 | 20 | 0 | 0 | 0 | 0 | 20 | 20 |
| Seed production | 11 | 97 | 55 | 152 | 57 | 46 | 103 | 154 | 101 | 255 |
| Integrated Crop Management | 15 | 240 | 13 | 253 | 59 | 6 | 65 | 299 | 19 | 318 |
| Soil & water conservatioin | 1 | 14 | 6 | 20 | 0 | 0 | 0 | 14 | 6 | 20 |
| Integrated nutrient management | 8 | 64 | 18 | 82 | 36 | 58 | 94 | 100 | 76 | 176 |
| Production of organic inputs | 4 | 39 | 41 | 80 | 0 | 0 | 0 | 39 | 41 | 80 |
| Others | 15 | 95 | 203 | 298 | 0 | 5 | 5 | 95 | 208 | 303 |
| **Total** | **114** | **1011** | **869** | **1880** | **279** | **220** | **499** | **1290** | **1089** | **2379** |
| **II Horticulture** | | | | | | | | | | |
| **a) Vegetable Crops** | | | | | | | | | | |
| Production of low value and high valume crops | 15 | 111 | 125 | 236 | 47 | 45 | 92 | 158 | 170 | 328 |
| Off-season vegetables | 19 | 144 | 146 | 290 | 71 | 26 | 97 | 215 | 172 | 387 |
| Nursery raising | 21 | 137 | 120 | 257 | 70 | 197 | 267 | 207 | 317 | 524 |
| Exotic vegetables | 1 | 10 | 5 | 15 | 0 | 5 | 5 | 10 | 10 | 20 |
| Grading and standardization | 4 | 33 | 70 | 103 | 0 | 0 | 0 | 33 | 70 | 103 |
| Protective cultivation | 17 | 144 | 190 | 334 | 35 | 118 | 153 | 179 | 308 | 487 |
| Others | 15 | 111 | 120 | 231 | 79 | 28 | 107 | 190 | 148 | 338 |
| Total (a) | 92 | 690 | 776 | 1466 | 302 | 419 | 721 | 992 | 1195 | 2187 |
| **b) Fruits** | | | | | | | | | | |
| Training and Pruning | 9 | 79 | 73 | 152 | 36 | 13 | 49 | 115 | 86 | 201 |
| Layout and Management of Orchards | 6 | 52 | 30 | 82 | 32 | 10 | 42 | 84 | 40 | 124 |
| Cultivation of Fruit | 1 | 12 | 8 | 20 | 0 | 0 | 0 | 12 | 8 | 20 |
| Management of young plants/orchards | 6 | 75 | 48 | 123 | 12 | 35 | 47 | 87 | 83 | 170 |
| Rejuvenation of old orchards | 5 | 32 | 32 | 64 | 27 | 9 | 36 | 59 | 41 | 100 |
| Plant propagation techniques | 3 | 3 | 37 | 40 | 14 | 7 | 21 | 17 | 44 | 61 |
| Others | 4 | 16 | 39 | 55 | 21 | 4 | 25 | 37 | 43 | 80 |
| Total (b) | 34 | 269 | 267 | 536 | 142 | 78 | 220 | 411 | 345 | 756 |
| **c) Ornamental Plants** | | | | | | | | | | |
| Propagation techniques of Ornamental Plants | 2 | 32 | 2 | 34 | 6 | 0 | 6 | 38 | 2 | 40 |
| Others | 3 | 8 | 50 | 58 | 2 | 0 | 2 | 10 | 50 | 60 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Total ( c) | 5 | 40 | 52 | 92 | 8 | 0 | 8 | 48 | 52 | 100 |
| **d) Plantation crops** | | | | | | | | | | |
| Production and Management technology | 1 | 18 | 2 | 20 | 0 | 0 | 0 | 18 | 2 | 20 |
| Total (d) | 1 | 18 | 2 | 20 | 0 | 0 | 0 | 18 | 2 | 20 |
| **f) Spices** | | | | | | | | | | |
| Production and Management technology | 3 | 45 | 8 | 53 | 0 | 0 | 0 | 45 | 8 | 53 |
| **GT (a-g)** | **135** | **1062** | **1105** | **2167** | **452** | **497** | **949** | **1514** | **1602** | **3116** |
| **III Soil Health and Fertility Mangmt.** | | | | | | | | | | |
| Soil fertility management | 6 | 52 | 21 | 73 | 47 | 0 | 47 | 99 | 21 | 120 |
| Integrated water management | 1 | 11 | 0 | 11 | 0 | 9 | 9 | 11 | 9 | 20 |
| Integrated Nutrient Management | 19 | 207 | 41 | 248 | 89 | 46 | 135 | 296 | 87 | 383 |
| Production and use of organic inputs | 18 | 80 | 81 | 161 | 81 | 122 | 203 | 161 | 203 | 364 |
| Management of Problematic soils | 1 | 2 | 0 | 2 | 17 | 0 | 17 | 19 | 0 | 19 |
| Micro nutrient deficiency in crops | 8 | 20 | 9 | 29 | 86 | 56 | 142 | 106 | 65 | 171 |
| Nutrient Use Efficiency | 1 | 5 | 12 | 17 | 3 | 0 | 3 | 8 | 12 | 20 |
| Balance use of fertilizers | 9 | 70 | 42 | 112 | 70 | 6 | 76 | 140 | 48 | 188 |
| Soil and Water Testing | 13 | 157 | 189 | 346 | 77 | 53 | 130 | 234 | 242 | 476 |
| Others | 1 | 3 | 14 | 17 | 0 | 5 | 5 | 3 | 19 | 22 |
| **Total** | **77** | **607** | **409** | **1016** | **470** | **297** | **767** | **1077** | **706** | **1783** |
| **IV Livestock Production and Mangmt.** | | | | | | | | | | |
| Dairy Management | 23 | 276 | 153 | 429 | 27 | 32 | 59 | 303 | 185 | 488 |
| Poultry Management | 13 | 104 | 54 | 158 | 39 | 46 | 85 | 143 | 100 | 243 |
| Piggery Management | 6 | 89 | 15 | 104 | 13 | 17 | 30 | 102 | 32 | 134 |
| Animal Nutrition Management | 8 | 69 | 28 | 97 | 61 | 18 | 79 | 130 | 46 | 176 |
| Disease Management | 19 | 191 | 54 | 245 | 76 | 74 | 150 | 267 | 128 | 395 |
| Feed & fodder technology | 25 | 170 | 162 | 332 | 137 | 86 | 223 | 307 | 248 | 555 |
| Production of quality animal products | 4 | 18 | 8 | 26 | 33 | 17 | 50 | 51 | 25 | 76 |
| Others | 11 | 97 | 61 | 158 | 43 | 44 | 87 | 140 | 105 | 245 |
| **Total** | **109** | **1014** | **535** | **1549** | **429** | **334** | **763** | **1443** | **869** | **2312** |
| **V Home Science/Women empowerment** | | | | | | | | | | |
| Household food security by kitchen gardening and nutrition gardening | 13 | 17 | 175 | 192 | 5 | 67 | 72 | 22 | 242 | 264 |
| Design and development of low/minimum cost diet | 4 | 0 | 89 | 89 | 0 | 2 | 2 | 0 | 91 | 91 |
| Designing and development for high nutrient efficiency diet | 5 | 12 | 87 | 99 | 0 | 1 | 1 | 12 | 88 | 100 |
| Minimization of nutrient loss in processing | 0 | 0 | 0 | 12 | 8 | 20 | 12 | 8 | 20 | |
| Processing and cooking | 5 | 10 | 74 | 84 | 0 | 0 | 0 | 10 | 74 | 84 |
| Gender mainstreaming through SHGs | 5 | 0 | 68 | 68 | 0 | 8 | 8 | 0 | 76 | 76 |
| Storage loss minimization techniques | 6 | 2 | 121 | 123 | 0 | 2 | 2 | 2 | 123 | 125 |
| Value addition | 45 | 89 | 695 | 784 | 16 | 86 | 102 | 105 | 781 | 886 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Women empowerment | 6 | 22 | 100 | 122 | 0 | 0 | 0 | 22 | 100 | 122 |
| Location specific drudgery reduction technologies | 8 | 36 | 97 | 133 | 18 | 33 | 51 | 54 | 130 | 184 |
| Rural Crafts | 6 | 1 | 69 | 70 | 0 | 42 | 42 | 1 | 111 | 112 |
| Women and child care | 6 | 2 | 55 | 57 | 0 | 70 | 70 | 2 | 125 | 127 |
| Others | 6 | 2 | 115 | 117 | 3 | 33 | 36 | 5 | 148 | 153 |
| **Total** | **116** | **193** | **1745** | **1938** | **54** | **352** | **406** | **247** | **2097** | **2344** |
| **VI Agril. Engineering** | | | | | | | | | | |
| Farm Machinary and its maintenance | 4 | 62 | 0 | 62 | 0 | 0 | 0 | 62 | 0 | 62 |
| Installation and maintenance of micro irrigation systems | 3 | 50 | 1 | 51 | 0 | 0 | 0 | 50 | 1 | 51 |
| Others | 1 | 22 | 0 | 22 | 0 | 0 | 0 | 22 | 0 | 22 |
| **Total** | **8** | **134** | **1** | **135** | **0** | **0** | **0** | **134** | **1** | **135** |
| **VII Plant Protection** | | | | | | | | | | |
| Integrated Pest Management | 97 | 855 | 785 | 1640 | 235 | 169 | 404 | 1090 | 954 | 2044 |
| Integrated Disease Management | 39 | 367 | 379 | 746 | 42 | 81 | 123 | 409 | 460 | 869 |
| Bio-control of pests and diseases | 9 | 107 | 45 | 152 | 16 | 20 | 36 | 123 | 65 | 188 |
| Production of bio control agents and bio pesticides | 2 | 6 | 29 | 35 | 0 | 0 | 0 | 6 | 29 | 35 |
| Others | 10 | 159 | 139 | 298 | 19 | 16 | 35 | 178 | 155 | 333 |
| **Total** | **157** | **1494** | **1377** | **2871** | **312** | **286** | **598** | **1806** | **1663** | **3469** |
| **VIII Fisheries** | | | | | | | | | | |
| Integrated fish farming | 3 | 52 | 14 | 66 | 4 | 1 | 5 | 56 | 15 | 71 |
| Composite fish culture | 2 | 35 | 4 | 39 | 2 | 0 | 2 | 37 | 4 | 41 |
| Others | 9 | 36 | 1 | 37 | 106 | 20 | 126 | 142 | 21 | 163 |
| **Total** | **14** | **123** | **19** | **142** | **112** | **21** | **133** | **235** | **40** | **275** |
| **IX Production of Inputs at site** | | | | | | | | | | |
| Vermi-compost production | 1 | 10 | 11 | 21 | 2 | 2 | 4 | 12 | 13 | 25 |
| **Total** | **1** | **10** | **11** | **21** | **2** | **2** | **4** | **12** | **13** | **25** |
| **X Capacity Building and Group Dynamics** | | | | | | | | | | |
| Leadership development | 3 | 8 | 46 | 54 | 7 | 6 | 13 | 15 | 52 | 67 |
| Group dynamics | 23 | 121 | 306 | 427 | 14 | 30 | 44 | 135 | 336 | 471 |
| Formation and Management of SHGs | 7 | 43 | 92 | 135 | 6 | 9 | 15 | 49 | 101 | 150 |
| Mobilization of social capital | 2 | 13 | 28 | 41 | 2 | 0 | 2 | 15 | 28 | 43 |
| Entrepreneurial development of farmers/youths | 8 | 61 | 125 | 186 | 9 | 7 | 16 | 70 | 132 | 202 |
| Others | 8 | 45 | 91 | 136 | 25 | 10 | 35 | 70 | 101 | 171 |
| **Total** | **51** | **291** | **688** | **979** | **63** | **62** | **125** | **354** | **750** | **1104** |
| **XI Agro-forestry** | | | | | | | | | | |
| Production technologies | 23 | 150 | 221 | 371 | 16 | 44 | 60 | 166 | 265 | 431 |
| Nursery management | 6 | 71 | 66 | 137 | 0 | 0 | 0 | 71 | 66 | 137 |
| Integrated Farming Systems | 12 | 77 | 144 | 221 | 4 | 19 | 23 | 81 | 163 | 244 |
| Others | 4 | 20 | 65 | 85 | 0 | 0 | 0 | 20 | 65 | 85 |
| **Total** | **45** | **318** | **496** | **814** | **20** | **63** | **83** | **338** | **559** | **897** |
| **GRAND TOTAL** | **827** | **6257** | **7255** | **13512** | **2193** | **2134** | **4327** | **8450** | **9389** | **17839** |

**B. Training programmes for Rural youths**

| Area of Training | ON + OFF CAMPUS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of courses | Participants | | | | | | | | |
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Nursery Management of Horticulture crops | 1 | 33 | 0 | 33 | 0 | 0 | 0 | 33 | 0 | 33 |
| Training and pruning of orchards | 2 | 20 | 21 | 41 | 1 | 1 | 2 | 21 | 22 | 43 |
| Protected cultivation of vegetable crops | 5 | 80 | 91 | 171 | 0 | 4 | 4 | 80 | 95 | 175 |
| Commercial fruit production | 1 | 5 | 13 | 18 | 2 | 2 | 4 | 7 | 15 | 22 |
| Integrated farming | 1 | 9 | 11 | 20 | 0 | 0 | 0 | 9 | 11 | 20 |
| Seed production | 6 | 52 | 26 | 78 | 13 | 8 | 21 | 65 | 34 | 99 |
| Planting material production | 1 | 6 | 2 | 8 | 2 | 0 | 2 | 8 | 2 | 10 |
| Vermi-culture | 2 | 21 | 0 | 21 | 3 | 0 | 3 | 24 | 0 | 24 |
| Mushroom Production | 5 | 51 | 29 | 80 | 9 | 1 | 10 | 60 | 30 | 90 |
| Bee-keeping | 3 | 34 | 13 | 47 | 6 | 0 | 6 | 40 | 13 | 53 |
| Repair& maintenance of farm machinery & implements | 1 | 27 | 0 | 27 | 0 | 0 | 0 | 27 | 0 | 27 |
| Value addition | 3 | 0 | 57 | 57 | 0 | 3 | 3 | 0 | 60 | 60 |
| Small scale processing | 1 | 0 | 13 | 13 | 0 | 7 | 7 | 0 | 20 | 20 |
| Rural Crafts | 8 | 3 | 116 | 119 | 2 | 20 | 22 | 5 | 136 | 141 |
| Dairying | 1 | 20 | 0 | 20 | 0 | 0 | 0 | 20 | 0 | 20 |
| Sheep and goat rearing | 1 | 8 | 10 | 18 | 1 | 1 | 2 | 9 | 11 | 20 |
| Poultry production | 7 | 75 | 17 | 92 | 29 | 1 | 30 | 104 | 18 | 122 |
| Fish harvest and processing technology | 1 | 14 | 0 | 14 | 3 | 3 | 6 | 17 | 3 | 20 |
| Other | 12 | 90 | 109 | 199 | 14 | 28 | 42 | 104 | 137 | 241 |
| **TOTAL** | **62** | **548** | **528** | **1076** | **85** | **79** | **164** | **633** | **607** | **1240** |

**C. Training Programmes for Extension Functionaries**

| Area of Training | ON + OFF CAMPUS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of courses | Participants | | | | | | | | |
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Productivity enhancement in field crops | 8 | 94 | 4 | 98 | 5 | 0 | 5 | 99 | 4 | 103 |
| Integrated Pest Management | 7 | 90 | 15 | 105 | 0 | 0 | 0 | 90 | 15 | 105 |
| Integrated Nutrient management | 4 | 46 | 4 | 50 | 0 | 0 | 0 | 46 | 4 | 50 |
| Rejuvenation of old orchards | 1 | 7 | 3 | 10 | 0 | 0 | 0 | 7 | 3 | 10 |
| Protected cultivation technology | 3 | 22 | 3 | 25 | 0 | 0 | 0 | 22 | 3 | 25 |
| Production and use of organic inputs | 1 | 12 | 0 | 12 | 3 | 0 | 3 | 15 | 0 | 15 |
| Women and Child care | 3 | 0 | 53 | 53 | 0 | 0 | 0 | 0 | 53 | 53 |
| Low cost and nutrient efficient diet designing | 2 | 0 | 36 | 36 | 0 | 0 | 0 | 0 | 36 | 36 |
| Management in farm animals | 1 | 10 | 5 | 15 | 2 | 0 | 2 | 12 | 5 | 17 |
| Livestock feed and fodder production | 5 | 54 | 2 | 56 | 1 | 0 | 1 | 55 | 2 | 57 |
| Other | 8 | 76 | 56 | 132 | 9 | 9 | 18 | 85 | 65 | 150 |
| **TOTAL** | **43** | **411** | **181** | **592** | **20** | **9** | **29** | **431** | **190** | **621** |

**D. Sponsored Training programmes**

| Area of Training | No. of courses | Participants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| **Crop production and management** | | | | | | | | | | |
| Increasing production and productivity of crops | 8 | 102 | 45 | 147 | 19 | 18 | 37 | 121 | 63 | 184 |
| Commercial production of vegetables | 1 | 25 | 15 | 40 | 0 | 0 | 0 | 25 | 15 | 40 |
| **Production and value addition** | | | | | | | | | | |
| Fruit Plants | 1 | 10 | 6 | 16 | 1 | 4 | 5 | 11 | 10 | 21 |
| Methods of protective cultivation | 1 | 12 | 3 | 15 | 0 | 0 | 0 | 12 | 3 | 15 |
| Others | 3 | 93 | 54 | 147 | 10 | 2 | 12 | 103 | 56 | 159 |
| **Total** | 14 | 242 | 123 | 365 | 30 | 24 | 54 | 272 | 147 | 419 |
| **Post harvest technology and value addition** | | | | | | | | | | |
| Processing and value addition | 2 | 14 | 20 | 34 | 1 | 8 | 9 | 15 | 28 | 43 |
| **Total** | 2 | 14 | 20 | 34 | 1 | 8 | 9 | 15 | 28 | 43 |
| **Home Science** | | | | | | | | | | |
| Household nutritional security | 35 | 0 | 0 | 0 | 0 | 6060 | 6060 | 0 | 6060 | 6060 |
| **Total** | 35 | 0 | 0 | 0 | 0 | 6060 | 6060 | 0 | 6060 | 6060 |
| **Agricultural Extension** | | | | | | | | | | |
| Others | 2 | 73 | 41 | 114 | 23 | 12 | 35 | 96 | 53 | 149 |
| **Total** | 2 | 73 | 41 | 114 | 23 | 12 | 35 | 96 | 53 | 149 |
| **GRAND TOTAL** | **53** | **329** | **184** | **513** | **54** | **6104** | **6158** | **383** | **6288** | **6671** |

**E. Vocational Training programmes**

| Area of Training | No. of courses | Participants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Others | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| **Crop production and management** | | | | | | | | | | |
| Organic farming | 1 | 5 | 9 | 14 | 4 | 2 | 6 | 9 | 11 | 20 |
| **Total** | 1 | 5 | 9 | 14 | 4 | 2 | 6 | 9 | 11 | 20 |
| **Post harvest technology and value addition** | | | | | | | | | | |
| Value addition | 1 | 0 | 12 | 12 | **0** | **3** | 3 | 0 | 15 | 15 |
| **Total** | 1 | 0 | 12 | 12 | 0 | 3 | 3 | 0 | 15 | 15 |
| **Livestock and fisheries** | | | | | | | | | | |
| Sheep and goat rearing | 1 | 14 | 15 | 29 | **1** | **0** | 1 | 15 | 15 | 30 |
| Piggery | 1 | 8 | 14 | 22 | **2** | **1** | 3 | 10 | 15 | 25 |
| **Total** | 2 | 22 | 29 | 51 | 3 | 1 | 4 | 25 | 30 | 55 |
| **Income generation activities** | | | | | | | | | | |
| Tailoring, stitching, embroidery, dying etc. | 1 | 0 | 9 | 9 | 0 | 1 | 1 | 0 | 10 | 10 |
| **Total** | 1 | 0 | 9 | 9 | 0 | 1 | 1 | 0 | 10 | 10 |
| **Grand Total** | **5** | **27** | **59** | **86** | **7** | **7** | **14** | **34** | **66** | **100** |

Annexure - iv

# Scientific Advisory Committee Meetings (SACs) conducted at KVKs

| SNo | Name of the KVK | SAC Date | SAC No. |
|---|---|---|---|
| 1 | Bahraich | 17.3.2015 | 1 |
| 2 | Ballia | 03.02.2015 | 1 |
| 3 | Basti | 02.24.2015 | 1 |
| 4 | Mau | 04.02.2015 | 1 |
| 5 | Varanasi | 10.02.2015 | 1 |
| 6 | Siddharthnagar | 18.2.2015 | 1 |
| 7 | Faizabad | 17-10-2014 | 1 |
| 8 | Gorakhpur | 9.10.2014 | 1 |
| 9 | Maharajganj | 10.10.2015 | 1 |
| 10 | Sonbhadra | 03.12.2015 | 1 |
| 11 | Azamgarh | 6.2.2015 | 1 |
| 12 | Barabanki | 9.30.2014 | 1 |
| 13 | Balrampur | 18/03/15 | 1 |
| 14 | Chandauli | 11.02.2015 | 1 |
| 15 | Jaunpur | 09.03.2015 | 1 |
| 16 | Sant Kabir Nagar | 25.02.2015 | 1 |
| 17 | Ambedkar Nagar | 18.10.2014 | 1 |
| 18 | Jhansi | 03.9.2014 | 1 |
| 19 | Rai Bareli | 22.11.2014 | 1 |
| 20 | Fatehpur | 29.9.2014 | 1 |
| 21 | Aligarh | 6.9.2014 | 1 |
| 22 | Kannauj | 20.8.2014 | 1 |
| 23 | Etawah | 18.9.2014 | 1 |
| 24 | Mainpuri | 19.9.2014 | 1 |
| 25 | Kanpur (Dehat) | 23.8.2014 | 1 |
| 26 | Mahoba | - | - |
| 27 | Firozabad | 12.9.2014 | 1 |
| 28 | Hamirpur | 01.09.2014 | 1 |
| 29 | Lakhimpur Kheri | 15.09.2014 | 1 |
| 30 | Farrukhabad | 20.09.2014 | 1 |
| 31 | Jalaun | 23.08.2014 | 1 |
| 32 | Lalitpur | - | - |
| 33 | Hardoi | 20.08.2014 | 1 |
| 34 | Banda | 09.09.2014 | 1 |
| 35 | Mahamaya Nagar | 05.09.2014 | 1 |
| 36 | Mathura | 09.09.2014 | 1 |
| 37 | Bijnor | 11.11.2014 | 1 |
| 38 | Rampur | 26.11.2014 | 1 |
| 39 | Badaun | 26.11.2014 | 1 |
| 40 | Saharanpur | 12.11.2014 | 1 |
| 41 | Ghaziabad | 18.11.2014 | 1 |

| SNo | Name of the KVK | SAC Date | SAC No. |
|---|---|---|---|
| 42 | Sahajahanpur | 27.11.2014 | 1 |
| 43 | Meerut | 10.11.2014 | 1 |
| 44 | Muzaffarnagar | 12.11.2014 | 1 |
| 45 | Pilibhit | 27.11.2014 | 1 |
| 46 | Baghpat | 11.11.2014 | 1 |
| 47 | Moradabad | 28.11.2014 | 1 |
| 48 | G.B. Nagar | 17.11.2014 | 1 |
| 49 | Bulandshahar | 19.11.2014 | 1 |
| 50 | Sultanpur | 05.11.2014 | 1 |
| 51 | Etah | 11.09.2014 | 1 |
| 52 | Mirzapur | 03.03.2015 | 1 |
| 53 | Gonda | 19.03.2015 | 1 |
| 54 | Chitrakoot | 23.03.2015 | 1 |
| 55 | Allahabad | 29.11.2014 | 1 |
| 56 | Pratapgarh | 10.02.2015 | 1 |
| 57 | Unnao | 26.112014 | 1 |
| 58 | Bareilly | 28.11.2014 | 1 |
| 59 | Lucknow | 13.04.2015 | 1 |
| 60 | Gazipur | 05.02.2015 | 1 |
| 61 | Agra | 10.09.2014 | 1 |
| 62 | Kushinagar | - | - |
| 63 | Sant R.D. Nagar | 21.03.2015 | 1 |
| 64 | Deoria | 27.03.2015 | 1 |
| 65 | Sitapur | 22.11.2014 | 1 |
| 66 | Sitapur-II | 16.09.2014 | 1 |
| 67 | Kaushambi | 24.09.2014 | 1 |
| 68 | Auraiya | 21.08.2014 | 1 |
| 69 | Tehri Garhwal | 02.27.2015 | 1 |
| 70 | Champawat | 18.02.2015 | 1 |
| 71 | Almora | 25.03.2015 | 1 |
| 72 | Chamoli | 26.03.2015 | 1 |
| 73 | Haridwar | 15.09.2014 | 1 |
| 74 | Pauri Garhwal | 28.02.2015 | 1 |
| 75 | Rudraprayag | 27.03.2015 | 1 |
| 76 | Nainital | 25.09.2014 | 1 |
| 77 | Pithouragarh | 19.02.2015 | 1 |
| 78 | Dehradun | - | 1 |
| 79 | U.S. Nagar | 24.09.2014 | 1 |
| 80 | Uttarkashi | 20.11.2015 | 1 |
| 81 | Bagheshwar | 12.12.2014 | 1 |
| | **Total** | | **78** |

Annexure - v

# Research Projects

| S.No. | Title of the Project | Principal Investigator | Associates/Co-PIs |
|---|---|---|---|
| (A) | **Completed Projects** | | |
| 1 | Engaging Farmers, Enriching Knowledge-Agropedia 2.0 (2010-2014) | Dr. A.K. Singh | Dr. Lakhan Singh |
| 2 | Technology Demonstrations for Harnessing Pulses Productivity in U.P. (2010-2013) | Dr. A.K. Singh | Dr. Lakhan Singh |
| 3 | Maize Demonstrations under ISOPOM Scheme (2010-2013) | Dr. A.K. Singh | Dr. Lakhan Singh |
| (B) | **On going projects** | | |
| 1 | National Initiative on Climate Resilient Agriculture in U.P. & Uttarakhand | Dr. Atar Singh | Dr. Ajit Shrivastava |
| 2 | Production and marketing systems of Off-season vegetable Cultivation and export-led Fruit Production | Dr. A.K. Singh | Dr. Lakhan Singh, Dr.S.K. Dubey |
| 3 | Impact of soil rehabilitation & climate resilience practices adopted by farmers | Dr. Atar Singh | Dr. A.K. Singh, Dr. Lakhan Singh & Dr. S.K. Dubey |
| 4 | Impact of resource conservation technologies | Dr. Lakhan Singh | Dr. Atar Singh, Dr. S.K. Dubey |
| 5 | Impact analysis of crop enterprise diversification and integration (CDI) | Dr. S.K. Dubey | Dr. A.K. Singh, Dr. Lakhan Singh |
| 6 | Harnessing modern communication technologies for sharing available knowledge resources with pulse growing farmers of Uttar pradesh | IIPR, Kanpur | Dr. S. K. Dubey |
| (C) | **New initiatives** | | |
| 1 | National Initiative on Fodder Technology Demonstrations | Dr. Atar Singh | - |
| 2 | Productivity enhancement of partially reclaimed sodic soil through intervention of resource conservation, salt tolerant cultivars & crop diversification for economical & livelihood security of small holding farmers in Eastern Uttar Pradesh | Dr. V.K. Mishra | Dr . Atar Singh, Dr. Lakhan Singh & Dr. S.K. Dubey |
| 3 | Technological intervention for enhancing sugarcane productivity in U.P. & Uttarakhand through KVKs | All Heads of IISR, Lucknow | Dr. R.K. Singh, Dr. Atar Singh, Dr. Deepak Rai |
| 4 | Popularization of quality planting materials for sub-tropical fruit crops in Uttar Pradesh | Director, CISH, Lucknow | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 5 | Livestock based interventions for productivity enhancement in Uttar Pradesh | Director, IVRI, Bareilly | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 6 | Technological interventions for enhancing vegetable production in UP and Uttarakhand through KVK linkages | Director, IIVR, Varanasi | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 7 | Capacity building of KVK Specialists on soil and moisture conservation related practices | Director CSWCR&TI, Dehradun | ZPD Scientists & Selected KVK ZPD, Zone-IV |
| 8 | Popularization of improved crop varieties in Uttarakhand through KVK linkages | Director VPKAS, Almora | ZPD Scientists & Selected KVK ZPD, Zone-IV |

Annexure - vi

# Swachh Bharat Abhiyan

In pursuance of Prime Minister's call for Swachh Bharat as a mass movement, ICAR-ZPD, Zone-IV, Kanpur also initiated the intensive cleanliness campaign which began on 25th September, 2014. Under this campaign the Directorate executed two pronged activities. While the 81 KVKs from the states of Uttar Pradesh and Uttarakhand were persuaded to join this campaign. Following task has been taken into consideration.

- Cleaning and sweeping of offices, corridors and premises by the Directorate as well as KVKs were done.
- The old and obsolete furniture, junk materials at the Directorates were also disposed.
- White washing of buildings of many KVKs (Ballia, Azamgarh etc) were done.
- Awareness campaign in operational villages of KVK involving farmers, farm women and school children were conducted as evident from the photographs
- Media coverage was also done for the compaign

KVK Azagmagarh

KVK Kanpur Dehat

ZPD, Zone-IV, Kanpur office Campus

KVK Muzaffarnagar


KVK Tehri Garhwal

KVK Daleep Nagar