

CLUSTER FRONTLINE DEMONSTRATIONS ON OILSEEDS IN INDIA—KVK PERFORMANCES

2016–17



Division of Agricultural Extension
Indian Council of Agricultural Research
New Delhi - 110012

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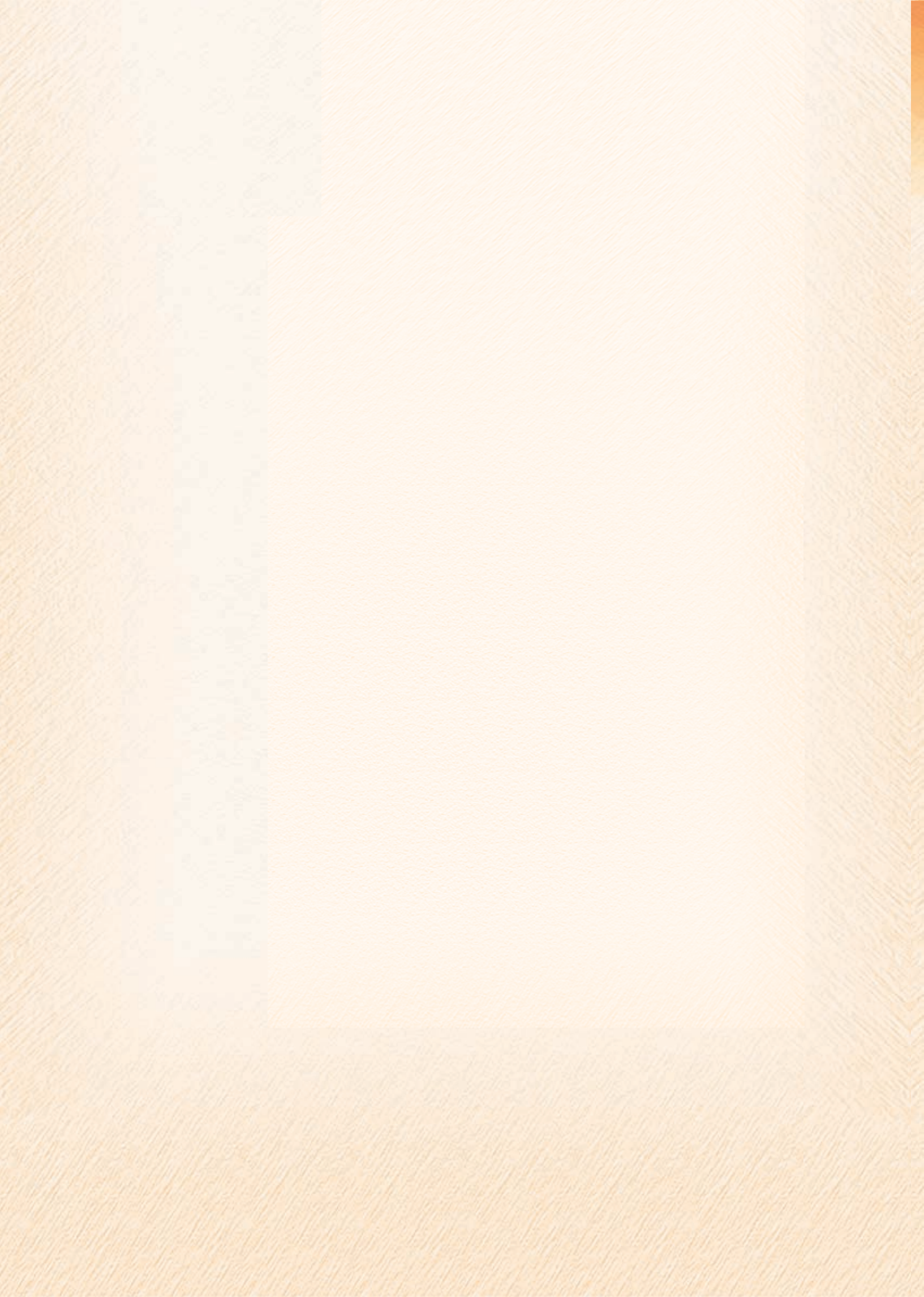
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EXECUTIVE SUMMARY

India occupies a prominent position, on the oilseeds map of the world, both in regard to acreage and production. India is the 4th largest edible oil economy in the world and contributes about 10 per cent of the world oilseeds production, 6-7% of the global production of vegetable oil and nearly 7 percent of protein meal. This sector also has an important place in the Indian agricultural sector covering an area of about 26.71 million hectares, with total production of over 29 million tons.

The bulk of vegetable oil production in India is derived from nine oilseeds namely Soybean, Groundnut, Rapeseed & Mustard, Sesame, Safflower, Niger and Sunflower forming the edible group and Linseed and Castor forming the non-edible group being exploited for vegetable oils.

The Department of Agriculture and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India sanctioned a project on "Cluster Frontline Demonstrations of Oilseeds 2016-17" under National Mission on Oilseeds and Oil Palm implemented through eight Zones of ICAR - Agricultural Technology Application Research Institutes (ATARIs).

The major technologies focused in the demonstration were introduction of suitable crops and varieties, method of sowing, and crop management in rice fallows, high yielding varieties and hybrids, seed treatment, line sowing, micro-nutrient application, integrated nutrient management, integrated pest management, integrated weed management, system of mustard intensification, ridge and furrow method of sowing etc.

Among the major oilseed-producing states, Rajasthan, Madhya Pradesh and Maharashtra have exhibited the healthy growth rates in the area, production and productivity during 2015-16. Only a few states like Haryana, Madhya Pradesh, Maharashtra, Rajasthan and West Bengal have increased the oilseeds production through both area as well as productivity improvement. The rate of growth in the production was estimated to be around 12 per cent at country level and increase in the production was mainly due to significant expansion. Major expansion took place in Madhya

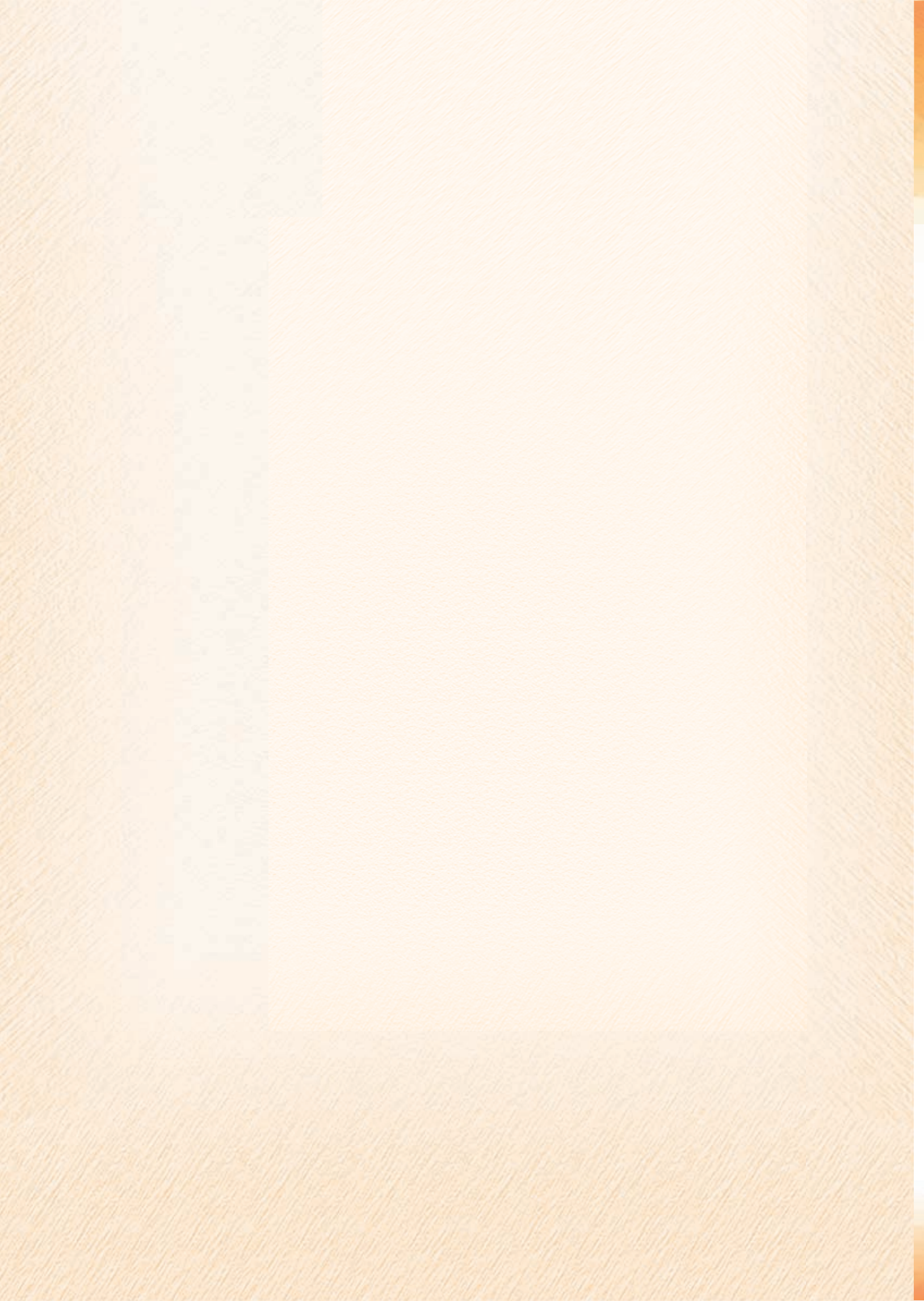
Pradesh accounting to 59.10 per cent of area under soybean cultivation.

Under this programme, there was 20666 ha area allotted in which 17193.05 ha area were covered with the demonstrations across all the zones during 2016-17. In Kharif season, 8170 ha area, in Rabi season 11756 ha area and Summer season 720 ha areas were allotted for CFLDs of oilseed across all the eight zones. In actual, 5788.16 ha area in Kharif season, 10374.24 ha area in Rabi season and 1180.02 ha area in Summer season demonstrations were conducted during 2016-17.

On national basis the yield advantage in groundnut recorded increase percentage (17.59%) followed by linseed (48.47%), mustard (33.91%), niger (56.81%), safflower (71.28%), sesame (40.42%), soybean (29.59%) and sunflower (31.23%).

The current status of oilseed crops has been analyzed for the past three decades which highlights the role of policy, technology and their interactions in shaping it. The role of technological inputs, policy environment and price systems in giving direction to the oilseeds economy cannot be over-emphasized. The potential sources of growth and their related constraints throw light on the possible future directions in oilseeds economy for sustaining its growth. Enlarging the scope of research and technology diffusion and institutional intervention beyond the farm gate is the way forward in re-energizing the oilseed crop sector. Special emphasis may be given to the following:

- Increase public research spending in oilseed crops for development of biotic and abiotic stress tolerant varieties and other potential areas for yield breakthrough.
- Strengthen the oilseed crop seed chain, particularly in groundnut to match the variety specific demand for higher yield.
- Ensure availability of key physical (fertilizers, pesticides), financial (credit facilities, crop insurance) and technical inputs (extension services) in major crop ecological zones for oilseed crops.



INTRODUCTION

Oilseeds constitute a very important group of cash crops in India. The oil extracted from oilseeds form an important constituent in our daily diet and it is also serves as raw material for number of items like paints, varnishes, hydrogenated oil, soaps, perfumery, lubricants, etc. Oil-cake which is the by product after the oil extraction, forms an important cattle-feed and manure.

More than 10 million tons of vegetable oil was imported with a total value of Rs. 61,106.43 crores during 2012-13. Palm oil/palmolein (78%) had the highest share followed by soybean (10%) and sunflower oil (9%). When we consider about export of oilseeds like HPS groundnut, white sesame, sunflower, mustard and niger seeds is allowed without any quantitative restrictions. Export restrictions have also been lifted in respect of castor oil, coconut oil and certain oils produced from the seeds of forest origin like sal, mahua, kokum, mango kernel etc. Besides, large quantity of De-oiled cakes (DOC) is also allowed for export. Soybean extraction has the largest (71%) share in export of cakes. In case of seeds, HPS groundnut (59%) and sesame (33%) have largest share in export and castor oil (95%) in case of export of oils/fats. Exports of these commodities have earned a foreign exchange of Rs 23,681/- crores during 2012-13.

Indian vegetable oil economy is world's fourth largest after USA, China and Brazil. Oilseeds are among the major crops that are grown in the country in about 26.71 million ha, largely under rainfed areas (72%) with risk in investment. The

oilseeds account for 15 percent of the gross cropped area and 9% of value output from agriculture. India is the largest producer of oilseeds in the world and oilseed sub- sector occupies an important position in Indian agricultural economy. In terms of acreage, production and economic value oilseed crops are second only to food grains.

India is ideally suited for growing all the major annual oilseed crops. Among the nine major oilseed crops grown in the country seven (soybean, groundnut, rapeseed-mustard, sunflower, sesame, safflower and niger) are for edible oils and two (castor and linseed) are for non-edible oils. India ranks first in the production of most of the minor oilseeds (castor, niger, safflower and sesame).

Among these nine oilseeds, soybean (39%), groundnut (26%), Rapeseed & Mustard (24%) contributes more than 88 percent of total oilseeds production in the country. However, in terms of vegetable oil production mustard, soybean and groundnut contributes more than 31, 26 and 25 percent respectively. The annual growth rates of area (2.44%), production (5.4%) and productivity (2.96%) of oilseed crops during 1999-2009 have declined as compared to that of 1986-98 (area: 3.05%, Production: 6.36% and productivity: 3.73%). However, during last one and half decade, the area, production and productivity of oilseeds has increased considerably (Table 1.1) due to favorable weather conditions and oilseeds production programmes and policies of the government of India.

Table 1.1: Area, production and productivity of oilseed crops in India

Crops	Parameters	TE-2000-01	TE-2004-05	TE-2010-11	TE-2013-14
Groundnut	A	6.94	6.19	5.83	5.16
	P	6.88	6.34	6.95	7.12
	Y	9.91	10.25	11.92	13.80
Castor	A	0.85	0.68	0.83	1.26
	P	0.83	0.67	1.18	1.99
	Y	9.79	9.87	14.23	15.89

Crops	Parameters	TE-2000-01	TE-2004-05	TE-2010-11	TE-2013-14
Niger	A	0.47	0.43	0.38	0.32
	P	0.13	0.10	0.11	0.10
	Y	2.83	2.41	2.85	3.05
Sesame	A	1.63	1.66	1.94	1.76
	P	0.51	0.63	0.71	0.74
	Y	3.13	3.80	3.64	4.18
Rapeseed & mustard	A	5.67	5.76	6.26	6.30
	P	5.21	5.92	7.33	7.50
	Y	9.19	10.28	11.70	11.91
Linseed	A	0.64	0.46	0.37	0.30
	P	0.24	0.18	0.16	0.15
	Y	3.69	3.95	4.23	4.86
Safflower	A	0.43	0.37	0.28	0.20
	P	0.23	0.16	0.17	0.12
	Y	5.37	4.42	6.27	6.00
Sunflower	A	1.40	1.94	1.41	0.74
	P	0.76	1.00	0.89	0.52
	Y	5.47	5.15	6.31	7.00
Soybean	A	6.38	6.74	9.62	10.89
	P	6.50	6.45	10.87	12.91
	Y	10.19	9.56	11.30	11.86
Edible oilseeds	A	22.92	23.09	25.72	25.39
	P	20.23	20.61	27.03	29.02
	Y	8.83	8.93	10.51	11.43
Non edible oilseeds	A	1.49	1.14	1.20	1.56
	P	1.07	0.85	1.33	2.14
	Y	7.17	7.49	11.14	13.74
Total nine oilseeds	A	24.41	24.23	26.91	26.95
	P	21.30	21.46	28.36	31.16
	Y	8.73	8.86	10.54	11.56

* A-Area (mha), P-Production (mt), Y-Yield (q/ha)

Stability of oilseed production is a major concern as it has been fluctuating over the years and the country has put an enormous import-bill on oilseeds. As mentioned earlier, oilseed being grown in rainfed area is complex diverse risk prone environment, the production and return on investment always remain low creating a gap in the demand-supply chain. The oilseeds area and output are concentrated in the central and southern parts of India, mainly in the states of Madhya Pradesh, Gujarat, Rajasthan, Andhra Pradesh and Karnataka. Among different annual oilseeds, groundnut, rapeseed & mustard and soybean together account for about 80 per cent of

oilseeds area and 87 per cent of oilseeds production in the country. In an effort to reduce the existing wide gap in the demand supply chain of oilseeds. Department of Agriculture and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, GoI sanctioned a project on "Cluster Frontline Demonstrations of Rabi Oilseeds 2015-16" under National Mission on Oilseeds and Oil Palm (Mini Mission-I). The project is implemented through 8 Zones of ICAR Agricultural Technology Application Research Institutes. Under Mini Mission -1 of the NMOOP, GoI has set up ambitious target of 35.51 million tons and productivity of 1328 kg/ha of oilseeds during 12th plan from the present average

production of 28.93 million tons and productivity of 1081 kg/ha.

The oilseeds account for 13 percent of the gross cropped area, 3 percent of the Gross National Product (GNP) and 10 percent value of all the agricultural commodities. Among the nine oilseeds, soybean (39%), groundnut (26%), Rapeseed & Mustard (24%) contributes more than 87 percent of total oilseeds production in the country. However, in terms of vegetable oil production mustard, soybean and groundnut contributes more than 31, 26 and 25 percent respectively. The annual growth rates of area (2.44%), production (5.4%) and productivity (2.96%) of oilseed crops during 1999-2009 have declined as compared to that of 1986-98 (area: 3.05%, Production: 6.36% and productivity: 3.73%). However, during last one and half decade, the area, production and productivity of oilseeds has increased considerably (Table 1.2) due to favorable weather conditions

and oilseeds production programmes and policies of the Government of India.

1.1 Soybean

Soybean (*Glycine max*) is an important oilseed crop. The first domestication of soybean has been traced to the eastern half of North China in the eleventh century B.C. perhaps even earlier. Soybean has been one of the five main plant foods of China along with rice, wheat, barley and millet. According to reports, soybean production was localized in China until after the Chinese-Japanese war of 1894-95.

Soybean is cultivated across the continents except Europe and Australia over an area of more than 100 mha. Countries USA, Brazil, Argentina, India and China contribute about 90 percent of the total soybean production in the world. Brazil occupies first position in world whereas in India Madhya Pradesh occupies first position.

Table 1.2: Soybean World Scenario

Country	Area (Mha)		Yield (Mt/ha)		Production (mMt)	
	2015-16	2016-17	2015-16	2016-17	2015-16	2016-17
United States	33.08	33.48	3.23	3.50	106.86	117.21
Brazil	33.30	33.90	2.90	3.36	96.50	114.00
Argentina	19.53	18.35	2.91	3.15	56.80	57.80
China	6.51	7.20	1.81	1.79	11.79	12.90
India	11.67	11.40	0.59	1.01	6.93	11.50
Paraguay	3.26	3.39	2.82	3.15	9.22	10.67
Canada	2.20	2.22	2.90	2.95	6.37	6.55
Ukraine	2.14	1.85	1.84	2.31	3.93	4.28

Source: Foreign Agricultural Service/USDA August 2017 Office of Global Analysis

Table 1.3: State-wise area, production and yield status of Soybean

State	Area (lakh ha)			Production (lakh tons)			Yield (kg/ha)		
	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
Andhra pradesh	15.5	19.5	28.4	16.2	20.5	23.2	1050	1055	815
Chhattisgarh	1	1.06	1.07	0.76	1.28	0.94	753	1208	879
Karnataka	1.91	1.72	2.25	1.72	1.8	2.54	901	1047	1129
Madhya Pradesh	56.69	60.32	63.8	62.81	78	53.69	1108	1293	842
Maharashtra	30.1	32.18	39.17	39.69	46.69	47.85	1319	1451	1222
Rajasthan	8.97	10.4	11.77	13.85	14.69	9.75	1544	1413	828
Others	1.12	1.16	1.49	1.2	1.44	1.18	1071	1241	792
All India	101.2	108.4	117.2	122.1	146.7	118.6	1208	1353	10.12

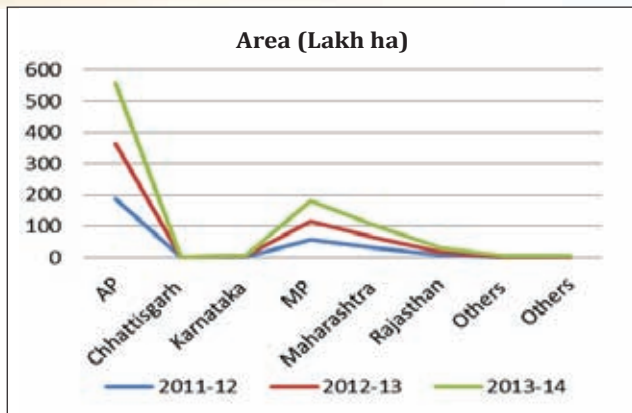


Fig. 1.1: State-wise area of soybean

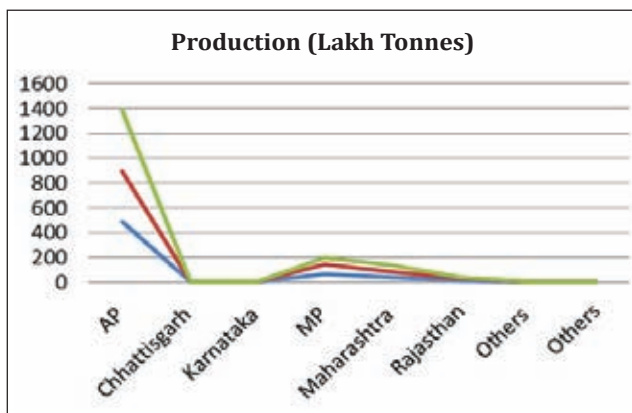


Fig. 1.2: State-wise production of soybean

Soybean seed contains 18-19 percent oil soybean meal, one of the major uses of soybean globally is as livestock feed, predominantly in the form of soybean meal, rich in omega-3 fatty acids, whereas soy is predominantly omega-6. The soybean hulls, which mainly consist of the outer coats of the beans removed before oil extraction is also fed to livestock. In addition to its use as livestock feed, soybean products are widely used for human consumption. Common soybean products include soy sauce, soy milk, tofu, soy meal, soy flour, textured vegetable protein (TVP).

1.2 Groundnut

Cultivated groundnut belongs to genus *Arachis* in subtribe *Stylosanthinae* of tribe *Aeschynomeneae* of family *Leguminosae*. It is a self-pollinated, tropical annual legume. At locations where bee activity is high, some cross-pollination can occur. Cultivated groundnut has two subspecies, *hypogaea* and *fastigiata*.

It has been reported that South America is the place from where cultivation of groundnut originated and spread to Brazil, Southern Bolivia

Table 1.4: Groundnut World Scenario

Country	Area (mha)		Yield (Mt/ha)		Production (mMt)	
	2015-16	2016-17	2015-16	2016-17	2015-16	2016-17
China	4.62	4.75	3.56	3.58	16.44	17.00
India	4.55	5.50	0.98	1.26	4.47	6.92
Nigeria	2.50	2.50	1.20	1.20	3.0	3.0
United States	0.63	0.63	4.31	4.12	2.72	2.58
Sudan	2.18	1.80	0.86	0.78	1.87	1.40
Argentina	0.29	0.35	3.21	3.30	0.93	1.14
Indonesia	0.62	0.60	1.84	1.87	1.13	1.12
Burma	0.89	0.89	1.55	1.55	1.38	1.38

*Foreign Agricultural Service/USDA August 2017 Office of Global Analysis

and North-western Argentina. Groundnut was introduced by the Portuguese from Brazil to west Africa and then to south-western India in the 16th century. Almost every part of groundnut is of commercial value. Globally, China ranked first in groundnut production where as in India, Gujarat occupies first position.

Groundnut oil has several uses but it is mainly used as cooking oil. It is used in preparations like soap making, fuel, cosmetics, shaving cream, leather dressings, furniture cream, lubricants, etc.

Groundnut oil is also used in making vanaspati ghee and in fatty acids manufacturing. It is also used as a medium of preservation for preparation of pickles, chutney, etc. Groundnut oil is used in making different types of medicated ointments, plasters, syrups and medicated emulsion. It is also used to make various food preparations like butter, milk, candy and chocolate, groundnut pack, laddu, barfi (chiki), etc.

India have highest area followed by China where as in production China ranks first followed

Table 1.5: State-wise area, production and yield status of Groundnut

State	Area lakh ha			Production lakh tons			Yield kg/ha		
	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
Andhra Pradesh	13.07	13.45	13.86	8.44	11.09	12.34	646	825	890
Gujarat	16.86	12.94	18.42	27.17	7.58	49.18	1612	586	2670
Karnataka	6.77	6.48	7.25	4.85	4.12	6.58	716	636	908
Madhya Pradesh	2.13	2.06	2	3.45	3.12	1.98	1620	1515	990
Maharashtra	3.03	2.24	2.67	3.51	2.46	3.25	1158	1098	1217
Odisha	0.66	0.66	0.58	0.79	0.81	0.8	1197	1227	1379
Rajasthan	4.18	4.02	4.66	8.05	6.22	9.06	1926	1547	1944
Tamil Nadu	3.86	3.86	3.42	10.61	8.64	9.62	2749	2238	2813
Uttar Pradesh	0.92	0.94	0.96	0.92	0.94	0.86	1000	1000	896
West Bengal	0.54	0.68	0.79	1.06	1.71	2.02	1963	2515	2557
Others	0.62	0.33	0.66	0.79	0.8	1.04	1274	2424	1576
All India	52.64	47.66	55.27	69.64	47.49	96.73	1323	996	1750

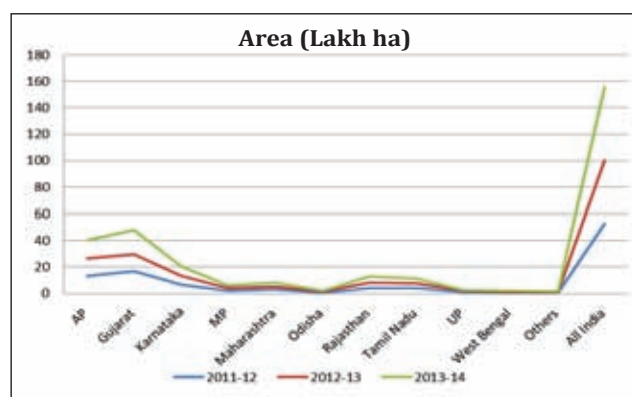


Fig. 1.3: State-wise area of groundnut

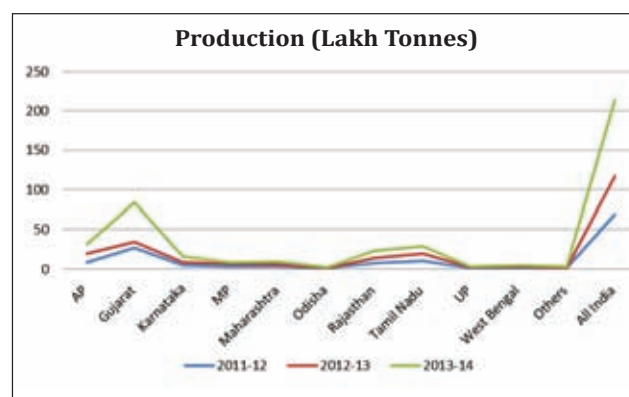


Fig. 1.4: State-wise production of groundnut

by India while USA have highest productivity of groundnut.

1.3 Rapeseed & mustard

Rapeseed & mustard is a group of oilseeds crops comprising rapeseed (toria, brown sarson and yellow (sarson) cultivar of (*Brassica campestris*) Indian mustard (*Brassica juncea*) black mustard (*Brassica nigra*) and taramira (*Eruca sativa*). Some exotic species of Brassicas like gobhi sarson (*B. napus*), Ethiopian mustard or karan rai (*B. carinata*) and white mustard (*Sinapis alba*) have been brought into cultivation in India. The crops of rapeseed group are largely cross pollinated where as Indian mustard is largely self pollinated. Out of these cultivars Indian mustard fits well in cropping system of rainfed areas and accounts for more than 75 percent of the total area under rapeseed & mustard cultivation in India. Other

cultivars like brown sarson and yellow sarson are under cultivation over limited areas in the Eastern part of the country including North-Eastern states. Toria, a short duration crop is largely grown as a catch crop in tarai part of UP, Haryana, Assam and Odisha. Gobhi sarson is under cultivation over a limited areas in Himachal Pradesh and Jammu & Kashmir and Punjab under irrigated ecologies.

Edible oils from Rapeseed & mustard give edible oil which is used as cooking medium in north India. Seed is used as condiment in the preparation of vegetable and curries. Split seed (Mohari dal) and oil is used for pickling. The leaves of the young plants are used as vegetable. Oil cake is fed to cattle. Oil content mustard varies from 30 to 48 percent. Oil content of white mustard varies from 25 to 33 percent.

Rapeseed and mustard is widely grown in majority of continents with largest area of 8

million ha in Canada followed by 7.5 mha in China and more than 6 million ha in India. However, the productivity in India is the lowest among the major rapeseed & mustard growing countries. As

against the World average of 1994 kg/ha, highest productivity (3947 kg/ha) of rapeseed and mustard is in Germany, while in India it is least 1233 kg/ha (2012-13).

Table 1.6: Mustard World Scenario

Country	Area (mha)		Yield (Mt/ha)		Production (mMt)	
	2015-16	2016-17	2015-16	2016-17	2015-16	2016-17
Canada	8.32	8.05	2.21	2.30	18.38	18.50
Russia	0.90	0.91	1.12	1.10	1.00	1.00
Ukraine	0.68	0.45	2.58	2.78	1.74	1.25
China	7.53	7.00	1.98	1.93	14.93	13.50
United States	0.69	0.69	1.88	2.05	1.31	1.40
India	5.75	6.50	1.03	1.09	5.92	7.09
European Union	6.51	6.56	3.38	3.13	22.00	20.53
Australia	2.36	2.33	1.25	1.78	2.94	4.14

*Foreign Agricultural Service/USDA August 2017 Office of Global Analysis

Table 1.7: State-wise area, production and yield status of Mustard.

State	Area lakh ha			Production lakh tons			Yield kg/ha		
	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
Rajasthan	25.02	28.35	30.79	29.76	36.45	38.28	1189	1286	1243
Madhya Pradesh	7.85	7.85	8.14	8.7	9.19	9.02	1108	1171	1108
Haryana	5.35	5.59	5.37	7.47	9.62	8.8	1396	1721	1639
Uttar Pradesh	6.39	6.62	6.63	7.26	8.36	7.7	1136	1263	1161
West Bengal	4.2	4.67	4.55	3.81	4.58	4.9	908	981	1077
Gujarat	2.08	2.14	2.82	3.27	3.37	4.46	1572	1575	1582
Assam	2.41	2.47	2.57	1.35	1.58	1.45	560	640	564
Jharkhand	1.75	1.71	2.1	1.17	1.36	1.45	670	795	690
Bihar	0.9	0.91	0.9	0.93	1.11	1.02	1029	1220	1133
Jammu & Kashmir	0.6	0.6	0.61	0.51	0.51	0.49	851	850	803
Chhattisgarh	0.5	0.5	0.47	0.22	0.26	0.26	436	520	553
Others	1.67	1.98	2.06	1.59	1.81	1.77	952	914	859
All India	58.9	63.6	66.5	66.0	80.3	78.8	1121	1262	1185

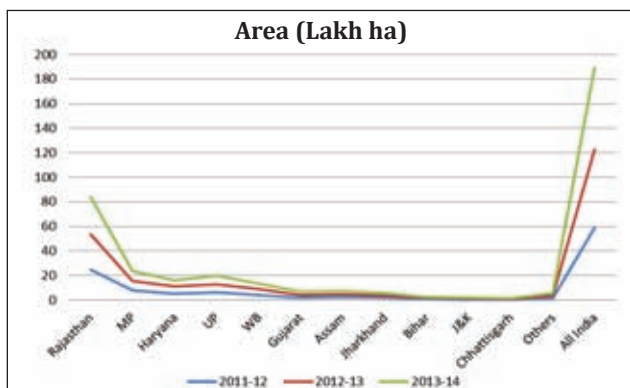


Fig. 1.5: State-wise area of mustard

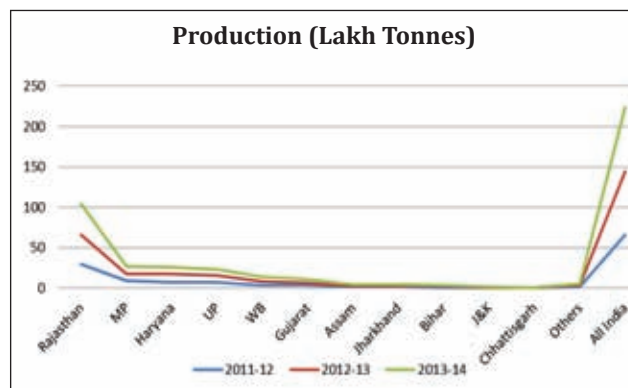


Fig. 1.6: State-wise production of mustard

1.4 Other oilseeds

Sesame is cultivated over an area of more than 7 mha in world with an annual production of 4 mtons and productivity of 535 kg/ha. India, Myanmar, Sudan and China are the major sesame growing countries. India has largest coverage but China has highest yield of sesame. In India, Uttar Pradesh followed by Rajasthan are major producer states.

Sunflower is grown over mha in more than 70 countries with a World average yield of 1611 kg/ha. Russian Federation, Ukraine, Argentina, Romania, China, Kazakistan, Spain, Tanjania, Bulgaria, France, India, Turkey, South Africa, USA and Myanmar are the major sunflower growing countries. China, France and Turkey are the highest yielding countries with an average yield of worlds more than 2 tons/ha as against the lowest yielding countries like Kazakistan, Myanmar and India with less than 1 ton/ha. Russia and Ukraine have largest share of about 50 percent in sunflower production. In India, Karnataka occupies first rank followed by Andhra Pradesh.

Niger is grown as oilseeds in Ethiopia, Germany, West Indies, Brazil, Maxico, China, Nepal, Myanmar and India.

Niger is grown over 3 lakh ha in India in 10 states, with maximum area in Chhattisgarh, Madhya Pradesh, Odisha and Maharashtra.

Linseed is cultivated by more than 50 countries occupying 21.28 lakh ha (2007-12) with a production of 18.68 lakh tons and productivity of 877 kg/ha. Bihar, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra,

Nagaland, Odisha, Uttar Pradesh and West Bengal are the major linseed growing state. The area under linseed cultivation has declined from 4.68 lakh ha (2007-08) to 3.03 lakh ha during 2013-14. However, the productivity of linseed has increased from 413 kg/ha to 462 kg/ha during the same period. Linseed oil is the richest source of lenolenic (18:3) poly unsaturated fatty acid (35-60%), which has quick drying property, therefore, linseed oil is largely used in paint and varnish industry. It is also used in production of printing ink and soap. As for as the nutritive value of linseed is concerned, seeds are the best source of omega-3 and omega-6. Therefore, these seed have high medical value in control of cardiovascular, cancerous, diabetic and rheumatic arthritis diseases. Roasted seeds of linseeds are used under various food.

Safflower oil is sold as Saffola, which is considered to be most preferred oil due to rich poly-unsaturated fatty acids content (73-79% of lenolenic). Saffola helps in reducing the blood cholesterol level. Safflower is cultivated in more than 20 countries on an average area of 9.55 lakh ha with a production of 8.09 lakh tonne and productivity of 846 kg/ha (2012-13 to 2014-15), Kazakhasthan, India, Mexico, Argentina, USA are major growing countries. India has the larger coverage but lower yield among the major safflower producing countries. Maharashtra and Karnataka are major safflower growing states, which contribute more than 90% of India's production, An area of 1.44 lakh ha was covered under safflower during 2015-16 as against average area of 2.79 lakh ha during 11th Plan.

Scenario of vegetable oil import in India

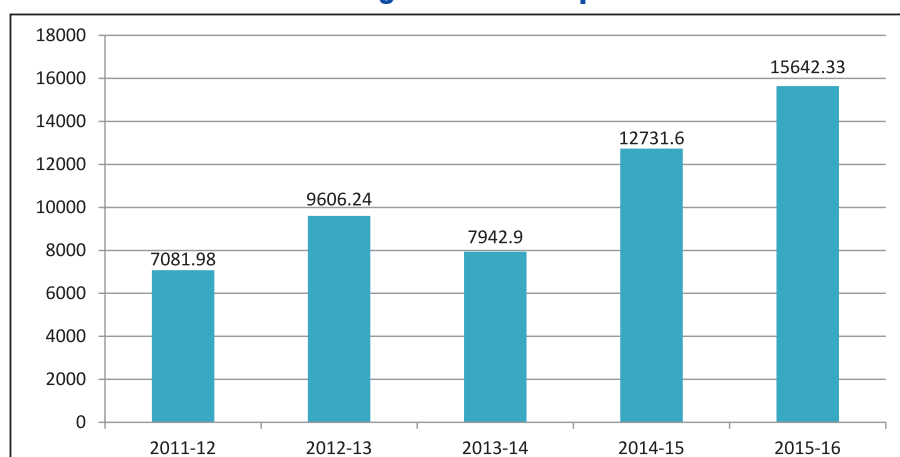


Fig. 1.7: Scenario of vegetable oil import in India

PROCESSES AND METHODOLOGY

The Department of Agriculture Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare sanctioned the project "Cluster Demonstrations of Oilseeds" under the Mini Mission-I with special focus to implement it in the states of Bihar, Jharkhand, Chhattisgarh, Gujarat, Haryana, Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal, Assam, Jammu & Kashmir, Nagaland and Tripura. As per operational guidelines of NMOOP, the ICAR is the nodal agency for conducting Frontline Demonstrations (FLDs) on oilseeds under the Mission. The FLDs were to be conducted by National Agricultural Research System (NARS) i.e. ICAR Institutes, State Agriculture Universities and Krishi Vigyan Kendras (KVKs) etc. Therefore, the cluster FLDs on oilseeds were conducted through KVKs during Kharif 2016-17. The details on crop wise FLDs conducted on oilseeds crops are as given in table:

Table 2.1: Crop and state wise details of CFLD in Kharif

Zone	State	Proposed		Achieved	
		(Area ha)	(No. of Demo)	(Area ha)	(No. of Demo)
Groundnut					
Zone I	Punjab	30	75	10.8	29
Zone II	Jharkhand	330	825	270	719
	West Bengal	270	675	120.06	472
Zone III	Tripura	60	150	60	177
Zone IV	Uttar Pradesh	40	100	20	50
Zone V	Andhra Pradesh	160	400	144	285
	Maharashtra	60	150	20	50
Zone VI	Gujarat	280	700	240	542
	Rajasthan	200	500	93.6	234
Zone VII	Chhattisgarh	30	75	30	75
	Madhya Pradesh	30	75	30	75
	Odisha	480	1200	276	594
Zone VIII	Karnataka	224	560	112	280
	Tamil Nadu	280	700	84.2	211
	Total	2474	6185	1510.66	3793
Niger					
Zone II	Bihar	30	75	30	67
	Jharkhand	210	525	200	500
Zone VII	Chhattisgarh	120	300	120	248
	Madhya Pradesh	90	225	105	245
	Odisha	50	125	50	125
	Total	500	1250	505	1185

Zone	State	Proposed		Achieved	
		(Area ha)	(No. of Demo)	(Area ha)	(No. of Demo)
Sesame					
Zone I	Haryana	80	200	64	160
	Himachal Pradesh	20	50	8.5	61
	Jammu & Kashmir	10	25	0*	0
	Punjab	10	25	10	25
Zone II	Bihar	220	550	111.8	273
	Jharkhand	240	600	240	571
	West Bengal	220	550	20	69
Zone III	Assam	300	750	240	568
	Tripura	30	75	30	95
Zone IV	Uttar Pradesh	0*	0	366	915
Zone V	Andhra Pradesh	20	50	15	39
Zone VI	Gujarat	120	300	120	246
	Rajasthan	240	600	220	512
Zone VII	Chhattisgarh	60	150	80	168
	Madhya Pradesh	90	225	57.4	129
	Odisha	420	1050	150	415
	Total	2080	5200	1732.7	4246
Soybean					
Zone II	Bihar	20	50	20	50
Zone III	Nagaland	30	75	30	61
Zone IV	Uttar Pradesh	30	75	0	0
Zone V	Maharashtra	660	1650	585	1383
	Telangana	120	300	0	0
Zone VI	Gujarat	80	200	80	200
	Rajasthan	190	475	163	430
Zone VII	Chhattisgarh	90	225	60	110
	Madhya Pradesh	840	2100	850.2	2016
	Odisha	30	75	0	0
Zone VIII	Karnataka	78	195	78	195
	Total	2168	5420	1866.2	4519
Sunflower					
Zone I	Himachal Pradesh	10	25	0	0
	Jammu & Kashmir	20	50	3.6	19
Zone IV	Uttar Pradesh	430	1075	0	0
Zone V	Andhra Pradesh	60	150	40	50
	Maharashtra	60	150	0	0
Zone VII	Madhya Pradesh	30	75	0	0
Zone VIII	Karnataka	338	845	130	325
	Total	948	2370	173.6	394
Grand Total		8170	20425	5788.16	14137

*Zero indicate re-allotment in proposal / achievement.

Table 2.2: Crop and state wise details of CFLD in Rabi

Zone	State	Proposed		Achieved	
		(Area ha)	(No. of Demo)	(Area ha)	(No. of Demo)
Groundnut					
Zone II	West Bengal	0	0	60	150
Zone V	Andhra Pradesh	160	400	172	281
	Telangana	90	225	100	230
	Maharashtra	130	325	185.5	460.75
Zone VII	Odisha	510	1275	711	1394
Zone VIII	Karnataka	208	520	228	570
	Tamil Nadu	236	590	408.8	1022
	Total	1334	3335	1865.3	4107.75
Sesame					
Zone II	West Bengal	220	550	152	563
Zone II	Bihar	130	325	60	200
Zone II	Jharkhand	40	100	19.6	30
Zone III	Assam	20	50	10	25
Zone V	Andhra Pradesh	270	675	296	529
	Telangana	50	125	50	115
	Maharashtra	60	150	60	150
Zone VII	Chhattisgarh	30	75	34	50
	Odisha	150	375	208	499
	Total	970	2425	889.6	2161
Rapeseed & Mustard					
Zone I	Haryana	180	450	200	486
	Jammu & Kashmir	110	275	109	353
	Punjab	200	500	219.2	685
	Delhi	20	50	20	50
	Himachal Pradesh	30	75	41.5	294
Zone II	West Bengal	510	1275	465.7	1118
	Bihar	1020	2550	485	672
	Jharkhand	660	1650	285	741
Zone III	Assam	460	1150	610	1465
	Nagaland	60	150	60	122
	Manipur	60	150	60	114
	Tripura	80	200	80	193
Zone IV	Uttar Pradesh	580	1450	797	1993
Zone VI	Rajasthan	660	1650	821	2016
	Gujarat	300	750	154	347
Zone VII	Chhattisgarh	450	1125	480.29	913
	Madhya Pradesh	480	1200	520.8	1179
	Odisha	630	1575	448.2	1009
	Total	6490	16225	5856.69	13750

Zone	State	Proposed		Achieved	
		(Area ha)	(No. of Demo)	(Area ha)	(No. of Demo)
Linseed					
Zone II	West Bengal	210	525	110.6	305
	Bihar	430	1075	65	223
	Jharkhand	180	450	40	117
Zone III	Assam	240	600	165	386
	Nagaland	70	175	70	164
	Tripura	30	75	30	104
Zone IV	Uttar Pradesh	330	825	50.28	125.7
Zone V	Maharashtra	50	125	42	93
Zone VII	Chhattisgarh	300	750	272	566
	Madhya Pradesh	230	575	252.4	592
Zone VIII	Karnataka	104	260	82	205
	Total	2174	5435	1179.28	2880.7
Sunflower					
Zone V	Andhra Pradesh	100	250	136	255
Zone VII	Odisha	20	50	95	239
Zone VIII	Karnataka	234	585	78	195
	Tamil Nadu	234	585	66	165
	Total	588	1470	375	854
Safflower					
Zone V	Andhra Pradesh	40	100	30	22
	Telangana	70	175	70	77
	Maharashtra	60	150	109	138
Zone VII	Odisha	30	75	0	0
	Total	200	500	209	237
Grand Total		11756	29390	10374.84	23990.45

Table 2.3: Crop and state wise details of CFLD in Summer

Zone	State	Proposed		Achieved	
		(Area ha)	(No. of Demo)	(Area ha)	(No. of Demo)
Groundnut					
Zone II	West Bengal	0	0	27.33	69
Zone III	Assam	20	50	0	0
Zone IV	Uttar Pradesh	0	0	45	112
Zone VI	Gujarat	120	300	152	372
Zone VII	Chhattisgarh	30	75	0	0
	Odisha	30	75	90	242
Zone VIII	Karnataka	0	0	20	50
	Tamil Nadu	0	0	14	35
	Total	200	500	348.33	880
Sesame					
Zone II	West Bengal	0	0	130	130

Zone	State	Proposed		Achieved	
		(Area ha)	(No. of Demo)	(Area ha)	(No. of Demo)
Zone II	Bihar	0	0	80	200
Zone III	Assam	80	200	55	139
Zone VI	Gujarat	120	300	196	475
Zone VII	Chhattisgarh	0	0	29.6	44
	Odisha	0	0	80	200
	Total	200	500	570.6	1188
Rapeseed & Mustard					
Zone I	Jammu & Kashmir	10	25	1.09	20
Zone II	Bihar	0	0	30	75
	Total	10	25	31.09	95
Sunflower					
Zone I	Punjab	60	150	60	120
Zone II	Bihar	250	625	100	230
Zone VII	Odisha	0	0	50	107
Zone VIII	Tamil Nadu	0	0	20	50
	Total	310	775	230	507
Grand Total		720	1800	1180.02	2670

Crop - wise area of oilseeds in India and under CFLD

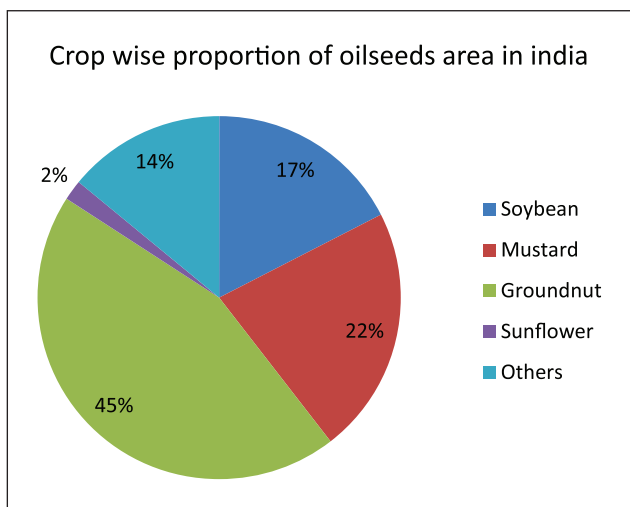


Fig. 2.1: Crop wise proportion of oilseeds area in India

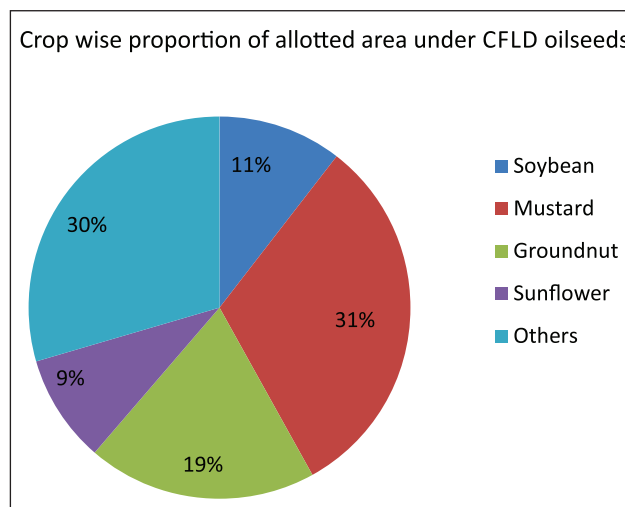


Fig. 2.2: Crop wise proportion of allotted area under CFLD oilseeds

STATE AND CROP - WISE YIELD PERFORMANCE

A. State and Crop wise yield Performance in Kharif Season

In kharif season, total 5788.16 ha area was covered with the demonstrations across all the states during 2016-17. During this season, different oilseeds crop demonstrated in the states as groundnut, soybean, niger, sesame, sunflower. Groundnut resulted the highest average yield in Maharashtra state 26.50 q/ha followed by soybean in Madhya Pradesh state 32.36 q/ha, niger crop in Jharkhand state 5.4 q/ha and sunflower in Andhra Pradesh state 15.45 q/ha.

Table 3.1: State and Crop wise Average Yield in Kharif Season

State	Crop	Area under demonstrations		No. of demonstrations		Average yield (q/ha)	
		Allocated (ha)	Conducted (ha)	Allocated	Conducted	Demonstration	Farmers Practice
Punjab	Groundnut	30	10.8	75	29	15.6	14.9
Punjab	Sesame	10	10	25	25	4.20	3.80
Haryana	Sesame	80	64	200	160	4.62	3.40
Himachal Pradesh	Sesame	30	8.5	75	61	4.38	2.85
Jammu & Kashmir	Sunflower	30	3.6	75	19	7.50	6.0
Bihar	Sesame	220	111.8	550	273	4.80	3.40
Bihar	Niger	20	30	50	67	3.17	2.90
Bihar	Soybean	30	20	75	50	21.70	14.29
Jharkhand	Groundnut	330	270	825	719	13.50	10.1
Jharkhand	Niger	210	200	525	500	5.40	3.9
Jharkhand	Sesame	240	240	600	571	4.9	3.30
West Bengal	Groundnut	270	120.1	675	472	17.68	13.69
West Bengal	Sesame	220	20	550	69	10.50	7.8
Assam	Sesame	240	240	600	568	6.6	4.7
Tripura	Sesame	30	30	75	95	2.5	1.7
Nagaland	Soybean	30	30	75	61	8.94	7.27
Tripura	Groundnut	60	60	150	177	10.75	7.25
Uttar Pradesh	Sesame	444	366	1135	915	5.32	3.42
Uttar Pradesh	Groundnut	20	20	50	50	14.37	6.97
Andhra Pradesh	Groundnut	160	144	400	285	11.23	7.97
Maharashtra	Groundnut	60	20	150	50	26.5	8.15
Maharashtra	Soybean	660	585	1650	1383	18.82	14.84
Telangana	Soybean	120	0	300	0	0	0
Andhra Pradesh	Sesame	20	15	50	39	7.66	5.33
Andhra Pradesh	Sunflower	60	40	150	50	15.45	10
Maharashtra	Sunflower	60	0	150	0	0	0
Rajasthan	Soybean	163	163	408	430	13	10.2
Gujarat	Soybean	100	100	274	274	15.92	12.8
Rajasthan	Sesame	200	220	415	515	7.4	5.8
Gujarat	Sesame	60	120	150	246	6.55	5.61
Rajasthan	Groundnut	110	93.6	275	234	21.87	18.18
Gujarat	Groundnut	220	240	525	542	21.29	17.44

State	Crop	Area under demonstrations		No. of demonstrations		Average yield (q/ha)	
		Allocated (ha)	Conducted (ha)	Allocated	Conducted	Demonstration	Farmers Practice
Chhattishgarh	Groundnut	30	30	75	75	16.2	9.4
Chhattishgarh	Niger	120	120	300	248	3.9	2.6
Chhattishgarh	Sesame	135	80.4	337.5	168	2.9	1.5
Chhattishgarh	Soybean	60	60	150	110	12.6	9.9
Madhya Pradesh	Groundnut	30	30	75	75	15.49	12.23
Madhya Pradesh	Niger	105	105	262	245	4.74	2.56
Madhya Pradesh	Sesame	60	57.4	150	129	2.85	1.92
Madhya Pradesh	Soybean	855	850.2	2138	2016	32.36	8.34
Odisha	Groundnut	315	276	788	594	16.28	13.3
Odisha	Niger	50	50	125	125	5.1	2.9
Odisha	Sesame	180	150	450	415	5.7	3.9
Karnataka	Groundnut	112	112	280	280	9.27	7.14
Tamil Nadu	Groundnut	84.2	84.2	211	211	18.48	15.33
Karnataka	Soybean	78	78	195	195	17.24	14.1
Karnataka	Sunflower	130	130	325	325	11.03	8.02

B. State and Crop wise yield Performance in Rabi Season

In rabi season, total 10375 ha area was covered with the demonstrations across all the state during 2016-17. During this season, different oilseed crops demonstrated in the state as groundnut, mustard, linseed, sesame, sunflower, safflower. Groundnut resulted the highest average yield in Andhra Pradesh state 35.20 q/ha followed by linseed crop in Madhya Pradesh state 19.80 q/ha, mustard crop in Haryana state 19.36 q/ha, sesame crops in West Bengal state 11.97 q/ha, sunflower crops in Andhra Pradesh state 19.11 q/ha, safflower crops in Telangana 12.88 q/ha.

Table 3.2: State and Crop wise Average Yield in Rabi Season

State	Name of crop	Area under demonstrations		No. of demonstrations		Average yield (q/ha)	
		Allocated (ha)	Conducted (ha)	Allocated	Conducted	Demonstration	Farmers Practice
Punjab	Mustard	200.00	219.2	500	685	19.8	15.8
Haryana	Mustard	180.00	200	450	486	22.61	19.36
Delhi	Mustard	20.00	20	50	50	24.48	22.9
Himachal Pradesh	Mustard	30.00	41.5	75	294	7.72	5.56
Jammu & Kashmir	Mustard	110.00	109	275	353	11.74	4.43
Bihar	Mustard	485	485	532	672	13.76	9.7
Bihar	Linseed	65	65	173	223	9.5	6.8
Bihar	Sesame	120	120	300	300	6.47	4.54
Bihar	Sunflower	20	20	50	113	17	13.8
Jharkhand	Mustard	180	285	465	741	11.89	8.21
Jharkhand	Sesame	40	19.6	50	30	2.8	1.95

State	Name of crop	Area under demonstrations		No. of demonstrations		Average yield (q/ha)	
		Allocated (ha)	Conducted (ha)	Allocated	Conducted	Demonstration	Farmers Practice
Jharkhand	Linseed	40	40	142	117	7.3	4.96
West Bengal	Groundnut	120	60	300	150	28.21	22.45
West Bengal	Mustard	450	465.7	765	929	13.24	9.97
West Bengal	Linseed	110	110.6	250	305	7.4	5.5
West Bengal	Sesame	260	172	505	693	11.97	9.16
Assam	Mustard	610	610	1525	1465	9.51	6.93
Manipur	Mustard	60	60	150	114	8.2	7.05
Nagaland	Mustard	60	60	150	122	7.94	6.03
Tripura	Mustard	80	80	200	193	9.20	5.20
Assam	Linseed	180	165	450	386	7.57	5.34
Nagaland	Linseed	70	70	175	164	7.08	5.07
Tripura	Linseed	30	30	75	104	10.50	4.50
Assam	Sesame	10	10	25	25	4.5	4
Uttar Pradesh	Mustard	880	796.95	2200	1993	16.632	11.4
Uttar Pradesh	Linseed	130	50.28	325	125.7	8.33	6.52
Andhra Pradesh	Groundnut	200	172	500	281	35.15	30.57
Telangana	Groundnut	100	100	250	230	25.09	21.35
Maharashtra	Groundnut	260	185.5	650	460.75	20.27	15.47
Andhra Pradesh	Sesame	270	296	675	529	8.66	6.22
Telangana	Sesame	50	50	125	115	7.8	6.4
Maharashtra	Sesame	60	60	150	150	5.54	3.75
Andhra Pradesh	Sunflower	130	136	325	255	19.11	15.49
Andhra Pradesh	Safflower	50	30	125	22	11.48	7.46
Telangana	Safflower	70	70	175	77	12.88	9.78
Maharashtra	Safflower	109	109	275	138	10.8	8.2
Maharashtra	Linseed	60	42	150	93	4.44	3.52
Rajasthan	Mustard	986	821	2465	2016	17.56	13.82
Gujarat	Mustard	240	154	600	347	15.08	9.55
Chhattishgarh	Mustard	420	480	1050	913	7.9	5.4
Chhattishgarh	Linseed	380	270	950	566	7.3	4.7
Chhattishgarh	Sesame	60	30	150	40	2.5	1.97
Madhya Pradesh	Mustard	520	520	1300	1179	17.2	12.4
Madhya Pradesh	Linseed	260	252.8	650	592	19.8	6.5
Odisha	Groundnut	726	667	1815	1394	21.23	16.25
Odisha	Mustard	490	448	1225	1009	7.53	5.2
Odisha	Sesame	665	208	625	499	5.9	4.3
Odisha	Sunflower	60	95	150	239	12.04	9.4

State	Name of crop	Area under demonstrations		No. of demonstrations		Average yield (q/ha)	
		Allocated (ha)	Conducted (ha)	Allocated	Conducted	Demonstration	Farmers Practice
Karnataka	Groundnut	228	228	570	570	21.30	17.49
Tamil Nadu	Groundnut	408.8	408.8	1022	1022	23.33	17.96
Karnataka	Sunflower	78	78	195	195	15.03	13.11
Tamil Nadu	Sunflower	66	66	165	165	13.35	10.82
Karnataka	Linseed	82	82	205	205	3.3	2.4

C. State and Crop wise yield Performance in Summer Season

In summer season, there was 1680 ha area allotted in which 1180 ha area was covered with the demonstrations across all the state during 2016-17. During this season, different oilseed crops demonstrated in the states as groundnut, mustard, sesame, sunflower. Groundnut resulted highest the average yield in Uttar Pradesh state 36.15 q/ha followed by mustard crop in Jammu & Kashmir state 9.55 q/ha, sesame crops in Gujarat state 8.3 q/ha, sunflower in Punjab state 19.20 q/ha.

Table 3.3: State and Crop wise Average Yield in Summer Season

State	Name of crop	Area under demonstrations		No. of demonstrations		Average yield (q/ha)	
		Allocated (ha)	Conducted (ha)	Allocated	Conducted	Demonstration	Farmers Practice
Punjab	Sunflower	60	60	150	150	19.2	17.3
Jammu & Kashmir	Mustard	20	1.09	25	20	9.55	7.4
Bihar	Sunflower	20	50	50	113	17	13.8
Assam	Sesame	80	55	200	139	4.5	2.55
Uttar Pradesh	Groundnut	45	45	112	112	36.15	28.4
Gujarat	Groundnut	120	152	300	372	17.25	15.75
Gujarat	Sesame	120	196	300	475	8.3	7.08
Odisha	Groundnut	90	90	225	242	18	9.75
Odisha	Sesame	80	80	200	150	5	7.1
Odisha	Sunflower	30	50	150	107	12	7
Chhattishgarh	Sesame	30	29.6	75	44	2.9	2.9
Karnataka	Groundnut	34	34	85	85	21.6	15.3
Tamil Nadu	Sunflower	20	20	50	50	16.14	14.18

ZONE - WISE KVKs PERFORMANCE

Under this programme total eight zones demonstrated oilseed crops in KVKs. The major oilseeds crops were demonstrated in all zones as groundnut, soybean, mustard, niger, linseed, sesame, sunflower, and safflower. Under this programme demonstrations were conducted Zone I - 748 ha. area, Zone II - 3122.09 ha. Zone III -1500 ha. Zone IV - 1278.28 ha. Zone V - 2054.5 ha. Zone VI - 2259 ha. Zone VII - 5066.40 ha. Zone VIII - 1321 ha. KVKs performance based on the different parameters like demonstration yield, farmer yield, gross cost (Rs/ha), gross return (Rs/ha) Net return (Rs/ha), B:C ratio are presented as follows.

Zone- I

Table 4.1 : KVKs performance in Kharif

State	KVK	Crop	Demo varieties	Area in ha	No of farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% increase	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Punjab	Bathinda	Groundnut	TG-37A	10	25	14.7	15.3	4.08	21700	58800	37100	2.71	20600	61600	41000	2.99
Punjab	Hoshiarpur	Groundnut	TG 37A	0.8	4	17	17.7	4.12	42050	62858.6	20808.6	1.49	46165	75372.5	29207.5	1.63
Punjab	Bathinda	Sesame	HT-1	10	25	3.8	4.2	10.53	20500	26600	6100	1.30	19000	30400	11400	1.60
Haryana	Bhiwani	Sesame	HT-1	4	10	3.45	5.5	59.42	16520	27300	10780	1.65	17123	38818	21695	2.27
Haryana	Hisar	Sesame	RT-351	10	25	3.0	4.8	60.00	14880	16800	18720	1.13	16680	33600	16920	2.01
Haryana	Jhajjar	Sesame	HT-1	10	25	4.48	5.6	25.00	29000	32860	3860	1.13	29500	40840	11340	1.38
Haryana	Mehendergarh	Sesame	RT-351	20	50	4.79	5.74	19.83	15760	33530	17770	2.13	17460	40180	22720	2.30
Haryana	Rewari	Sesame	HT-1	10	15	3	3.7	23.33	15500	15600	100	1.01	18000	19240	1240	1.07
Haryana	Sirsa	Sesame	HT-1	10	14	3	4.1	36.67	14000	24000	10000	1.71	15000	32000	17000	2.13
Himachal Pradesh	Hamirpur	Sesame	LTK-4	4.5	34	2.72	4.28	57.35	18500	32640	14140	1.76	20400	51360	30960	2.52
Himachal Pradesh	Kangra	Sesame	Brijeshwari	4	26	3	4.5	50.00	11500	27000	17000	2.35	12600	40500	27900	3.21
Jammu & Kashmir	Bandipora	Sunflower	Morden	1.5	8	8	11	37.50	15700	34200	18500	2.18	19000	46000	27000	2.42
Jammu & Kashmir	Kupwara	Sunflower	Morden	2.1	11	4.5	5	11.11	5200	12800	7600	2.46	6000	19200	12600	3.20

Table 4.2 : KVKs performance in Rabi

State	KVK	Crop	Demo varieties	Area in ha	No. of Farmers	Yield		Demo (q/ha)	Demo increase %	Farmer's plot			Demonstration plot			
						Local (q/ha)	Local (q/ha)			Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)
Punjab	Amritsar	Mustard	GSC-7	20	63	14.35	22.2	54.70	26217.5	50225	24007.5	1.92	27450	77700	50250	2.83
Punjab	Faridkot	Mustard	GSC-7	20	78	14.2	19.7	38.73	26450	52170	27520	1.97	26450	72843.8	46393.8	2.8
Punjab	Gurdaspur	Mustard	GSC-7	20	50	18.05	20.26	12.24	24992	66785	55437	2.67	19525	74962	41793	3.84
Punjab	Ferozepur	Mustard	GSC-7	20	80	15	18.75	25.00	13000	60500	47500	4.65	13666.7	70500	56833.3	5.16
Punjab	Hoshiarpur	Mustard	GSC-7	16	27	12.8	16.27	27.11	29800	40949.3	11149.3	1.37	31735	52149.3	20414.3	1.64
Punjab	Hoshiarpur	Mustard	GSC-7	3.2	14	11.5	14.5	26.09	29750	36800	7050	1.24	31875	45064.5	13189.5	1.41
Punjab	Kapurthala	Mustard	GSC-7	20	27	16.25	20.9	28.62	9700	21200	11500	2.19	9700	22400	12700	2.3
Punjab	Muktsar	Mustard	GSC-7	20	50	11.8	19.17	62.45	19750	67640	47890	3.42	20400	72846	52446	2.57
Punjab	Sangrur	Mustard	GSC-7	6.67	29	16	20.2	26.25	26170	55706.7	29536	2.13	27468.3	75267.3	47799	1.74
Punjab	Ropar	Mustard	GSC-7	32	76	15.1	20.09	33.05	26200	52850	26650	2.02	26200	67900	41700	1.57
Punjab	Nawanshahr	Mustard	GSC-7	4.4	9	14.5	20	37.93	26455	52800	26345	2	26455	66000	39545	1.49
Punjab	Taran Taran	Mustard	GSC-7	10	25	12.56	18.24	45.22	31950	45095	13145	1.41	31950	65389.3	33439.3	2.05
Punjab	Barnala	Mustard	GSC-7	20	97	17.71	22.23	25.52	13585	49613.1	36028.1	3.65	14024	63196.3	49172.3	4.5
Dehli	Ujwa Delhi	Mustard	RH-749	20	50	22.9	26.1	13.97	18000	82400	64400	4.58	17400	93960	76560	5.4
Haryana	Bhiwani	Mustard	RH 749	30	55	15.61	23.1	47.98	33750	44250	10500	1.31	34560	63450	28890	1.84
Haryana	Rewari	Mustard	NRGDR-601	40	90	21.28	24.46	14.94	39135	78748.3	39613.3	2.01	41585	90502	48917	2.17
Haryana	Jhajjar	Mustard	RH-749	20	50	20.65	24.04	16.42	45800	77340	31540	1.69	46970	89544	42574	1.91
Haryana	Fatehabad	Mustard	RH-749	10	21	21	24.5	16.67	30000	76650	46650	2.56	32000	89425	57425	2.79
Haryana	Sirsa	Mustard	RH-749	30	55	23	25.1	9.13	30000	73500	43500	2.45	32000	87850	55850	2.74
Haryana	Gurgaon	Mustard	RB-50	2.9	8	16.25	18.9	16.30	26500	68486	41980	2.58	26000	64032	38032	2.46
Haryana	Mohindergarh	Mustard	RH-749	30	75	16.5	19.48	18.06	22575	60500	37925	2.68	25560	70930	45370	2.77
Himachal Pradesh	Hamirpur	Mustard	KBS-3	5.5	24	4.5	5.48	21.78	8000	12000	5940	1.5	9500	16440	6940	1.7
Himachal Pradesh	Chamba	Mustard	KBS-3	10	117	3.8	5.85	53.95	15400	20900	5500	1.36	16100	39075	22975	1.3

State	KVK	Crop	Demo varieties	Area in ha	No. of Farmers	Yield		Demo (q/ha)	increase %	Farmer's plot			Demonstration plot			
						Local (q/ha)	Demo (q/ha)			Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)
Himachal Pradesh	Una	Toria	TL 17	11	82	4.3	6	39.53	16900	21500	4600	1.27	18400	30000	11600	0.63
Himachal Pradesh	Bilas	Mustard	GSC-7	10	25	7.4	10.5	41.89	18520	37000	18480	2	18520	52500	33980	2.8

Table 4.3 : KVKs performance in Summer

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield		Demo (q/ha)	% changes	Farmer's plot			Demonstration plot			
						Local (q/ha)	Demo (q/ha)			Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C Ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)
Punjab	Patiala	Sunflower	Pioneer 64 A 57	20	50	15.20	20.25	33.22	36000	46800	10800	1.3	32000	52650	20650	1.64
Punjab	Kapurthala	Sunflower	PSH-1962	20	20	18	18	1.11	25000	48000	23000	1.92	20000	48100	28100	2.4
Jammu & Kashmir	Leh	Mustard	RLM-514	1.1	20	7.4	9.55	29.05	36970	34800	(-)2170	0.94	38970	44980	6010	1.14
Punjab	Jalandhar	Sunflower	PSH-1962	20	50	16.85	19.41	15.19	29145	43810	14665	1.5	30250	50466	20216	1.66

Zone- II

Table 4.4 : KVKs performance in Kharif

State	KVK	Crop	Demo varieties	Area in ha	Number of farmers	Yield		Farmer's Plot			Demonstration Plot					
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Jharkhand	Deoghar	Groundnut	TPG-41	30	75	5	6.25	25.00	5700	7325	1625	4500	6575	2075	1.29	1.46
Jharkhand	Dhanbad	Groundnut	K-6	30	28	4.6	7	52.17	15000	55000	40000	17000	82500	65500	3.67	4.85
Jharkhand	Dumka	Groundnut	K-6	30	106	12	18.8	56.67	32300	72000	39700	40600	112000	72200	2.23	2.76
Jharkhand	Garhwa	Groundnut	Kadiri-6	30	102	7	9	28.57	25000	42000	17000	30000	54000	24000	1.68	1.80
Jharkhand	Gumla	Groundnut	K-6	30	86	13.18	16.6	25.95	37650	59287	21637	41900	74677	32777	1.57	1.78
Jharkhand	Lohardaga	Groundnut	K-6	30	90	12.2	18	47.54	20000	42700	22700	20000	63000	43000	2.14	3.15
Jharkhand	Ranchi	Groundnut	M-13	30	75	11.16	18.3	63.98	25600	49000	23400	38624	92000	53376	1.91	2.38
Jharkhand	Simdega	Groundnut	TG 37A	30	93	11.1	14.1	27.03	26700	46842	20142	28200	59586	31386	1.75	2.11
West Bengal	Burdwan	Groundnut	TG 37A	20	59	17.4	18.3	5.17	48000	86600	38000	48750	91500	42750	1.80	1.88
West Bengal	Hoogly	Groundnut	TAG 24	30	138	18.75	21	12.00	48750	131250	82500	52500	157500	105500	2.69	3.00
West Bengal	Purulia	Groundnut	TG 37A	40.1	214	9.1	14.5	59.34	30400	45500	15100	38750	72700	33950	1.50	1.88
West Bengal	West Midnapore	Groundnut	TG 37A	30	61	9.5	14.6	53.68	30600	58500	27900	37660	76620	38960	1.91	2.03
Bihar	Bhagalpur	Sesame	Krishna	20	44	4.4	6.8	54.55	12800	40320	27520	15900	49800	33900	3.15	3.13
Bihar	Kaimur	Sesame	GT-3	20	50	2.5	3.43	37.20	10600	20000	9400	11750	27440	15690	1.89	2.34
Bihar	Purnea	Sesame	Krishna	20	25	3.27	4.4	34.56	8540	19620	9270	9000	24600	15600	2.30	2.73
Bihar	Rohtas	Sesame	Krishna	11.8	28	3.04	3.7	21.71	7500	19200	11700	8000	22800	14800	2.56	2.85
Bihar	Saharsa	Sesame	Tilotamma	20	51	2.7	3.4	25.93	13450	9490	22940	13450	16250	29700	0.71	1.21
Bihar	Saran	Sesame	Krishna	20	75	4.5	7.32	62.67	20462	45000	24538	25885	73200	47315	2.20	2.83
Jharkhand	Bokaro	Sesame	RT-351	20	44	2.7	4.3	59.26	7300	17600	7300	8800	34400	25600	2.41	3.91
Jharkhand	Chatra	Sesame	GT-2	20	40	2.25	3.39	50.67	4000	9000	5000	6000	20340	14340	2.25	3.39
Jharkhand	Dhanbad	Sesame	RT 346	20	32	2.5	3.25	30.00	12000	31250	19250	12500	40625	28125	2.60	3.25

State	KVK	Crop	Demo varieties	Area in ha	Number of farmers	Yield			Farmer's Plot				Demonstration Plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Jharkhand	Dumka	Sesame	N-28 Shekhar-2	20	11	4	6.23	55.75	14300	26000	11700	1.82	16000	53495	37495	3.34
Jharkhand	Giridh	Sesame	Tilotamma	20	50	4.3	6.5	51.16	11000	18000	7000	1.64	17000	39000	22000	2.29
Jharkhand	Gumla	Sesame	GT-2	20	60	3.4	5.9	73.53	15510	21840	6330	1.41	18725	35400	16675	1.89
Jharkhand	Lohardaga	Sesame	GT-2	20	59	3.8	5	31.58	10200	17100	6900	1.68	10200	22500	12300	2.21
Jharkhand	Palamu	Sesame	GT-2	20	50	4	5.4	35.00	10500	16500	6000	1.57	9500	12500	3000	1.32
Jharkhand	Ramgarh	Sesame	GT-1	20	61	3.3	4.31	30.61	15600	28000	12400	1.79	19983	60380	40397	3.02
Jharkhand	Ranchi	Sesame	Shekhar	20	50	4.25	5.65	32.94	18200	24375	6175	1.34	20403	36725	16322	1.80
Jharkhand	Sahebgunj	Sesame	RT 346	20	64	2.25	3.39	50.67	9500	11750	2850	1.24	12000	15933	3933	1.33
Jharkhand	Simdega	Sesame	GT-2	20	50	3.1	4.88	57.42	13200	15500	2300	1.17	16200	24400	8200	1.51
West Bengal	Birbhum	Sesame	SWB 32-10-1	20	69	7.95	10.5	32.08	13000	35775	22775	2.75	13850	47115	33265	3.40
Bihar	Kaimur	Niger	JNC-6	30	67	2.25	3.17	40.89	6150	9450	3300	1.54	7200	13314	6114	1.85
Jharkhand	Chatra	Niger	JNC-6	20	40	2.75	3.69	34.18	4000	7000	3000	1.75	6000	14760	8760	2.46
Jharkhand	Gumla	Niger	Deomali, Birsa Niger-3	20	32	2.82	4.08	44.68	8250	14100	5850	1.71	11235	20350	9165	1.81
Jharkhand	Koderma	Niger	JNC-6	20	58	3.7	5.6	51.35	11500	21300	9800	1.85	11900	22400	10500	1.88
Jharkhand	Pakur	Niger	JNC-6	20	29	4.73	6.52	37.84	2800	23650	20850	8.45	3000	32600	29600	10.87
Jharkhand	Palamu	Niger	B N - 1	20	75	-	-	-	10800	17500	6620	1.62	9475	12000	2525	1.27
Jharkhand	Ramgarh	Niger	Birsa Niger-1	20	51	2.8	4.29	53.21	9380	12600	3220	1.34	12210	20080	7870	1.64
Jharkhand	Ranchi	Niger	JNC-5	20	50	4	5.75	43.75	10475	11375	900	1.09	13453	18725	5272	1.39
Jharkhand	Sahebgunj	Niger	JNC-6	20	59	4.8	6	25.00	13000	17520	4520	1.35	14500	21900	7400	1.51
Jharkhand	Simdega	Niger	Birsa Niger-1	20	52	5.7	7.52	31.93	13800	21803	8003	1.58	16800	28764	11964	1.71
Bihar	Khagaria	Soybean	PS-1042	20	50	18.6	21.7	16.67	29700	55800	26100	1.88	29700	65100	35400	2.19

Table 4.5 : KVks performance in Rabi

State	KVK	Crop	Demo varieties	Area in ha	Number of farmers	Yield		Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)
Bihar	Arwal	Rai	Varuna	30	105	10	12.15	21.50	17400	40000	27600	18300	44200	25900	2.41
Bihar	Aurangabad	Mustard	Varuna,Kranti	30	71	8.14	12.79	57.13	15600	30957	15357	18950	48602	29652	2.56
Bihar	Darbhanga	Mustard	Rajendra Sufalam	30	75	11.1	19	71.17	16210	44000	27790	21215	77000	55785	3.62
Bihar	Gaya	Mustard	RNG 48	30	55	9.3	12.5	34.41	15940	36340	20400	17310	48358.7	31048.7	2.8
Bihar	Gopalganj	Mustard	Rajendra Sufalam	30	75	8.5	14.75	73.53	14300	27200	12900	15900	47200	31300	2.96
Bihar	Jahanabad	Sesame	HT-1	10	25	4.5	5.25	16.67	13500	45000	31500	16000	52500	36500	3.28
Bihar	Jahanabad	Mustard	Rajendra Sufalam	30	75	11.6	13.1	12.93	16800	42120	26120	17300	48470	31170	2.8
Bihar	Muzaffarpur	Linseed	Azad Alsi-1	20	97	6.4	8.66	35.31	18950	32000	13050	20750	43300	22550	2.09
Bihar	Patna	Mustard	RNG 48	30	75	10.29	12.43	20.80	22757.7	41605	18847.5	22774.2	50463.3	27689.1	2.2
Bihar	Patna	Linseed	Azad Alsi -1	20	50	8.15	10	22.70	21462.1	32652	11189.9	20946.3	40143.7	19197.4	1.9
Bihar	Purana	Mustard	RGN-4	30	75	8.75	10.36	18.40	11000	30625	19625	12100	36260	24160	2.99
Bihar	Rohtas	Mustard	PM-28	30	58	13.8	19.8	43.48	15800	44160	28360	16500	63360	46860	3.84
Bihar	Saran	Sunflower	KBSH-1	20	122	12	17.22	43.50	32349	65100	32750	34298	88500	54202	2.58
Bihar	Siwan	Mustard	R. Suphlam	30	100	8.5	11.8	38.82	11288	25500	14212	13500	35400	21900	2.62
Bihar	Supaul	Sunflower	R.Suflam	50	113	13.83	17	22.92	20500	50500	30000	23000	65000	42000	2.82
Jharkhand	Deogarh	Sesame	Shekhar	20.6	30	2.4	3.37	40.42	5255	9762.5	4507.5	6040	15705	9665	2.6
Jharkhand	Garawah	Mustard	Pusa Mahak	30	120	5.4	8.4	55.56	14000	18900	4900	16000	29400	13400	1.83
Jharkhand	Garawah	Linseed	Shekhar, T397	10	67	2.5	3.2	28.00	6000	7500	1500	7500	9600	2100	1.28
Jharkhand	Godda	Mustard	Pusa Mahak	30	65	8	11.8	47.50	23250	32000	8750	23750	47200	23450	1.99
Jharkhand	Gumla	Mustard	Pusa-29	30	76	9.3	14	50.54	23650	32348.7	8698.75	24515	49157.5	25392.5	2
Jharkhand	Gumla	Linseed	T-397	10	21	8.7	12.5	43.68	19750	30450	10700	20700	43050	22350	2.08
Jharkhand	Hazaribag	Mustard	Cv. PM-30	30	75	10.22	15.37	50.39	20500	43949.1	23312.7	21700	61607.6	39876.4	2.84

State	KVK	Crop	Demo varieties	Area in ha	Number of farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Jharkhand	Jamtara	Mustard	JD-6	30	90	6.8	8.2	20.59	12500	20400	7900	1.63	12000	24600	12600	2.05
Jharkhand	Jamtara	Linseed	T-397	10	25	3.2	5.2	62.50	13000	13760	760	1.06	15000	22360	7360	1.49
Jharkhand	West Singhbhum	Mustard	Pusa Mahak	30	70	9.6	11.7	21.88	11660	57600	45940	4.94	13510	70200	56690	5.2
West Bengal	Birbhum	Sesame	SWB-32-10-1	20	65	9	12.2	35.56	15300	40500	25200	2.64	16500	54900	38400	3.33
West Bengal	Birbhum	Mustard	Pusha Mahek	30	70	9.05	12.02	32.82	18167	45250	27083	2.49	19000	60100	41100	3.16
West Bengal	Birbhum	Linseed	Deepika	30	60	4.14	7.15	72.71	13332	28980	15648	2.17	14410	50050	35640	3.47
West Bengal	Burdwan	Sesame	RT 346	50.9	277	8.2	9.53	16.22	17850	28748	10898	1.6	18850	36822	17972	1.95
West Bengal	Burdwan	Mustard	Pusa mustard-26	53	175	11.6	15.23	31.29	22550	43157	20607	1.9	23800	53316	29516	2.24
West Bengal	Coochbehar	Mustard	YSBNC-1	30	70	7.8	12.37	58.59	13500	21580	8080	1.6	16150	35900	19750	2.22
West Bengal	Hoogly	Groundnut	TAG 24	30	129	20.5	29	41.46	48750	72775	23838	1.48	51038	93612.5	46939	1.9
West Bengal	Hoogly	Mustard	B-9	30	176	10.78	12.6	16.88	15844	37713	21869	2.38	16875	44100	27225	2.6
West Bengal	Hoogly	Sesame	Savitri (SWB 32-10-1)	40	205	11.1	16.07	44.77	22789	29970	7181	1.31	23959	43394.4	19435.3	1.8
West Bengal	Howrah	Groundnut	TG-51	29	170	26.3	35.9	36.50	37110	81530	44420	2.19	39375	111290	71915	2.8
West Bengal	Howrah	Sesame	Savitri	40	111	9.7	11.89	22.58	19138	34875	15738	1.8	21175	43984	22809	2.8
West Bengal	Howrah	Mustard	Pusa Mahek	30	141	9.9	12.7	28.28	18200	43472	25272	2.4	21424	55704	34280	2.6
West Bengal	Jalpaiguri	Groundnut	TAG-51	30	76	14.45	17.95	24.22	31400	83810	52410	2.66	35700	104110	68410	2.91
West Bengal	Jalpaiguri	Sesame	Rama	40	112	5.9	9.35	58.47	12700	22420	9720	1.76	16800	35530	18730	2.11
West Bengal	Murshidabad	Mustard	B-9	20	50	10.13	18	77.69	23250	45900	22650	1.97	24750	61200	36450	2.47
West Bengal	Murshidabad	Linseed	Parvati	30	131	7.5	9	20.00	20865	37500	16635	1.8	22417.5	45000	22582.5	2.01
West Bengal	Murshidabad	Groundnut	TG-37A	30	75	27.75	34.88	25.69	72870	88800	15930	1.22	76282.5	111616	35333.5	1.46
West Bengal	Murshidabad	Sesame	Savitri	40	134	10.13	13.88	37.02	29092.5	32416	3323.5	1.11	30945	44416	13471	1.44
West Bengal	Nadia	Groundnut	TG-51	26.9	90	21.3	24.1	13.15	45250	95850	50600	2.1	45250	108450	63200	2.4
West Bengal	Nadia	Sesame	Savitri	29.6	112	11.3	12.75	12.83	27000	45200	18200	1.7	28500	51000	22500	1.8
West Bengal	Nadia	Mustard	JD-6	30.4	87	10.9	12.4	13.76	26250	38150	11900	1.4	26250	43400	17150	1.6

State	KVK	Crop	Demo varieties	Area in ha	Number of farmers	Yield		Farmer's plot			Demonstration plot					
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
West Bengal	North 24 Parganas	Mustard	Pusa Mahek	30	135	10.5	13.3	26.26	28500	42000	13500	1.47	29250	44120	14870	1.51
West Bengal	North 24 Parganas	Sesame	Savitri	20	88	8.55	10.25	19.88	24500	34200	9700	1.39	25000	41000	16000	1.64
West Bengal	Purulia	Mustard	PAN-70	31.7	125	8.65	14.25	64.74	17700	30275	12575	1.71	20500	49875	29375	2.43
West Bengal	Purulia	Linseed	Shekhar	30.6	100	3.85	5.25	36.36	6200	11550	5350	1.86	8100	15750	7650	1.94
West Bengal	South 24 Paragans	Mustard	B-9	22	189	10.12	13	28.46	16144	30360	14216	1.88	17842.8	40320	22477.2	2.26
West Bengal	South 24 Paragans	Sesame	Savitri	10	13	5.16	5.67	9.88	16645	25280	9155	1.55	17591	30965	13350	1.76
West Bengal	Uttar Dinajpur	Mustard	NC - 1	60	196	9.9	12.5	26.26	19474.3	39598.6	20124.3	2.03	20214.3	51212.8	30998.5	2.53
West Bengal	Uttar Dinajpur	Linseed	Shekhar	20	97	6.6	8.35	26.52	11230	23100	11870	2.06	12870	28700	15830	2.23

Table 4.6 : KVKs performance in Summer

State	KVK	Crop	Demo varieties	Area in ha	Number of farmers	Yield Obtained (q/ha)		Farmer's plot			Demonstration plot					
						Local (q/ha)	Demo (q/ha)	% changes	Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C Ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Bihar	Araria	Sunflower	KBSH-44	30	80	9.3	11.3	21.51	27550	72400	44850	2.6	27550	74100	46550	2.7
Bihar	Saran	Sunflower	KBSH-1	20	122	12	17.22	43.50	32349	65100	32750	2	34298	88500	54202	2.6
Bihar	Supaul	Sunflower	KBSH-44	50	113	13.83	17	22.92	20500	50500	30000	2.5	23000	65000	42000	2.8

Zone- III

Table 4.7 : KVKs performance in Kharif

State	KVK	Crop	Demo varieties in ha	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Tripura	Dhalai	Groundnut	TG-38	30	133	5.5	8.15	48.18	50000	55000	5000	1.1	60000	75000	15000	1.25
Tripura	North Tripura	Groundnut	TG 38	30	64	9	11	22.22	24675	36900	12225	1.49	27675	45100	17425	1.62
Assam	Baksa	Sesame	ST-1683	20	50	2.7	4.0	48.14	16000	22950	6950	1.43	19400	36550	17150	1.9
Assam	Barpeta	Sesame	ST-1683	20	50	6.05	6.6	9.09	13500	21000	67000	2.2	13500	31500	18000	2.4
Assam	Bongaigaon	Sesame	ST-1683	30	78	6	8.15	35.83	15070	43750	28680	2.9	17050	54605	37555	3.2
Assam	Chirang	Sesame	ST-1683	30	35	5.31	8.09	52.35	16300	32280	15980	1.98	19300	48540	29240	2.51
Assam	Dhemaji	Sesame	Bohua bheta	20	17	3.62	5.92	63.54	14922	32550	18294.7	2.18	19160	53334	34174	2.79
Assam	Kamrup	Sesame	Nagaon & Koliabor	20	58	4.55	5.25	15.38	13500	22750	9250	1.69	13500	26250	12750	1.94
Assam	Morigaon	Sesame	Koliabor	20	50	3.85	5.8	50.64	18000	30800	12800	1.7	13500	62400	48900	4.6
Assam	Nagaon	Sesame	Kaliabor	20	50	3.4	4.3	26.47	20160	27200	7040	1.3	20160	34400	14240	1.7
Assam	Nalbari	Sesame	Kaliabor	20	50	6.2	7.2	16.13	24750	52320	27570	2.11	27350	58400	31050	2.14
Assam	Sivasagar	Sesame	AST-1	20	47	4.45	7.35	65.16	Nil	Nil	Nil	Nil	100970	294000	200030	2.91
Assam	Sonitpur	Sesame	bohuab-heta	20	50	3.98	7.38	85.43	19000	30000	11000	1.58	23000	53000	30000	2.3
Assam	Dhalai	Sesame	Tilottama	30	95	5.2	6.25	20.19	18000	19250	1250	1.07	23000	27500	4500	1.2
Nagaland	Mon	Soybean	JS-335	30	61	7.27	8.94	22.97	15000	21810	6810	1.45	15000	26820	11820	1.78

Table 4.8 : KVKs performance in Rabi

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Assam	Barpeta	Linseed	T-397	30	68	6.67	7.4	10.94	14800	26680	11880	1.80	14800	29400	14600	1.99
Assam	Bongaigaon	Linseed	T-397	20	51	6.2	7.93	27.90	12000	21600	9600	1.80	13600	29920	16320	2.20
Assam	Chirang	Linseed	T-397	20	34	5.16	8.1	56.98	16300	31114.3	14814.3	1.91	19300	48394.3	29094.3	2.51
Assam	Goalpara	Linseed	T-397	10	20	5	6.55	31.00	12500	17600	5100	1.41	14700	22350	7650	1.52
Assam	Kokrajhar	Linseed	T-397	20	50	5.1	6.8	33.33	8000	30000	22000	3.75	9000	40800	31800	4.53
Assam	Morigaon	Linseed	T-397	15	37	4.43	7.14	61.67	14958	32580	17622	2.18	19250	42840	23590	2.23
Assam	Nagaon	Linseed	T-397	20	51	4.44	8.45	90.32	9767	18750	8983	1.92	9767	25350	15583	2.60
Assam	Sonitpur	Linseed	Shekhar	30	75	4.5	8.2	82.22	5200	7700	2500	1.48	9000	17000	8000	1.89
Manipur	Dimapur	Linseed	Ruchi, Sharda & Parvati	20	50	7	9.4	34.29	14200	21000	6800	1.48	14900	28200	7200	1.89
Manipur	Mon	Linseed	Ruchi	20	37	3.5	5.5	57.14	12000	21000	9000	1.75	12000	33000	21000	2.75
Manipur	Wokha	Linseed	Parvati	30	77	4.7	6.35	35.11	10100	26400	16300	2.61	12400	34925	22525	2.82
Tripura	Dhalai	Linseed	Sekhar	30	104	3.23	5.2	60.99	5000	7700	2700	1.54	9000	17000	8000	1.89
Assam	Baksa	Mustard	TS- 38	30	75	7.05	10.2	44.68	18200	24675	6475	1.36	20130	30598	10468	1.52
Assam	Barpeta	Mustard	TS-69	30	75	8.5	10.24	20.47	15000	29750	14750	1.98	15000	35840	20840	2.39
Assam	Bongaigaon	Mustard	TS- 36	30	79	6	9.76	62.67	15820	39340	23520	2.49	16850	47550	30700	2.82
Assam	Chirang	Mustard	TS-67	30	64	5	7.3	46.00	20000	43233.3	21900	2.16	22000	67750	43466.7	3.08
Assam	Darrang	Mustard	TS- 38	20	67	6	7.75	29.17	22800	30000	7200	1.32	24500	38750	14250	1.58
Assam	Dhemaji	Mustard	TS- 38	30	75	7.6	11	44.74	18190	22800	4610	1.25	25640	33000	5485	1.29

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Assam	Dhubri	Mustard	TS-38	20	68	8	9	12.50	18150	36000	17850	1.98	18750	40500	21750	2.16
Assam	Dibrugarh	Mustard	TS-36	20	28	8.5	11.25	32.35	24200	29750	5550	1.23	25500	39375	13875	1.54
Assam	Goalpara	Mustard	TS-36	30	39	6.5	8.5	30.77	14000	34250	20250	2.45	16400	45620	29220	2.78
Assam	Golaghat	Mustard	TS-67	30	70	8.05	11.2	39.13	11000	32200	21200	2.93	12650	44800	32150	3.54
Assam	Jorhat	Mustard	TS-36	20	57	6.7	9.89	47.61	12700	25330	12630	1.99	13700	29670	15970	2.17
Assam	Kamrup	Mustard	TS-38	30	75	6.38	7.88	23.51	16500	22330	5830	1.35	18750	27580	8830	1.47
Assam	Karbi Anglong	Mustard	TS-67	20	44	5	7	40.00	14000	16800	2800	1.20	17500	24500	7000	1.40
Assam	Karimganj	Mustard	TS-67	20	38	4.5	7.9	75.56	18000	27000	9000	1.50	19500	47400	27900	2.43
Assam	Kokrajhar	Mustard	TS-36	30	75	6.37	6.8	6.75	11000	47600	36600	4.33	12000	59500	37500	4.96
Assam	Lakhimpur	Mustard	TS-38	20	26	6.5	9.4	44.62	13340	19500	6160	1.46	14230	28200	13970	1.98
Assam	Morigaon	Mustard	TS-38	30	75	8.4	12	42.86	13411	29102	15691	2.17	17013	45425	28412	2.67
Assam	Nagaon	Mustard	TS-38	30	116	6.1	11.24	84.26	15665	19684	4019	1.26	18670	41588	22918	2.23
Assam	Nalbari	Mustard	TS-36	30	89	7	9.1	30.00	17964	30000	12036	1.67	20230	36400	16170	1.80
Assam	Sonitpur	Mustard	TS-38	40	100	6.8	10.7	57.35	11200	20400	9200	1.82	15400	32100	16700	2.08
Assam	Tinsukia	Mustard	TS-67	20	27	10	13.5	35.00	15430	35000	19570	2.27	15430	47250	31820	3.06
Assam	Udalguri	Mustard	TS-67	20	50	4	7.23	80.75	14540	17360	2820	1.19	15440	23660	8220	1.53
Manipur	Imphal East	Mustard	NRCHB-101, YSH-401	30	73	5.9	6.9	16.95	14100	23600	9500	1.67	14850	27400	12550	1.85

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Manipur	Thoubal	Mustard	M-27, TS-36	30	41	8.2	10.9	32.92	20000	41000	21000	2.05	25000	66733	41733	2.67
Nagaland	Dimapur	Mustard	TS-38	30	75	6.9	7.9	14.49	17000	21390	4390	1.26	17000	24490	7490	1.44
Nagaland	Mon	Mustard	TS-36	30	47	5.15	7.98	54.95	12000	41200	29200	3.43	12000	63840	51840	5.32
Tripura	North Tripura	Mustard	B 9	20	40	6	7.5	25.00	16948	44450	27502	2.62	18948	52500	33552	2.77
Tripura	South Tripura	Mustard	TRC toria 1-1-5-5	20	62	6.1	8.4	37.70	13500	21350	7850	1.58	14000	28700	14700	2.05
Tripura	West Tripura	Mustard	TRC toria 1-1-5-5	20	33	6	10.5	75	23823	27500	3677	1.15	32500	52500	20000	1.62
Assam	Golaghat	Sesame	Bohuabheti	10	25	4	4.5	12.50	10000	26000	16000	2.60	11055	29250	18195	2.65

Table 4.9 : KVVs performance in Summer

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Assam	Morigaon	Sesame	Nagaon & Koliabor	2.78	5.1	2.78	5.1	83.45	20375	26300	5925	1.29	29975	51000	21025	1.70
Assam	Nagaon	Sesame	Nagaon	2.47	3.9	2.47	3.9	57.89	14674	24700	10026	1.68	12742	39000	26258	3.06

Zone- IV

Table 4.10 : KVKs performance in Kharif

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield		Farmer's plot				Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Uttar Pradesh	Sonbhadra	Sesame	RT-346	20	50	2.15	2.63	22.33	5150	10750	5600	2.09	5670	13161	7491	2.32
Uttar Pradesh	Balrampur	Sesame	Shekhar	18	36	2.25	3.66	62.66	3500	7650	4150	2.19	7500	22644	15144	3.02
Uttar Pradesh	Basti	Sesame	Shekhar	20	53	4.5	5.8	28.89	21600	34800	13200	1.61	20250	27000	6750	1.33
Uttar Pradesh	Etawah	Sesame	HT-2, Tarun	17	34	3.8	5.75	51.32	28960	104040	75080	3.59	26240	68400	42160	2.61
Uttar Pradesh	Firozabad	Sesame	Shekhar	20	50	3.3	5.43	64.55	13500	26400	12900	1.96	14200	43440	29240	3.06
Uttar Pradesh	Hardoi	Sesame	Shekhar	10	25	5.03	6.31	25.45	8650	31186	22536	3.61	9950	39122	29172	3.93
Uttar Pradesh	Kanpur Dehat	Sesame	RT-351	20	50	2.7	4.8	77.78	14000	27000	13000	1.93	15000	48000	33000	3.20
Uttar Pradesh	Lalitpur	Sesame	Shekhar	25	62	3.6	5.4	50.00	11390	64800	53410	5.69	8650	43200	34550	4.99
Uttar Pradesh	Raibareilly	Sesame	Tarun	10	40	3.6	5.5	52.78	9140	16650	7510	1.82	9580	28575	18995	2.98
Uttar Pradesh	SRD Nagar	Sesame	RT-351	10	18	3.1	4.2	35.48	28820	31775	2955	1.10	29930	43050	13120	1.44
Uttar Pradesh	Kushinagar	Sesame	RT-351	2	5	2.8	4.35	55.48	3000	4800	1800	1.60	10000	26100	16100	2.61
Uttar Pradesh	Lucknow	Sesame	RT 346	10	30	2.4	3.6	50.00	10900	13000	2100	1.19	13200	18000	4800	1.36
Uttar Pradesh	Sitapur	Sesame	RT-351	47	128	3.3	4.34	31.52	13375	23760	10385	1.78	13430	31248	17818	2.33
Uttar Pradesh	Unnao	Sesame	Shekhar	10	38	5.88	6.64	12.93	15570	29400	13830	1.89	16350	33200	16850	2.03
Uttar Pradesh	Chitrakoot	Sesame	Pragati	24	57	2.5	3.75	50.00	9500	13750	4250	1.45	10500	20625	10125	1.96
Uttar Pradesh	Kaushambi	Sesame	RT-346	20	45	5.2	7.4	42.31	13820	41600	27780	3.01	17800	59200	41400	3.33
Uttar Pradesh	Pratapgarh	Sesame	RT-346, RT-351	52	130	3.4	6.2	82.35	18600	48960	30360	2.63	19120	59681	40561	3.12
Uttar Pradesh	Allahabad	Sesame	shekhar	10	25	2.24	4.08	82.14	14681	16800	2119	1.14	17781	30600	13319	1.72
Uttar Pradesh	Mirzapur	Sesame	RT-351	10	21	4.8	6.2	29.17	3219	26392.5	23173.5	8.20	2816	20527.5	17712	7.29
Uttar Pradesh	Shahjahanpur	Sesame	Shekhar	10	25	4.28	7.25	69.39	17300	29960	12660	1.73	19400	50750	31350	2.62
Uttar Pradesh	Shahjahanpur	Groundnut	GG-20	20	50	6.97	10.4	42.21	25200	38335	13135	1.52	28400	79035	50635	2.78

Table 4.11 : KVKs performance in Rabi

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Uttar Pradesh	Agra	Mustard	RH-749	19.75	78	15.6	23	47.44	21510	54600	33100	2.54	26527.3	80640	54112.8	3.04
Uttar Pradesh	Allahabad	Mustard	RGN-73	30	75	8	14.47	80.88	18480	25600	7120	1.39	19597	47616	28019	2.43
Uttar Pradesh	Auraiya	Mustard	RH-749	20	50	15.7	20.7	31.84	19380	64163.8	44784	3.31	20130	69818	49644	3.47
Uttar Pradesh	Balrampur	Mustard	NDRE-4	20	50	7.52	11.54	53.46	12500	25192	12692	2.02	16000	38659	22659	2.42
Uttar Pradesh	SRD Nagar	Mustard	RH-749	27	67	17.9	24.3	35.75	34310	71958	37648	2.10	35430	97686	62256	2.76
Uttar Pradesh	Mahamaya Nagar	Mustard	Giriraj	19.8	50	15.6	25.27	61.99	17120	51480	34360	3.01	20200	83391	63191	4.13
Uttar Pradesh	Mathura	Mustard	Pusa 28	20	50	20	25	25.00	29500	68400	38900	2.32	31500	95000	63500	3.02
Uttar Pradesh	Hardoi	Mustard	RH 749	20	52	10.5	16.4	56.19	12700	38850	26150	3.06	13600	64010	50410	4.71
Uttar Pradesh	Pratapgarh	Mustard	CS-56	25.2	63	6.6	10.8	63.63	10300	33210	22910	3.22	11380	45600	34220	4.01
Uttar Pradesh	Saharanpur	Mustard	RH-749	20	50	18.6	24.7	32.80	17050	63000	45950	3.70	21300	86450	65150	4.06
Uttar Pradesh	Shahjahanpur	Mustard	RGN 73	20	50	12.22	18.22	49.10	22630	48880	26250	2.16	24730	72880	48150	2.95
Uttar Pradesh	Siddharthnagar	Mustard	YSH 401	30	147	8.6	12.1	40.70	17500	31721.3	14221.3	1.81	18200	44770	26570	2.46
Uttar Pradesh	Sitapur 1	Mustard	Urveshi	20.5	56	13.75	18.06	31.35	16700	55000	38300	3.29	20801	72320	51519	3.48
Uttar Pradesh	Sitapur 2	Mustard	YSH-401	8.8	15	10.9	17.43	59.91	18277	39360	21082.5	2.15	22280	62742	40462	2.82
Uttar Pradesh	Unnao	Mustard	RGN - 73	20.3	79	15.2	21.54	41.71	27732	56284.4	28552.2	2.03	28356	79698	51342	2.81
Uttar Pradesh	Basti	Mustard	Pusa30	5	14	14.65	17.97	22.66	25600	46880	21280	1.83	25600	57504	31904	2.25

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Uttar Pradesh	Chandauli	Mustard	Urvashi	9	28	10.44	12.2	16.86	11245	37584	23339	3.34	12925	43920	30995	3.40
Uttar Pradesh	Firozabad	Mustard	NRCRD-2	20	50	21.8	25.87	18.67	29100	71940	42820	2.47	30620	84371	54750	2.76
Uttar Pradesh	Muzaffarnagar	Mustard	RH 749	20	50	15.6	19.5	25.00	15400	52260	36860	3.39	16300	65325	49025	4.01
Uttar Pradesh	Chitrakoot	Mustard	RH-749	20	54	12.5	16.3	30.40	14550	43750	29200	3.01	18500	55875	38375	3.02
Uttar Pradesh	Chitrakoot	Linseed	Mau Azad-1	10.2	33	6.5	8.75	34.62	12500	26000	13500	2.08	14350	35000	20550	2.44
Uttar Pradesh	Sonbhadra	Mustard	NDR 8501	20	50	8.5	12	41.18	20000	43400	23400	2.17	21600	54000	32400	2.50
Uttar Pradesh	Sonbhadra	Linseed	Padmini	10.08	25	6.6	8.2	24.24	11700	28592.5	16892.5	2.44	12646	34425	21779	2.72
Uttar Pradesh	Lalitpur	Mustard	RH-749	30	75	11.5	21.05	83.04	8210	24600	16390	3.00	18600	36800	23300	1.98
Uttar Pradesh	Lakhimpur-Kheri	Mustard	Pitambri & 2009	20	42	8.8	10.2	15.91	26500	30800	4300	1.16	27800	35700	7900	1.28
Uttar Pradesh	Jhansi	Mustard	DRMR IJ 31	40	100	7.48	14.00	87.16	12700	39262	26562	3.09	13800	55141	41341	4.00
Uttar Pradesh	Pilibhit	Mustard	PPS-1	20	50	11.31	16.48	45.71	35621	42978	7357	1.21	42761	62624	19863	1.46
Uttar Pradesh	Aligarh	Mustard	Varuna/2013	16.7	25	14	21	50.00	21000	49300	28300	2.35	22000	71400	49400	3.25
Uttar Pradesh	Meerut	Mustard	RH 749	20	43	12	18.97	58.08	15998	39582	23584	2.47	16032	67343	51311	4.20
Uttar Pradesh	Badaun	Mustard	Giriraj	40	94	20.5	22.8	11.22	35414	83220.3	47806.3	2.35	34423.3	93185.5	58762.8	2.71
Uttar Pradesh	Fatehpur	Mustard	RGN-73	20	24	16.5	23.5	42.42	18500	74250	55750	4.01	19200	105750	86550	5.51
Uttar Pradesh	Barabanki	Mustard	1990	20	58	14.3	17.6	23.08	11450	54400	42950	4.75	12820	70400	57580	5.49
Uttar Pradesh	Kushinagar	Mustard	PM 26	30	51	9.53	14.94	56.77	16600	36214	19617	2.18	18100	56772	38672	3.14

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Uttar Pradesh	Kanpur Dehat	Mustard	RH-749	20	50	18	24	33.33	19000	81000	62000	4.26	20000	103500	83500	5.18
Uttar Pradesh	Etawah	Mustard	RH-749	32.8	69	10.25	20.3	98.04	25136.7	61093.7	35956.7	2.43	26208.3	85796.7	59588.3	3.27
Uttar Pradesh	Bareilly	Mustard	NRCHB-101	22.4	50	11.34	14.6	28.75	30950	48750	17800	1.58	31325	60732.5	29407.5	1.94
Uttar Pradesh	Mirzapur	Mustard	Vaibhav	10	18	7.1	10.9	53.52	4852	13347	8522	2.75	5442	20091	16649	3.69
Uttar Pradesh	Mirzapur	Linseed	Padmani	30	75	6.5	8.21	26.31	5500	20476	14976	3.72	5432	26272	20840	4.84
Uttar Pradesh	Ghaziabad	Mustard	RH-749	20	50	13.2	17.2	30.30	18200	42240	24040	2.32	19800	53760	35240	2.72

Table 4.12 : KVKs performance in Summer

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's Plot				Demonstration Plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Uttar Pradesh	Mainpuri	Groundnut	DH 86	25	63	26.11	35.4	35.58	31250	67886	36636	2.17	36376	92157	55781	2.53
Uttar Pradesh	Etawah	Groundnut	DH 86	20	48	28.4	34.6	21.83	41300	159892	118592	3.87	44170	197362.5	153193	4.47

Zone- V

Table 4.13 : KVKs performance in Kharif

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Andhra Pradesh	Chittoor (Kalikiri)	Groundnut	Kadiri 6 / Narayani	20	25	6.98	10.8	54.72	26500	30000	3500	1.13	24000	42500	18500	1.77
Andhra Pradesh	Chittoor (RASS)	Groundnut	Kadiri 6	20	25	16.83	19.1	13.49	49950	86950	37000	1.74	56075	101093	45018	1.8
Andhra Pradesh	Kurnool (Yagantiapalli)	Groundnut	Kadiri 6	20	25	9.2	11.6	26.09	32125	51400	19275	1.6	36965	70528	33563	1.9
Andhra Pradesh	Prakasam (Darsi)	Groundnut	TAG 24	4	10	8.25	11.3	36.96	68200	116250	48050	1.7	45750	121875	76125	2.66
Maharashtra	Jalgaon (Pal)	Groundnut	SB 11	20	50	13.75	26.5	92.73	27000	96000	69000	2.5	22400	127200	104800	4.6
Andhra Pradesh	Kurnool (Banavasi)	Sunflower	Private hybrid	20	25	10.67	15.5	45.27	28000	49000	21000	1.75	23700	52500	28800	2.21
Andhra Pradesh	Kurnool (Yagantiapalli)	Sunflower	SH-117	20	25	10.23	12.5	22.19	23450	35805	12355	1.5	24065	43610	19545	1.81
Andhra Pradesh	BCT-KVK	Sesame	YLM-66	15	39	5.33	7.66	43.71	18224	37310	19310	2.04	19062	53620	29595	2.81
Maharashtra	Ahmednagar (Bableshtar)	Soybean	MACS1188	20	50	18	29.8	65.56	39063s	69664.1	30600.5	1.79	41328.6	89653.9	48325.4	2.17
Maharashtra	Ahmednagar (Dahigaon)	Soybean	M.A.U.S.-158	20	42	12.46	19.2	54.09	30906	54502	23596	1.76	28450	35360	6910	1.24
Maharashtra	Akola	Soybean	MAUS 158	9	22	15	18.5	23.33	24500	51720	27220	1.11	22500	55410	32910	1.46
Maharashtra	Amravati (Durgapur)	Soybean	JS-9560, Phule Agrani	50	95	10.25	13.7	33.66	25000	28000	3000	0.12	28700	38472	9772	0.34
Maharashtra	Amravati (Ghatked)	Soybean	JS-9560	20	50	12	14.1	17.50	21450	31185	9735	0.34	23990	39424	15434	0.69
Maharashtra	Beed (Ambajogai)	Soybean	MAUS-158 (2013)	20	50	20	22.9	14.50	23750	54375	28500	2.28	24500	72135	39200	2.94

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield		Farmer's plot				Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Maharashtra	Buldhana (Jalgaon Jamod)	Soybean	Phule Agrani	30	63	20	21.3	6.50	31306	56863	25557	1.81	31487	60934	29447	1.93
Maharashtra	Buldhana (PDKV)	Soybean	MAUS-158	20	50	18.61	20.6	10.69	25698	68270	42573	2.66	26800	81017	54217	3.02
Maharashtra	Dhule	Soybean	JS-9305	13	33	8	15	87.50	21000	26312	5312	1.25	23000	40092	17092	1.74
Maharashtra	Hingoli	Soybean	MAUS-158	13	33	12.35	20.6	66.80	29275	43223	13948	1.47	29959	57252	27293	1.91
Maharashtra	Jalgaon (Pal)	Soybean	JS-9305	20	50	15.66	22	40.49	14500	42000	27500	1.89	12600	61600	49000	3.88
Maharashtra	Jalna	Soybean	JS 335	30	75	15.8	19.1	20.89	27350	34760	7410	1.3	28750	42653	13903	1.48
Maharashtra	Kolhapur	Soybean	KDS-344	20	57	21.39	26.3	22.95	42006	103600	61594	2.5	47891	147000	61594	3.07
Maharashtra	Nagpur (CICR)	Soybean	JS-9560	17	42	16.3	21.4	31.29	34625	45444	10819	1.31	40125	59920	19795	1.49
Maharashtra	Nanded (Pokharni)	Soybean	JS-9560, MAUS-71	20	50	16.25	18.1	11.38	16500	48750	32250	2.95	18000	54360	36360	3.02
Maharashtra	Nandurbar	Soybean	Phule Agrani	20	50	10.4	15.7	50.96	10675	27560	16975	2.58	11700	42632	30932	3.64
Maharashtra	Nashik (M)	Soybean	JS-9560	12	18	10.74	14.3	33.15	13694	23078	9384	1.73	13514	30803	17289	2.34
Maharashtra	Nashik (Y)	Soybean	MACS-1188	20	50	15	21.8	45.33	30250	42323	12073	1.4	42625	69173	26548	1.6
Maharashtra	Osmanabad	Soybean	MAUS-158	20	50	10.29	12.2	18.56	27663	27783	120	1	28343	32805	4462	1.15
Maharashtra	Parbhani	Soybean	MAUS-158	20	50	15	21.5	43.33	25000	44929	19929	1.79	23500	60817	37317	2.58
Maharashtra	Pune (Baramati)	Soybean	MACS 1188	20	50	20.25	25.9	27.90	32500	69957	37457	2.15	35500	77730	42230	2.18
Maharashtra	Pune (Narayangaon)	Soybean	MACS-1188	20	50	19.6	24.1	22.96	29250	58800	31200	2.01	28200	72300	44100	2.56
Maharashtra	Sangli	Soybean	Pule Agrani (KDS-344)	11	18	8.49	14.2	67.26	18000	49020	31020	2.7	19750	54074	34324	2.73
Maharashtra	Solapur (Khed)	Soybean	MAUS-162	20	50	5.33	7.22	35.46	21750	23933.5	270.5	1.1	19450.5	17722.8	-1727.8	0.91
Maharashtra	Wardha (Selsura)	Soybean	MAUS-162	20	50	17.16	18.9	10.14	30123	56138	26015	1.86	28569	51051	22482	1.78
Maharashtra	Washim	Soybean	MAUS-158	20	50	21.3	24.1	13.15	31722	60026	28304	1.89	33392	67838.1	34446	2.03
Maharashtra	Yavatmal	Soybean	NRC-37	10	50	18.52	23.3	25.81	29923	56760	26837	1.9	33925	71320	37395	2.1

Table 4.14 : KVKs performance in Rabi

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield		% changes	Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)		Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Andhara Pradesh	Anantpur (Reddipalli)	Safflower	PBNS-12	20	10	2.25	13.21	82.97	18000	24300	6300	18560	11250	-7310	1.35	0.61
Maharashtra	Beed (Ambajogai)	Safflower	PBNS-12	20	50	7.8	12.77	63.72	18500	44695	26195	14375	27300	12925	2.4	1.9
Maharashtra	Beed (Khamgaon)	Safflower	PBNS-12	50	50	9.5	12	26.32	22000	76945	54945	21000	61050	40050	3.5	2.91
Telangana	Mahabubnagar (Madanapuram)	Safflower	PBNS 12	20	31	11.92	15.94	33.72	14854	47820	32966	13785	35760	21975	3.2	2.59
Andhara Pradesh	Guntur (Lam)	Groundnut	ICM-Dharani vs TAG-24	30	75	6.2	8.7	40.32	28500	63750	25250	19800	28125	8925	2.24	1.42
Andhara Pradesh	Kurnool (Yagantipalli)	Groundnut	Dharani	20	25	17.02	20.18	18.57	34495	109650	75155	32000	93850	61850	3.18	2.93
Andhara Pradesh	Kurnool (Banavasi)	Groundnut	Dharani	20	25	29.2	34.35	17.64	62547	172500	100953	72560	146000	73440	2.76	2.01
Andhara Pradesh	Prakasam (Darsi)	Groundnut	ICM Dharani	4	10	17.5	21	20.00	62500	105000	42500	65000	87500	22500	1.68	1.35
Andhara Pradesh	Srikakulam (Amadlavalasa)	Groundnut	K-6	20	33	20.37	24.41	19.83	43337.5	100800	56362.5	48437.5	121464	73026.5	2.33	2.51
Andhara Pradesh	West Godavari (Undi)	Groundnut	TAG - 24	8	25	32.5	40	23.08	84890	180000	95110	101375	146250	44875	2.12	1.44
Andhara Pradesh	West Godavari (V R Gudem)	Groundnut	Dharani	20	27	30	38.5	28.33	41000	192000	151000	39500	272000	232500	4.68	6.89
Maharashtra	Buldana (Jalgaon-jamod)	Groundnut	TAG-24	10	25	17.64	22.83	29.42	50709	83682	32973	46066	108490	62424	1.65	2.36
Maharashtra	Hingoli	Groundnut	TAG-24	18	45	13	15.56	19.69	31275	63796	32521	35278	44731	9453	2.04	1.27
Maharashtra	Nanded (Pokharni)	Groundnut	TAG-24	20	50	15.67	24.37	55.52	25863	121850	95987	21500	78350	56850	4.71	3.64
Maharashtra	Nandurbar	Groundnut	SB-11/TAG-24	30	75	16.26	23.07	41.88	32700	118144	85444	28250	83251	55001	3.61	2.95
Maharashtra	Parbhani	Groundnut	SB-XI, TAG-24	20	50	13	16.95	30.38	22000	67800	45800	25000	52000	27000	3.08	2.08
Maharashtra	Sangli	Groundnut	KDG-128 (Phule warana)	10	17	16	22.8	42.50	111926	69895.8	42030	68400	36900	31500	0.62	0.54
Maharashtra	Washim	Groundnut	Phule unnati 2013	14	35	14	18	28.57	41382	69204	27822	44390	59381	14991	1.67	1.34

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield		Farmer's plot				Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Telangana	Mahaboobnagar (Palem)	Groundnut	K6	20	50	19	20.5	17.89	26800	117000	90200	4.37	26800	90000	63200	3.36
Telangana	Warangal (Malyal)	Groundnut	K-6	20	43	19.7	24.6	24.87	35000	120540	85540	3.44	32000	96530	64530	3.02
Andhara Pradesh	East Godavari (Kalvacherla)	Sesame	YLM-66	16	20	9.5	17.52	84.42	6000	45000	39000	7.5	6000	33000	27000	5.5
Andhara Pradesh	Guntur (Lam)	Sesame	YLM 17	50	50	9.5	11.25	18.42	19500	73125	53625	3.75	27300	55100	27800	2.02
Andhara Pradesh	Kadapa	Sesame	YLM-66	50	125	3.9	4.58	17.44	17000	21450	4450	1.26	18000	25190	7190	1.4
Andhara Pradesh	Krishna (Garikapadu)	Sesame	YLM 66(Sarada)	20	26	7.43	14.3	92.46	14250	86040	71790	6.04	12000	44580	32580	3.72
Andhara Pradesh	Kurnool (Yagantipalli)	Sesame	YLM-66	40	50	6.73	8.65	28.53	22000	56225	34225	2.56	19375	43745	24370	2.26
Andhara Pradesh	Prakasam (Darsi)	Sesame	YLM 66	20	50	5.6	7.21	28.75	18750	52500	33750	2.8	20500	33600	13000	1.64
Andhara Pradesh	West Godavari (Undi)	Sesame	YLM 66	10	25	6.7	8.7	29.85	21250	43500	22250	2.05	18750	33500	14750	1.79
Andhara Pradesh	West Godavari (V R Gudem)	Sesame	YLM -11	30	75	9.5	11.33	19.26	17500	73645	56145	4.21	17500	47500	30000	2.71
Maharashtra	Akola	Sesame	GT-3	20	50	4	6.63	65.75	21750	49725	27975	2.29	22500	42225	19725	1.88
Telangana	Karimnagar (Jammikunta)	Sesame	Swethatil	30	65	8	9	12.50	9600	32000	22400	3.33	10400	10000	8960	0.86
Telangana	Karimnagar (Ramagirikhilla)	Sesame	Swethatil	20	50	6	8.21	36.83	9600	32000	22400	3.33	10400	10000	8960	0.86
Andhara Pradesh	Chittoor (RAAS)	Sunflower	Sun-bred-275	30	54	17.3	23	32.95	41708	69998	28290	1.68	40088	52765	12678	1.32
Andhara Pradesh	Kurnool(Banavasi)	Sunflower	Private Hybrid	26	26	17.9	22	22.91	32500	66000	33500	2.03	40550	53700	13150	1.32
Andhara Pradesh	Prakasam (Darsi)	Sunflower	Kargil seeds	40	100	18.3	25.7	40.44	36250	47450	11200	1.31	26125	66820	40695	2.56
Andhara Pradesh	kadapa	Sunflower	SB 275	20	50	15	16.25	8.33	35000	83750	48750	2.39	37500	82500	45000	2.2

Zone- VI

Table 4.15 : KVKs performance in Kharif

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Rajasthan	Anta-Baran	Soyabean	JS 95-60	20	40	9.75	15.2	55.90	17000	45000	26000	2.65	18000	52000	34000	2.89
Rajasthan	Bharatpur	Sesame	RT-351	20	50	2.5	4.52	80.80	18000	21948	3948	1.22	19500	27900	8400	1.43
Rajasthan	Bhilwara (MPUAT, Udaipur)	Soyabean	JS 95-60	20	50	8.45	11.42	35.15	17500	35490	17990	2.03	22500	47964	25464	2.13
Rajasthan	Bikaner	Groundnut	HNG-69	30	75	31.4	36.7	16.88	32870	97340	64470	2.96	113770	30450	83320	0.27
Rajasthan	BUNDI	Soybean	JS 95-60	20	50	12.7	15.74	23.94	25080	46248	21168	1.84	27216	58090	30874	2.13
Rajasthan	Chittorgarh	Soybean	JS 95-60	20	32	11.6	13.38	15.34	20700	33600	12900	1.62	22200	40230	18030	1.81
Rajasthan	Chittorgarh	Groundnut	UG-5	9.6	24	13.4	15.93	18.88	25400	56506	31106	2.22	27200	67225	40025	2.47
Rajasthan	SARDASHAHHR, CHURU-I	Sesame	RT-351	7.6	19	3.08	4.58	48.70	13254	38800	25546	2.93	14823	55956	41133	3.77
Rajasthan	Dholpur	Sesame	RT-351	20	50	6	7.27	21.17	9500	30000	20500	3.16	10500	37475	26975	3.57
Rajasthan	Sriganganagar	Groundnut	HNG-10	30	75	18.5	22.5	21.62	28050	78070	50020	2.78	29150	94950	65800	3.26
Rajasthan	Chomu (Jaipur-I)	Sesame	RT-351	26.8	67	4.97	7.27	46.28	18826	34755	15929	1.85	21625	50925	29300	2.35
Rajasthan	Jaisalmer	Groundnut	HNG-69	14	35	15	16.43	9.53	27975	57412	29437	2.05	32921	79649	46727	2.42
Rajasthan	Jalore	Sesame	RT-351	20	40	6.5	8.39	29.08	16000	42250	26250	2.64	18000	54535	36535	3.03
Rajasthan	Jhalawar	Soybean	JS 95-60	20	50	15.4	18.64	21.04	31256	45275.7	14019.7	1.45	32890	55260.7	22370	1.68
Rajasthan	Jodhpur	Groundnut	GG-20	20	50	16.3	19.42	19.14	31750	79392	47692	2.50	32700	94416	61716	2.89
Rajasthan	Jodhpur	Sesame	RT-351	10	25	3.09	4.14	33.98	7910	21210	13300	2.68	8450	25140	16690	2.98
Rajasthan	Karauli	Sesame	RT-351	4	10	5.8	6.5	12.07	10900	40600	29700	3.72	11500	45500	34000	3.96
Rajasthan	Borkhera kota	Soybean	JS 95-60	20	40	12.5	16.2	29.60	19125	36875	17750	1.93	21685	47790	26105	2.20
Rajasthan	PALI	Sesame	RT-351	20	40	2.5	4.3	72.00	9200	33600	24400	3.65	9700	43600	33900	4.49
Rajasthan	Sawai Madhopur	Sesame	RT-351	20	40	4.62	6.12	32.47	15000	30030	15030	2.00	15486	39780	24294	2.57
Rajasthan	Sirohi	Sesame	RT-351	20	50	3	5.42	80.67	15500	21700	6200	1.40	16000	27100	11100	1.69

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Rajasthan	Banasthali, Tonk	Sesame	RT-351	20	50	5.7	7.3	28.07	13200	42750	29550	3.24	15500	54750	39250	3.53
Rajasthan	Banswara	Soybean	JS 95-60	23	58	6.8	10.86	59.71	14300	21760	7460	1.52	16500	34752	18252	2.11
Rajasthan	Rajsamand	Sesame	RT-351	10	25	3.98	5.1	28.14	8000	35820	27820	4.48	8000	45900	37900	5.74
Rajasthan	Dungarpur	Soybean	JS 95-60	20	100	7.5	7.51	0.13	13450	20915	7465	1.56	14215	24955	10740	1.76
Gujarat	Amreli	Groundnut	GJG-9	12	30	23.7	27.8	17.30	34150	99957.7	65807.7	2.93	34788	117457	82668.7	3.38
Gujarat	Amreli	Sesame	GT-4	16	40	6.16	8.16	32.46	13290	56239.6	42949.6	4.23	13685	67637.4	53952.4	4.94
Gujarat	Bhavnagar	Groundnut	GG-20	20	47	18.8	24.55	30.59	39860	101199	61338.4	2.54	40465	122924	82459.5	3.04
Gujarat	JAU, Jamnagar	Groundnut	GG-20	20	50	19	23.2	22.11	53500	76000	22500	1.42	45000	91520	46520	2.03
Gujarat	JAU, Jamnagar	Sesame	GT-2	20	50	7	7.78	11.14	26000	49000	23000	1.88	23500	55720	32220	2.37
Gujarat	Junagadh	Groundnut	GJG-9	20	50	20.3	22.8	12.32	39200	86900	47700	2.22	36700	99710	62164	2.72
Gujarat	Junagadh	Sesame	GT-3	20	47	6	7.18	19.67	17000	34200	17200	2.01	15500	40945	25445	2.64
Gujarat	Kutch-I	Groundnut	TG-37A	20	50	23.3	28.2	21.03	74600	134000	59400	1.80	76200	148720	72520	1.95
Gujarat	Targhadia (Rajkot-1)	Sesame	GT-4	20	25	4.25	4.75	11.76	21400	28900	7900	1.35	22000	31850	9850	1.45
Gujarat	Targhadia	Groundnut	GG-20	20	25	11.5	13.03	13.30	34800	59423.3	24623.3	1.71	36000	68868.3	32868.3	1.91
Gujarat	Sabarkantha	Groundnut	GG-20	20	50	21	24.13	14.90	73750	113200	39450	1.53	75000	126346	51346	1.68
Gujarat	TAPI	Groundnut	GG-20	20	50	11.9	16.39	37.73	23500	60690	37190	2.58	24500	83589	59089	3.41
Gujarat	Vadodara	Soybean	JS-335	40	100	16	18.9	18.13	19312	43200	23888	2.24	20125	51030	32660	2.54
Gujarat	Deesa, Banaskantha-	Groundnut	GG-20	20	50	21.5	29.25	36.05	35975	86795	50820	2.41	30780	117275	86495	3.81
Gujarat	Mehsana	Groundnut	GG-20	20	50	16.5	19.59	18.73	31044	80640	46262.7	2.60	30460	95760	65300	3.14
Gujarat	Patan	Groundnut	GG-20	20	80	13.4	16.8	25.37	18160	46900	28740	2.58	21680	58800	37120	2.71
Gujarat	Namada	Soybean	JS-335	20	50	13	16	23.08	16500	32500	16000	1.97	17200	43200	26000	2.51
Gujarat	Namada	Groundnut	GG-20	20	50	8	10	25.00	17000	31160	14160	1.83	18000	40000	22000	2.22
Gujarat	AAU, Dahod	Soybean	NRC- 37	20	50	12.8	15.19	18.67	15940	40479.6	24539.6	2.54	16496	48479	28450.8	2.94
Gujarat	Surat	Soybean	NRC- 37	20	74	12	16.5	37.50	16000	32400	16400	2.03	16800	44550	27750	2.65
Gujarat	Kutch II	Groundnut	GT-3	20	41	3	4.25	41.67	11060	17143	6083	1.55	11215	20516	9301	1.83

Table 4.16 : KVKs performance in Rabi

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Rajasthan	Bikaner I	Mustard	Giriraj	30	75	14.23	18	26.49	20000	49816.7	29816.7	2.49	23550	62836.7	39286.7	2.67
Rajasthan	Jhunjhunu	Mustard	NRCHB-101	87.2	218	14.9	20.3	36.24	22550	54928.5	32378.5	2.44	24400	67056	42656	2.75
Rajasthan	Jaisalmer-I	Mustard	RH-749	20	40	11	12.72	15.64	16720	38850	22130	2.32	16900	47064	30164	2.78
Rajasthan	Sikar	Mustard	RGN-229	50	100	15.38	18.17	18.14	20800	53071	32271	2.55	22800	63595	40795	2.79
Rajasthan	Dausa	Mustard	IJ 31	20	49	14.97	16.97	13.36	25338	58389	33051	2.30	25415	69637	42222	2.74
Rajasthan	Alwar-I	Mustard	NRCDR-2	20	50	18	23	27.78	20317	51523	31206	2.54	25330	82800	57470	3.27
Rajasthan	Dholpur	Mustard	RH-406, DRMRIJ-13	20	50	18.17	22.5	23.83	24500	62161	37661	2.54	26000	74250	48250	2.86
Rajasthan	Ajmer	Mustard	RGN-229	20	40	12.14	15.6	28.50	20550	41276	20726	2.01	23129	53040	29911	2.29
Rajasthan	Bharatpur	Mustard	DRMRIJ-31	20	50	18	21	16.67	23000	64800	41800	2.82	25000	75600	50600	3.02
Rajasthan	Jalore	Mustard	PM-26	20	50	12.5	13.99	11.92	26100	46250	20150	1.77	28500	51763	23263	1.82
Rajasthan	Nagaur 1st	Mustard	DRMRIJ 31	20	50	17.5	20.58	17.60	18400	60520	42120	3.29	18500	69955	51455	3.78
Rajasthan	SIROHI	Mustard	RGN-229	20	50	12.1	14.99	23.88	15800	43200	27400	2.73	17800	53080	35280	2.98
Rajasthan	Kota	Mustard	NRC HB-101	20	40	17.25	21.56	24.99	22360	61513	39153	2.75	23422	76382	52960	3.26
Rajasthan	Jhalawar	Mustard	NRCDR-2	6.67	40	9.30	16.94	82.15	33150	46796	13646	1.41	34655	60550	25895	1.75
Rajasthan	Sawaimadhopur	Mustard	NRCDR-02	20	40	17.1	20.67	20.88	22360	61513	39153	2.75	23032	76382	53350	3.32
Rajasthan	Karauli	Mustard	NRCDR-02	20	50	19.5	22.5	15.38	18850	70200	51350	3.72	19900	81000	61100	4.07
Rajasthan	Anta-Baran	Soybean	NRCDR-02	20	50	21.34	24.02	12.56	20199	70424	50225	3.49	22355	79252	56897	3.55
Rajasthan	Bundi	Mustard	RH 749	20	50	12.86	16.3	26.75	20360	45724	25364	2.25	22387	57420	35040	2.56
Rajasthan	Bhilwara	Mustard	DRMRIJ-31	20	50	10.8	16.3	50.93	13500	42700	29200	3.16	15900	57050	41150	3.59
Rajasthan	Rajsamamand	Mustard	RH-406	100	250	13.58	17.32	27.54	10000	47530	37530	4.75	11500	60620	49120	5.27
Rajasthan	Dungarpur	Mustard	NRC HB- 101	20	98	12.00	16.20	35.00	10600	28400	17800	2.68	13200	48600	35400	3.68
Rajasthan	Chittorgarh	Mustard	DRMRIJ-31	20	50	16.41	19.75	20.35	21750	54153	32403	2.49	23650	66162.5	42512.5	2.80

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Rajasthan	Pratapgarh	Mustard	NRCDR-02	20	43	10.7	14.3	33.64	15200	36380	21180	2.39	15900	48620	32720	3.06
Rajasthan	Udaipur	Mustard	NRCHB-101	20	54	12.65	15.75	24.51	19750	42694	22944	2.16	22500	53156	30656	2.36
Rajasthan	Jaipur-I	Mustard	NRCDR-02	20	50	15.55	19.83	27.52	19944	62200	42256	3.12	22575	79320	56745	3.51
Rajasthan	Tonk	Mustard	RH-406	20	50	17.1	20.22	18.25	19200	63270	44070	3.30	21600	74814	53214	3.46
Rajasthan	Hanumangarh-I	Mustard	RH 749	20	50	15.92	18.03	13.25	19100	59400	40300	3.11	19856	67425	47569	3.40
Rajasthan	KVK CAZRI Jodhpur	Mustard	PM-26	40	100	13.8	17.8	28.99	16100	48346.7	32246.7	3.00	16300	62381.7	46081.7	3.83
Rajasthan	PALI	Mustard	NRCDR-02	20	40	7.1	12.47	75.63	14100	36566.7	22466.7	2.59	15966.7	56333.3	40366.7	3.53
Gujarat	Kutch II	Mustard	GDM -4	24	38	16.5	17.9	8.48	27500	69200	41700	2.52	30500	92700	62200	3.04
Gujarat	Deesa, Banaskantha-I	Mustard	GDM -4	20	50	12	17.1	42.50	18860	44066	25206	2.34	17540	65960.8	48420.8	3.76
Gujarat	Patan	Mustard	GDM -4	20	50	14.4	17.5	21.53	15744	50470	34726	3.21	17214	61320	44106	3.56
Gujarat	Junagarh	Mustard	GDM -4	20	42	8	9.8	22.50	16250	24000	7750	1.48	15930	29530	13600	1.85

Table 4.17 : KVKs performance in Summer

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Gujarat	Amreli	Groundnut	GJG-31	20	50	18.75	21.97	17.17	33279	78204	44925.9	2.35	31447	95780	64334	3.05
Gujarat	Bhavnagar	Groundnut	GG-2	20	50	16.64	18	8.17	44034	55525.9	11490	1.26	46193	65473	19280	1.42
Gujarat	Junagarh	Groundnut	GG-2	20	42	13	14.7	13.08	36400	55250	18850	1.52	33200	62475	29275	1.88
Gujarat	Kutch-I	Groundnut	TG 37-A	20	50	16.1	20.5	27.33	52500	77620	25120	1.48	55699	90600	34901	1.63
Gujarat	Narmada	Groundnut	TG 37-A	28	70	10.25	17.8	73.65	29250	75912.5	4666.2	2.60	31425	89050	57625	2.83
Gujarat	Surat	Groundnut	TG 37-A	8	20	10.5	13.82	31.62	22300	44625	22325	2.00	24200	58735	34535	2.43
Gujarat	TAPI	Groundnut	TG 37-A	20	50	12.5	18.32	46.56	34500	63750	29250	1.85	38200	93432	55232	2.45
Gujarat	Vadodara	Groundnut	GG-2	16	40	16	18.6	16.25	34750	64000	29250	1.84	34250	74400	40150	2.17
Gujarat	Narmada	Sesame	GT-3	20	50	7.3	8.3	13.70	9500	14628	5128	1.54	10500	16978	6478	1.62
Gujarat	Bhavnagar	Sesame	GT-3	16	40	6.5	7.6	16.92	26727	43974.4	17247.2	1.65	24126	47077	22951	1.95
Gujarat	Jamnagar	Sesame	GT-3	40	100	7.5	9	20.00	25925	48150	22650	1.86	23938	53850	31783	2.25
Gujarat	Junagadh	Sesame	GT-3	20	43	6.7	9.6	43.28	23000	40500	17500	1.76	22500	57690	35190	2.56
Gujarat	Porbander	Sesame	GT-3	40	100	4.8	5.74	19.58	18000	26400	8400	1.47	17800	31570	13770	1.77
Gujarat	Targhadia	Sesame	GT-3	20	42	12.5	15.25	22.00	31250	68750	37500	2.20	32500	83875	51375	2.58
Gujarat	Surat	Sesame	GT-3	20	50	4.7	6.18	31.49	9600	23500	13900	2.45	10200	30900	20700	3.03

Zone- VII

Table 4.18 : KVKs performance in Kharif

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Chhattishgarh	Surguja	Groundnut	K-6	30	95	9.4	16.2	72.34	18200	47000	33800	2.58	22600	81000	58400	3.58
Chhattishgarh	Surguja	Sesame	GT-2	30	63	5.2	9.05	74.04	14600	31200	16600	2.14	18400	54300	35900	2.95
Chhattishgarh	Durg	Soybean	JS 97-52	30	60	9.02	13.53	50	16000	33600	17600	2.10	16000	37800	21800	2.36
Chhattishgarh	Rajnandgaon	Soybean	JS 97-52	30	50	8.8	11.7	32.95	12350	30650	18300	2.48	16650	42850	26200	2.57
Chhattishgarh	Jashpur	Niger	BN 1, GA 3	30	73	3.2	4.24	32.50	4300	11520	7220	2.68	5100	15276	10176	3.00
Chhattishgarh	Surguja	Niger	BN 1	30	56	2.6	3.3	26.92	5800	8000	2200	1.38	7200	16500	9300	2.29
Chhattishgarh	Korea	Sesame	Birsa	20	35	2.5	3.7	72	4500	16000	11500	3.56	8150	44000	35850	5.40
Chhattishgarh	Korea	Niger	TKG 22	30	44	2.81	3.97	41.28	5550	8925	3375	1.61	7875	18132	10257	2.30
Chhattishgarh	Balrampur	Sesame	GT-2	30	70	2.1	3.7	76.19	5800	11550	5750	1.99	9500	20350	10850	2.14
Chhattishgarh	Balrampur	Niger	GA 10	30	75	2.45	3.7	51.02	6350	17150	10800	2.70	7850	25900	18050	3.30
Madhya Pradesh	Ratlam	Soybean	JS 95-60	30	75	12.69	16.9	33.18	22255	54131.2	31875.9	2.43	23521.1	68676.8	45155.7	2.92
Madhya Pradesh	Rajgarh	Soybean	JS 95-60	30	75	12.29	22.35	81.85	12800	57159	44359	4.47	13950	64641	50691	4.63
Madhya Pradesh	Indore	Soybean	JS 95-60	30	73	13.14	16.8	27.85	23939	42033.7	18094.1	1.76	24883	52401.5	27517.8	2.11
Madhya Pradesh	Shajapur	Soybean	JS 95-60	30	80	14	15.8	12.86	24850	40383	15535	1.63	25500	47257	21757	1.85
Madhya Pradesh	Jhabua	Groundnut	GG 20	30	75	12.23	15.5	26.74	21800	48906	27106	2.24	23150	61954	38804	2.68
Madhya Pradesh	Jhabua	Soybean	JS 95-60	30	75	12.07	14.7	21.79	21200	37406	16206	1.76	22175	45580	23405	2.06
Madhya Pradesh	Sehore	Soybean	JS 95-60	30	75	11	16.4	49.09	23353	38074	15086	1.63	25731	45801	18772	1.78
Madhya Pradesh	Tikamgarh	Soybean	JS 95-60	29.6	74	7.3	12.5	71.23	15000	30666.7	15666.7	2.04	22000	50000	28000	2.27
Madhya Pradesh	Khandwa	Soybean	JS 95-60	30	75	13.75	16.5	20.00	17300	41250	23950	2.38	20550	49500	28950	2.41
Madhya Pradesh	Guna	Soybean	JS 95-60	30	75	12.3	15.47	25.77	11997.7	30155.3	18158.3	2.51	19183.3	46521.7	25593.3	2.43
Madhya Pradesh	Jabalpur	Soybean	JS 97-52	30	45	7.8	13.6	74.36	15500	23500	8000	1.52	18600	40700	22100	2.19
Madhya Pradesh	Betul	Soybean	JS 97-52	60	150	8.93	15.7	75.81	14500	40500	26000	2.79	16250	53200	36750	3.27
Madhya Pradesh	Betul	Niger	UN 150	30	58	2.88	4.55	57.99	7800	23040	15240	2.95	8800	36400	27600	4.14

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield		Farmer's plot			Demonstration plot					
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Madhya Pradesh	Chhatterpur	Sesame	TKG-306	30	75	1.92	2.85	48.44	4602	10560	5438	2.29	5430	17100	11670	3.15
Madhya Pradesh	Sagar	Soybean	JS 95-60	30	73	6.23	10.5	68.54	10500	18675	8175	1.78	13150	31560	18410	2.40
Madhya Pradesh	Khargaoan	Soybean	JS 95-60	30	75	10.76	11.9	10.59	15336	39246	23910	2.56	15900	41303	25403	2.60
Madhya Pradesh	Harda	Soybean	JS 95-60	30	43	12.00	18.5	54.16	26000	32832	6832	1.26	26000	49414.7	23414.7	1.90
Madhya Pradesh	Narsinghpur	Soybean	JS 95-60	39.2	98	8.82	12.50	41.70	20500	29700	9200	1.45	22000	33084	11084	1.50
Madhya Pradesh	Damoh	Soybean	JS 95-60	30	65	5	5.63	12.60	13000	27500	14500	2.12	15000	33800	18800	2.25
Madhya Pradesh	Ujjain	Soybean	JS 95-60	32	80	18.06	22.9	26.80	13833	52374	38540.7	3.79	16400	66506.7	50106.7	4.06
Madhya Pradesh	Ashoknagar	Soybean	JS 95-60	30	75	11.61	14.5	24.89	19965	37152	17187	1.86	21230	46240	25010	2.18
Madhya Pradesh	Dewas	Soybean	JS 95-60	40	100	14.68	18.6	26.70	30000	42622.6	27622.5	1.42	31000	53274	37774	1.72
Madhya Pradesh	Sheopur	Soybean	JS 95-60	30	75	12.33	15.2	23.28	19380	39466.7	20086.7	2.04	20885	48608	27723	2.33
Madhya Pradesh	Dhar	Soybean	JS 93-05	30	75	14.38	20.3	41.17	27675	45281.5	17606.5	1.64	26500	63913.5	37413.5	2.41
Madhya Pradesh	Dindori	Niger	JNC 6	30	75	3.4	4.88	43.52	6000	20000	14000	3.33	7500	40000	32500	5.33
Madhya Pradesh	Bhopal	Soybean	JS 95-60	30	75	10.30	15.00	45.65	6509.6	9208	2698.4	1.41	12300	20235.2	9235.2	1.65
Madhya Pradesh	Mandsaur	Soybean	JS 95-60	30	75	14.08	16.6	17.90	28400	42240	13840	1.49	31400	49920	18520	1.59
Madhya Pradesh	Chhindwada	Soybean	JS 95-60	45	113	6.9	10.7	55.07	17051	26053.3	9001.7	1.53	20973.3	45583.3	24476.7	2.17
Madhya Pradesh	Chhindwada	Niger	JNC 6	45	112	2.5	4.7	88.00	12355	22880	10525	1.85	13220	30550	17330	2.31
Madhya Pradesh	Hosangabad	Soybean	JS 95-60	30	75	13.7	16.8	22.53	20000	28500	15166.7	1.43	20000	50400	30400	2.52
Odisha	Dhenkanal	Groundnut	Devi	30	75	12	15.4	28.33	35000	60000	25000	1.71	40100	77000	36900	1.92
Odisha	Jajpur	Groundnut	Devi	30	44	13.6	17.9	31.62	34800	54400	19600	1.56	35500	71600	36100	2.02
Odisha	Mayurbhanj-I	Groundnut	TG 38	30	75	12.6	17.6	39.68	29800	40320	10520	1.35	32600	56160	23560	1.72
Odisha	Angul	Groundnut	Smruti	30	75	17.2	19.1	11.05	38000	68800	30800	1.81	40000	76400	36400	1.91
Odisha	Angul	Sesame	Uma	30	75	4.9	6.1	24.49	18000	39200	21200	2.18	20000	48800	28800	2.44
Odisha	Bolangir	Groundnut	Devi	15	38	11.4	13.6	19.30	35200	62700	27500	1.78	35200	74112.5	38912.5	2.11
Odisha	Kalahandi	Groundnut	Devi	30	50	10.6	14.3	34.91	19600	52300	33400	2.67	23150	71500	48350	3.09
Odisha	Puri	Groundnut	Devi	20	25	13.8	15.8	14.49	34800	54900	20100	1.58	35500	71100	35600	2.00
Odisha	Burgar	Groundnut	Devi	30	61	13	17.9	37.69	43333	63333.3	20000	1.46	48466.7	88100	39633.3	1.82

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Odisha	Burgar	Sesame	Prachi	30	75	2.7	4.92	82.22	8200	13500	39666.7	1.65	15833.3	26166.7	10333.3	1.65
Odisha	Ganjam-I	Groundnut	Devi	30	75	12.78	16.4	28.33	29700	63916.7	34216.7	2.15	33400	81750	48350	2.45
Odisha	Rayagada	Niger	Utkal	30	50	4	6.25	56.25	19700	37800	18100	1.92	24590	48000	23410	1.95
Odisha	Sambalpur	Sesame	Amrit	30	105	6.2	7.47	20.48	23850	31350	7500	1.31	26500	41085	14585	1.55
Odisha	Malkhangiri	Groundnut	TG37A	30	85	10.77	14.3	32.78	31000	45220	14220	1.46	36000	59892	23892	1.66
Odisha	Malkhangiri	Sesamum	Kalika	30	66	3.83	6.58	71.80	18000	24900	6900	1.38	19000	29625	10625	1.56
Odisha	Deogarh	Sesame	Prachi	30	75	4.7	5.9	25.53	17200	37600	20400	2.19	19500	47200	27700	2.42
Odisha	Keonjar	Niger	Utkal	30	75	3.2	4.7	46.88	9500	16000	6500	1.68	12350	23616.7	11266.7	1.91

Table 4.19 : KVKs performance in Rabi

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Chhattish-garh	Balrampur	Linseed	Dipika	14	41	3.25	4.93	51.69	12000	17963	5963	1.50	13650	27093	13443	1.98
Chhattish-garh	Baster	Linseed	RLC-92	20	45	4.6	5.86	27.39	9800	21160	11360	2.16	9866.7	26986.7	17120	2.74
Chhattish-garh	Bhatapara	Mustard	CG- Sarsho	30	55	6.4	8.6	34.38	10725.5	19312.5	8587	1.80	12558.5	2583.75	13279	0.21
Chhattish-garh	Bhatapara	Sesame	TKG-306	30	40	1.97	2.5	26.90	6609.4	7851.6	1243	1.19	8450	10137.4	1807.4	1.20
Chhattish-garh	Bilaspur	Linseed	RLC 92	30	43	4.5	6.7	48.89	7000	9000	2000	1.29	7500	11000	3500	1.47
Chhattish-garh	Bilaspur	Mustard	CG- Sarsho	30	55	4.5	5.96	32.44	6500	13500	7000	2.08	7500	17880	10380	2.38
Chhattish-garh	Dantewada	Mustard	Pusha Bold	30	75	2.1	3.54	68.57	6890	11366.7	4476.7	1.65	9500	21280	11780	2.24

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield		Farmer's plot			Demonstration plot					
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Chhattish-garh	Dhamtari	Linseed	RLC 92	26	57	5.7	10.38	82.11	22600	34000	11400	1.50	26042.7	62300	35903.3	2.39
Chhattish-garh	Durg	Mustard	CG- Sarsho	30	38	9	12	33.33	15000	27900	12900	1.86	16000	37200	44000	2.33
Chhattish-garh	Durg	Linseed	Dipika	30	42	9	12	33.33	15000	45000	30000	3.00	16000	60000	44000	3.75
Chhattish-garh	Janjir-Champa	Mustard	Pusa Vijay	30	49	6.7	10.09	50.60	12800	24790	11990	1.94	15200	37333	22133	2.46
Chhattish-garh	Janjir-Champa	Linseed	Kartika	30	43	3.94	4.85	23.10	9780	18045	8265	1.85	11535	22075	10540	1.91
Chhattish-garh	Jashpur	Linseed	RLC-92	30	42	5.21	7.9	51.63	12000	20840	8840	1.74	14200	31600	17400	2.23
Chhattish-garh	Jashpur	Mustard	CG- Sarsho	30	49	6	10.17	69.50	13600	20100	6500	1.48	16400	35175	18775	2.14
Chhattish-garh	Kanker	Linseed	RLC-92	50	75	3.5	6.53	86.57	14800	21000	6200	1.42	17600	51000	33400	2.90
Chhattish-garh	Khawardha	Mustard	PM-24	30	75	8.3	11.19	34.82	15350	26560	11210	1.73	15600	35808	20208	2.30
Chhattish-garh	Korea	Mustard	CG- Sarsho	55	94	4.1	5.57	35.85	10260	41000	30740	4.00	12425	55700	43275	4.48
Chhattish-garh	Korea	Linseed	Kartika	30	75	3.29	5.67	72.34	9960	15134	5174	1.52	11790	26082	14292	2.21
Chhattish-garh	Mahasamund	Mustard	NRCHB101	30	75	5.1	6.6	29.41	16500	26010	9510	1.58	17000	33660	16660	1.98
Chhattish-garh	Raigarh	Mustard	Pusa Vijay	30	52	8.03	10.95	36.36	12048	29711	17663	2.47	13156	40515	27759	3.08
Chhattish-garh	Rajnandgaon	Mustard	CG- Sarsho	30	40	3.5	5	42.86	10650	16100	5450	1.51	11250	23000	11750	2.04
Chhattish-garh	Surguja	Mustard	Uttara	30	41	3.4	5.85	72.06	9500	13600	4100	1.43	12200	23400	11200	1.92

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Chhattish-garh	Surguja	Linseed	Deepika	30	58	4.2	6	42.86	9800	12600	2800	1.29	12000	18000	6000	1.50
Chhattish-garh	Surguja	Mustard	Uttara	30	60	5.3	9.85	85.85	11800	21200	9400	1.80	18500	39400	20900	2.13
Chhattish-garh	Korba	Mustard	CG- Sarsho	30	75	3.8	5.92	55.79	8500	14060	5560	1.65	9875	21904	12029	2.22
Madhya Pradesh	Balaghat	Linseed	JLS-27	30	72	6.9	10.4	50.72	17550	34500	16950	1.97	19500	52000	32500	2.67
Madhya Pradesh	Bhind	Mustard	RVM 2	30	75	15.74	20.1	31.51	27000	65590	42350	2.43	28000	70350	42350	2.51
Madhya Pradesh	Datia	Mustard	NRCHB 101	30	75	17	22.67	33.35	18500	66366	47866	3.59	20300	84126	63826	4.14
Madhya Pradesh	Dindori	Mustard	Pusa Jay Kisan	20	50	3.5	4.46	27.43	2500	8750	6250	3.50	3500	16354	12854	4.67
Madhya Pradesh	Dindori	Linseed	JLS 66	40	100	3.75	6.6	76.00	5600	12000	6400	2.14	8500	33000	24500	3.88
Madhya Pradesh	Gwalior	Mustard	RVM 2	30	75	13.63	18.14	33.09	13750	50375	36625	3.66	15512.5	58955	43442.5	3.80
Madhya Pradesh	Jabalpur	Linseed	JLS 9	30	45	3.5	5.4	54.28	10875	15866.7	4991.67	1.46	14200	29283.3	15083.3	2.06
Madhya Pradesh	Jabalpur	Mustard	Pusa Jai Kisan	30	45	8.8	15.27	73.52	13500	26500	13000	1.96	18200	45800	27933.3	2.52
Madhya Pradesh	Jhabua	Mustard	NRCHB 101	30	75	10.35	14.26	37.78	17800	33117	15317	1.86	19250	45632	26382	2.37
Madhya Pradesh	Mandla	Mustard	Arpan	23	58	6.58	10.82	74.93	10500	19250	8750	1.83	15275	41370	26095	2.71
Madhya Pradesh	Mandsaure	Linseed	Azad Alsi 1	30	75	11	15.4	40.00	16000	45100	29100	2.82	16500	63140	46640	3.83
Madhya Pradesh	Mandsaure	Mustard	NRCDR-2	30	75	14.5	19.4	33.79	17000	50750	33750	2.99	18000	67900	49900	3.77

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield		Farmer's plot			Demonstration plot					
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Madhya Pradesh	Morena	Mustard	RVM-2, RH-749	30	75	15.23	22.38	46.95	25800	61120	35320	2.37	27000	79984	52984	2.96
Madhya Pradesh	Panna	Mustard	RVM-2	30	58	9.67	13.13	35.78	18180	35766.7	15586.7	1.97	21675	48593	26918.3	2.24
Madhya Pradesh	Raisen	Linseed	RVM-2	20	50	8.65	13.7	58.38	12500	42250	29750	3.38	13000	68500	55500	5.27
Madhya Pradesh	Rajgarh	Mustard	RVM 2	30	75	16.37	18.5	13.19	19150	54320	43170	2.84	20550	74260	53710	3.61
Madhya Pradesh	Ratlam	Mustard	NRCDR-2	10	25	15.8	17.89	13.23	16600	50560	33960	3.05	17200	57248	40043	3.33
Madhya Pradesh	Rewa	Linseed	JLS-27	30	75	9.25	13.27	43.46	14880	34225	19345	2.30	16575	48006	31431	2.90
Madhya Pradesh	Seoni	Linseed	Sheela	10	25	7.1	10.31	45.21	15200	25900	10700	1.70	17500	36085	18585	2.06
Madhya Pradesh	Shahdol	Linseed	JLS-27	30	75	5.67	8.74	54.14	14750	21546	6796	1.46	16550	33212	16662	2.01
Madhya Pradesh	Sheepur	Mustard	GIRRAJ (J31)	30	75	14.63	22.39	53.04	19245	46826.7	27581.7	2.43	20770	71648	50878	3.45
Madhya Pradesh	Shivpuri	Mustard	DRMR 2	30	75	15.33	23.5	53.29	20000	51200	31200	2.56	20000	75200	55200	3.76
Madhya Pradesh	Tikamgarh	Mustard	Rohani	30	75	7.5	13.83	84.40	15000	26250	11250	1.75	18000	48416.7	30416.7	2.69
Madhya Pradesh	Umaria	Linseed	JLS-27	10	25	4.98	8.3	66.67	9400	19920	10520	2.12	11050	33200	21250	3.00
Madhya Pradesh	Neemuch	Mustard	NRCHB - 101	40	100	12.4	17.15	38.31	18100	39680	21580	2.19	18500	54880	36380	2.97
Odisha	Bhadrak	Mustard	Toria-M-27	30	51	5.7	9.45	65.79	12705	32200	19495	2.53	15012	39699	24687.3	2.64
Odisha	Angul	Mustard	Mahyco bold	30	75	6.5	8.6	32.31	18000	43400	25400	2.41	20000	60200	40200	3.01
Odisha	Angul	Groundnut	Devi	30	75	19.2	23.6	22.92	40000	76800	36800	1.92	42000	94400	52400	2.25
Odisha	Angul	Sesame	Kalika	30	75	5.1	6.5	27.45	15000	35700	20700	2.38	17000	45500	28500	2.68
Odisha	Balasore	Toria	M-27	60	99	7.5	9.83	31.07	20000	30000	10000	1.50	22026	39320	17294	1.79

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Odisha	Balasore	Sesame	Nirmala	30	82	6.2	9.12	47.10	15200	24800	9600	1.63	18450	36480	18030	1.98
Odisha	Balasore	Groundnut	K-6	60	99	20.5	28.39	38.49	45500	92250	46750	2.03	53290	127755	74465	2.40
Odisha	Bargarh	Groundnut	ICGV91114 (Devi)	30	93	15.5	20.85	34.52	40600	60200	19600	1.48	50300	82000	32000	1.63
Odisha	Bargarh	Mustard	M-27	30	61	2.4	4.35	81.25	7900	12450	3300	1.58	12925	21750	8825	1.68
Odisha	Bolangir	Mustard	M-27	10	23	3	5.9	96.67	15200	22800	7600	1.50	17300	35400	18100	2.05
Odisha	Bolangir	Sesame	Uma	10	20	3.2	6.1	90.63	10200	16000	5800	1.57	15100	30500	15400	2.02
Odisha	Boudh	Mustard	M-27	8	17	5.2	6.2	19.23	12500	23050	10550	1.84	13600	29450	13850	2.17
Odisha	Boudh	Sesame	Kalika	18	42	4.9	6.1	24.49	12500	22050	9550	1.76	13600	27450	13850	2.02
Odisha	Deogarh	Mustard	Mahyco Bold	30	75	6.2	8.8	41.94	22500	43400	20900	1.93	27500	61600	34100	2.24
Odisha	Dhenkanal	Groundnut	Devi	30	75	16.8	22.3	32.74	44000	67200	23200	1.53	50700	89200	38500	1.76
Odisha	Dhenkanal	Mustard	Mahyco Bold	30	75	3.8	6.4	68.42	13000	16000	3000	1.23	14700	32000	17300	2.18
Odisha	Gajapati	Sesame	Prachi	30	75	3	4.94	64.66	5000	12800	7800	2.56	6500	18850	12350	2.90
Odisha	Gajapati	Groundnut	Kadri-6	30	75	10.41	13	24.87	23000	41855	18855	1.82	27000	57255	30255	2.12
Odisha	Ganjam-I	Groundnut	Devi	30	50	15.67	21.43	36.76	32366.7	62666.7	30300	1.94	36500	85733.3	49233.3	2.35
Odisha	Ganjam-II	Groundnut	Devi	42	107	17.33	23.5	35.60	30100	69333.3	39233.3	2.30	32600	94000	61400	2.88
Odisha	Ganjam-II	Sesame	Uma	30	75	4.9	6.1	24.49	12500	22050	9550	1.76	13600	27450	13850	2.02
Odisha	Jagatsinghpur	Groundnut	Devi	60	87	12.4	18.07	45.73	32916.7	62000	29083.3	1.88	44083.3	90333.3	46250	2.05
Odisha	Jaipur	Groundnut	Devi	45	87	16.2	21.6	33.33	34800	64800	30000	1.86	35500	86400	50900	2.43
Odisha	Jaipur	Mustard	M-27	15	24	5.3	6.7	26.42	17000	26500	9500	1.56	19000	33500	14500	1.76
Odisha	Kandhmal	Mustard	M-27	30	115	5.9	7.8	32.20	9862.5	14685	4822.5	1.49	11337.5	25740	14465	2.27
Odisha	Kendrapara	Groundnut	ICGV91114	60	150	21.5	25.1	16.74	42000	96750	54750	2.30	43650	113850	69500	2.61
Odisha	Kendrapara	Sunflower	MSFH-17	30	75	8	10.7	33.75	12000	28000	16000	2.33	13375	34750	23600	2.60
Odisha	Keonjhar	Toria	Parvati	30	75	8.3	11.8	42.17	21516.7	25730	4213.3	1.20	23916.7	36686.3	12766.7	1.53
Odisha	Khordha	Groundnut	Devi	60	99	16.5	23.8	44.24	28405	90000	61595	3.17	35540	127500	91960	3.59
Odisha	Koraput	Mustard	M- 27	30	60	4.77	5.78	21.17	8600	12800	4200	1.49	13500	23146.7	9646.7	1.71
Odisha	Malkhangiri	Groundnut	TAG-24	30	69	17.3	19.88	14.91	31000	72051	41051	2.32	35000	83496	48496	2.39

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Odisha	Malkhangiri	Sesame	UMA	30	50	3.8	4.6	21.05	17000	19075	2075	1.12	18000	23215	5215	1.29
Odisha	Mayurbhanj	Groundnut	ICGV 91114 (DEVI)	30	54	16.63	19.9	19.66	35683.3	53226.7	17543.3	1.49	36383.3	63680	27296.7	1.75
Odisha	Mayurbhanj	Mustard	ANURADHA	30	39	4.8	6.35	32.29	19300	28900	9600	1.50	22150	38100	15950	1.72
Odisha	Nayagarh	Sesame	Kalika	30	70	3.48	5.74	64.94	13369	20900	7531	1.56	18655	34440	15798.7	1.85
Odisha	Nuapada	Groundnut	ICGV-9114	30	46	16.5	20.16	22.18	28500	62700	34200	2.20	31920	76608	44688	2.40
Odisha	Puri	Groundnut	Devi	40	100	11	21.4	94.55	35800	65200	29400	1.82	36500	85600	49100	2.35
Odisha	Puri	Sunflower	MSFH-17	20	50	13	14.5	11.54	26400	39550	13150	1.50	28200	50750	22550	1.80
Odisha	Rayagada	Sunflower	PAC-334	45	114	7.2	10.92	51.67	21150	27360	6210	1.29	28360	41496	13136	1.46
Odisha	Sambalpur	Mustard	Parvati	30	77	5.72	7.73	35.14	21112	30316	9204	1.44	26121	48021	21900	1.84
Odisha	Sambalpur	Groundnut	Devi	14	25	13.9	19.4	39.57	52150	80620	28470	1.55	62250	112520	50270	1.81
Odisha	Sonepur	Mustard	M-27	30	75	5.6	7.4	32.14	26500	33600	7100	1.27	29500	46860	17360	1.59

Table 4.20 : KVKs performance in Summer

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Chhattishgarh	Gariyaband	Sesame	GT-4	29.6	44	2.9	3.9	34.48	8200	8868.33	668.33	1.08	9200	11800.3	2600.3	1.28
Odisha	Dhenkanal	Sesame	KALIKA	50	125	3.7	6.8	83.78	18000	22400	4400	1.24	21800	47600	25800	2.18
Odisha	Khurda	Sesame	KALIKA	10	47	6.3	7.37	16.98	13250	25200	11950	1.90	14350	29480	15130	2.05
Odisha	Bargar	Groundnut	Devi	30	92	19.15	20	4.44	40600	60950	20350	1.50	50150	83000	33000	1.66
Odisha	Sundergarh-I	Groundnut	ICGV-91114	60	150	10.80	16.74	55.00	48500	96500	48000	1.99	36000	100270	34270	2.79
Odisha	Khurda	Sunflower	PA334	50	61	14.5	15.8	8.97	38000	72500	34500	1.91	34000	79000	45000	2.32
Odisha	Kalahandi	Sunflower	sunbred 278	20	32	6.9	8.20	18.84	8200	8868.33	668.33	1.08	9200	11800.3	2600.3	1.28

Zone- VIII

Table 4.21 : KVKs performance in Kharif

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot			
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)
Karnataka	Gadag	Groundnut	GPBD-4	28	70	6	8.65	44.16	37413	28400	9013	39982	33250	6732	0.83
Karnataka	Kalaburgi-II	Groundnut	K-9	28	70	13	20.5	57.69	30365	82371	52005	28752	124800	96047	4.34
Karnataka	Raichur	Groundnut	TMV-2	28	70	8.73	13.9	59.22	36875	56648	19773	32375	66445	34070	2.05
Karnataka	Tumkuru-II	Groundnut	KCG-6	28	70	10.00	12.65	26.5	15000	12336.1	2663.9	15000	13263	1737	0.88
Tamil Nadu	Namakkal	Groundnut	Co - 7	28	70	9.86	11.7	18.66	30757	58553.6	27796.6	32191	67751	35559.8	2.10
Tamil Nadu	Theni	Groundnut	Co - 7	14	35	18.71	22.8	21.86	21500	45250	23750	22950	56950	34000	2.48
Tamil Nadu	Thiruvanna-malai	Groundnut	TMV-13	28	70	14.62	17.1	16.96	51825	87746	35921.6	50282	102576	52293.8	2.04
Tamil Nadu	Vellore	Groundnut	TG- 37 A	4.2	11	11.28	14.9	32.09	30104	53024	22920	31854	70286	38432	2.21
Tamil Nadu	Villupuram	Groundnut	TMV - 13	10	25	23.25	32.6	40.22	54204	160440	106236	58140	194472	136332	3.34
Karnataka	Belgaum - 1	Soyabean	JS- 335	26	65	13.00	17.6	35.38	17402	44480	27078	20426	56328	35894	2.76
Karnataka	Dharwad	Soyabean	DSB-21	26	65	13.38	16.9	26.31	26900	67950	41050	19900	76432	56532	3.84
Karnataka	Davanagere	Sunflower	DSB-23	26	65	10	16.5	65.00	23255	49202	25948	27393	72063	44671	2.63
Karnataka	Haveri	Sunflower	DSFH-3	26	65	8.64	14.7	70.14	16500	27625	11125	16500	48230	31730	2.92
Karnataka	Raichur	Sunflower	Sankranti	0	0	4.34	6.34	46.08	7200	18539.5	11339.6	8044	21553	13509	2.68
Karnataka	Kalaburagi-II	Sunflower	KBSH-44	26	65	10.23	17	66.18	19664	45981	26317	18954	53513	34559	2.82

Table 4.22 : KVKs performance in Rabi

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/h)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Karnataka	Bagalkot	Groundnut	GPBD-4	26	65	23.88	27.27	14.20	28500	122400	93900	4.29	29500	132600	103100	4.49
Karnataka	Vijayapura	Groundnut	GPBD-4	54	135	15	28.04	86.93	35500	117030	47650	3.30	37564	134592	97028	3.58
Karnataka	Kalaburgi-II	Groundnut	G2-52	26	65	13	21.73	67.15	25333	93565	73032	3.69	21946	115173	93226	5.25
Karnataka	Koppal	Groundnut	K-9	46	115	7.08	8.16	15.25	26675	32910	6234	1.23	31292	40004	8713	1.28
Karnataka	Uttara kannada	Groundnut	G2-52	26	65	15.78	21.78	38.02	33657	92197	58540	2.74	40626	130739	90113	3.22
Karnataka	Belagavi-I	Groundnut	GPBD-4	50	125	16.05	20.79	29.53	23345	80410.5	57065.5	3.44	28560	103658.5	75098.5	3.63
Tamil Nadu	Ariyalur	Groundnut	GJG-9	30	75	10.4	15.6	50.00	38342	62586	24244	1.63	37508	93912	56403	2.50
Tamil Nadu	Coimbatore	Groundnut	Co 6	19	47	10.53	12.56	19.28	38290	69160	30869	1.81	38140	81666	43526	2.14
Tamil Nadu	Cuddalore	Groundnut	VRI-8	54	135	24.5	44.7	82.45	125758	170112	44320	1.35	132379	303147	170768	2.29
Tamil Nadu	Dindigul	Groundnut	K-9	56	140	16.24	18.11	11.51	30200	67720	37520	2.24	30850	71733	40867	2.33
Tamil Nadu	Kancheepuram	Groundnut	GJG-31	26	65	18.8	24.58	30.74	33550	78960	45410	2.35	37250	102760	65510	2.76
Tamil Nadu	Karur	Groundnut	Co 7	15	38	17	21.74	27.88	39375	69930	30555	1.78	41250	98448	57198	2.39

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot				Demonstration plot			
						Local (q/h)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Tamil Nadu	Namakkal	Groundnut	TMV-13	26	65	10.54	12.28	16.51	33229	64857	31628	1.95	36369	73848	37474	2.03
Tamil Nadu	Perambalur	Groundnut	Co 7	26	65	18.23	24.89	36.53	44955	87511	42555	1.95	48486	119893	71390	2.47
Tamil Nadu	Theni	Groundnut	Co 7	6.8	17	19.2	25.32	31.88	21750	48000	26250	2.21	23947	63500	39553	2.65
Tamil Nadu	Thiruvallur	Groundnut	TMV-13	54	135	25.6	29.87	16.68	63500	129450	65936	2.04	57500	162800	105263	2.83
Tamil Nadu	Thiruvanna-malai	Groundnut	TMV-13	26	65	23.48	26.47	12.73	53577	117994	64418	2.20	51192	143344	92153	2.80
Tamil Nadu	Vellore	Groundnut	K-9	26	65	17.9	23.27	30.00	33854	76320	42466	2.25	34582	121056	86474	3.50
Tamil Nadu	Villupuram	Groundnut	TMV-13	44	110	19.83	23.9	20.52	36460	109498	73038	3.00	39679	128701	89023	3.24
Karnataka	Dharwad	Sunflower	DSFH-3	52	130	11.87	13.41	12.97	24804	41520	16716	1.67	20870	47270	26401	2.26
Karnataka	Vijayapura	Sunflower	KBSH-53	26	65	8	12.14	51.75	16900	47586	30686	2.82	17654	56700	39046	3.21
Tamil Nadu	Dindigul	Sunflower	BRSSC 3	36	90	7	12.17	73.86	19520	36564	17044	1.87	20760	42625	21865	2.05
Tamil Nadu	Namakkal	Sunflower	NK sun bred	10	25	10.99	12.49	13.65	29848	43968	14199	1.47	31143	49992	18848	1.61

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/h)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Tamil Nadu	Theni	Sunflower	KBSH 53	10	25	11.7	15.91	35.98	16369	30100	13731	1.84	21012	47100	26088	2.24
Tamil Nadu	Villupuram	Sunflower	KBSH 53	10	25	9.5	12.81	34.84	17250	37050	15800	2.15	18750	49959	31209	2.66
Karnataka	Bagalkot	Linseed	PKVNL-260	26	65	1.04	1.9	82.69	4681	5200	519	1.11	7181	9518	2337	1.33
Karnataka	Belagavi	Linseed	PKVNL-260	20	50	2.06	3.18	54.36	8896	14365	5469	1.61	7750	18530	10780	2.39
Karnataka	Vijayapura	Linseed	NL-115	10	25	3.5	5.6	60.00	11200	23000	11800	2.05	11200	29120	17920	2.60

Table 4.23 : KVKs performance in Summer

State	KVK	Crop	Demo varieties	Area in ha	Number of Farmers	Yield			Farmer's plot			Demonstration plot				
						Local (q/ha)	Demo (q/ha)	% changes	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio
Karnataka	Ballari	Groundnut	TMV-2	20	50	17.51	22.5	28.50	47630	83173	35543	1.75	45756	106780	61024	2.44
Tamil Nadu	Thoothukudi	Groundnut	K-9	14	35	13	20.72	59.38	42066	74520	32454	1.77	42685	87048	44363	2.04
Tamil Nadu	Tiruchirappalli	Sunflower	Co(SF)V-5	20	37	13.21	16.14	22.18	27750	49662	21912	1.78	27993	56501	28508	2.01

PROMISING TECHNOLOGIES DEMONSTRATED

5.1 Seed treatment

Seed treatment is a low cost technology having immense importance for even oilseed crops (Groundnut, niger, soybean and sesame). The seeds of these crops are costly and availability of good quality seeds is often limited. Thus protection of seeds from biotic and abiotic stresses is very important. Use of microbes Rizobium for legumes, Azotobacter for non-legumes and PSB for all crops are low cost technologies and must be incorporated in developing integrated nutrient management schedules. The research finding indicate that 15-20 percent fertilizer can be saved by using appropriate strains of microbes in oilseed crops. It also helps in maintaining the soil health. The crop-wise components of seed treatment are given below. Major chemicals used for seed treatment are, carboxyn, thiram, vitavax and also *Trichoderma* and PSB culture at the rate of 5 kg/ha.

Table 5.1: Yield and economics of Kharif oilseeds using seed treatment

State	Crop	Area in ha	Number of Farmers	Yield			Net return Rs/ha		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Jharkhand	Groundnut	90	294	10.73	14.8	37.93	26112.3	42992.3	1.82	2.11
West Bengal	Groundnut	100	413	12.45	16.71	34.22	41833.3	59470	2.03	2.3
Tripura	Groundnut	30	133	5.5	10.5	90.91	5000	15000	1.1	1.25
Uttar Pradesh	Groundnut	20	50	8.9	14.2	59.55	13135	50635	1.52	2.78
Rajasthan	Groundnut	103.6	259	18.92	22.2	17.34	44545	59517.6	2.31	2.74
Gujarat	Groundnut	212	523	17.93	24.32	35.64	39917.7	54668.8	2.23	2.68
Madhya Pradesh	Groundnut	30	75	12.23	15.49	26.66	27106	38804	2.24	2.7
Odisha	Groundnut	200	405	13.54	17.14	26.59	22774.2	36649.1	1.73	2.1
Karnataka	Groundnut	28	70	8.7	13.9	59.77	19773	34070	1.5	2.1
Karnataka	Groundnut	84	210	9.24	13.68	48.05	20921.7	41128.3	1.65	2.41
Punjab	Groundnut	10.8	29	15.85	16.5	4.10	28954.3	35103.8	1.6	1.81
Andhra Pradesh	Groundnut	84	135	8.61	11.23	30.43	19911	33312	1.32	0.84
Maharashtra	Groundnut	20	50	18.15	26.5	46.00	69000	104800	2.5	4.6
Tamil Nadu	Groundnut	74.2	186	13.62	16.64	22.17	27597	40071	1.85	2.21
Jharkhand	Niger	40	91	2.79	3.89	39.43	4425	8962.5	1.73	2.14
Bihar	Niger	30	67	2.25	3.17	40.89	3300	6114	1.53	1.84
Chhattisgarh	Niger	30	73	3.2	4.24	32.50	7220	10176	1.68	1.99
Odisha	Niger	30	75	3.2	4.72	47.50	6500	11266.7	1.68	1.91
Gujarat	Sesame	56	112	6.14	6.7	9.12	22683.2	29749.1	2.53	3.2
Chhattisgarh	Sesame	20	35	1.8	2.15	19.44	11500	35850	3.56	5.4
Madhya Pradesh	Sesame	30	75	1.92	2.85	48.44	5438	11670	2.29	3.15
Odisha	Sesame	120	330	4.63	6.1	31.75	13266.7	20354.5	1.83	2.00
Punjab	Sesame	10	25	3.8	4.2	10.53	6100	11400	0.29	0.6

State	Crop	Area in ha	Number of Farmers	Yield			Net return Rs/ha		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Haryana	Sesame	24	60	3.44	5.3	54.07	11120	16651.7	1.22	1.88
Himachal Pradesh	Sesame	13	94	2.81	4.35	54.80	15093.3	29940	1.66	2.41
Bihar	Sesame	40	100	3.89	5.86	50.64	16904	31457.5	2.24	2.7
Jharkhand	Sesame	60	112	3.18	4.6	44.65	9700	30744	1.95	3.25
Tripura	Sesame	30	95	1.75	2.5	42.86	1250	4500	1.07	1.2
Assam	Sesame	90	193	4.4	7.13	62.05	12257.5	30222.5	1.7	2.8
Uttar Pradesh	Sesame	67	178	3.26	5.2	59.51	8388	20829	1.65	2.23
Rajasthan	Sesame	198.4	466	4.48	5.91	31.92	17809.3	25464.5	1.93	2.55
Bihar	Soybean	20	50	18.6	21.7	16.67	26100	35400	1.87	2.19
Nagaland	Soybean	30	61	7.27	8.94	22.97	6810	11820	1.45	1.78
Rajasthan	Soybean	163	420	10.59	13.62	28.61	13348.6	23229.5	1.56	1.84
Gujarat	Soybean	60	174	12.1	14.4	19.00	17802.5	27400.5	2.02	2.53
Chhattisgarh	Soybean	30	50	8.8	11.7	32.95	18300	26200	2.48	2.57
Madhya Pradesh	Soybean	289.2	689	13.5	15.11	11.93	13728.8	23303.9	1.05	1.9
Karnataka	Soybean	78	195	12.75	15.95	25.10	36393	49653	2.53	3.48
Maharashtra	Soybean	309	752	16.49	20.05	21.59	20367	27838	1.64	1.89
Andhra Pradesh	Sunflower	20	25	10	15.45	54.50	21000	28800	1.75	2.21
Karnataka	Sunflower	78	195	9.6	16.07	67.40	21130	36986.7	2.03	2.78
Jammu & Kashmir	Sunflower	1.5	8	8	11	37.50	18500	27000	1.17	1.42



KVK Puri



KVK Tiruvanamalai



KVK Morigaon



KVK Ganjam-I



KVK Osmanabad



KVK Lalitpur

Table 5.2: Yield and economics of Rabi oilseeds using seed treatment

State	Crop	Area in ha	Number of Farmers	Yield			Net Return (Rs./ha)		B:C Ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Karnataka	Groundnut	202	505	13.38	20.1	50.22	48504.4	72835.7	2.88	3.39
West Bengal	Groundnut	119.02	450	22.25	29.4	32.13	34149.5	55649.4	1.9	2.3
Andhara Pradesh	Groundnut	122	220	21.8	26.7	22.48	73874	78047	2.6	2.7
Maharashtra	Groundnut	122	297	15.1	20.5	35.76	36746	51797	2.2	2.5
Telangana	Groundnut	40	93	19.4	22.6	16.49	63867	87870	3.19	3.9
Odisha	Groundnut	607	1266	16.4	21.4	30.49	34157	51096	1.9	2.3
Tamil Nadu	Groundnut	382.8	957	18.48	24.25	31.22	43965	76511	2.07	2.64
Bihar	Linseed	20	50	8.15	10	22.70	11189.9	19197.4	1.5	1.9
Jharkhand	Linseed	10	21	8.7	12.5	43.68	10700	22350	1.5	2.1
West Bengal	Linseed	50.6	197	5.2	6.8	30.77	8610	11740	2	2.2
Manipur	Linseed	50	127	5.9	7.9	33.90	11550	14862.5	2.05	2.35
Uttar Pradesh	Linseed	20.28	58	6.55	8.4	28.24	15196.3	21164.5	2.39	2.67
Chhattisgarh	Linseed	290	521	4.7	7.3	55.32	9200	19560	1.7	2.3
Madhya Pradesh	Linseed	252.4	592	6.6	10.56	60.00	14950.3	29127.9	2.15	3.1
Karnataka	Linseed	20	50	2.06	3.18	54.36	5469	10780	1.61	2.39
Dehli	Mustard	20	50	22.9	26.1	13.97	64400	76560	4.58	5.4
Haryana	Mustard	162.9	353	20.2	22.8	12.87	35958.3	45294	2.18	2.38
Himachal Pradesh	Mustard	16.46	106	4.4	5.7	29.55	5270	9270	1.39	1.17
Punjab	Mustard	49	117	15.55	20.46	31.58	32747.5	47413.7	2.45	2.3
Bihar	Mustard	150	380	9.3	13.2	41.94	19372	31705.8	2.3	2.8
Jharkhand	Mustard	120.04	286	9	13.2	46.67	21675.5	36352.2	2.5	3.00
West Bengal	Mustard	286.7	1207	9.9	12.96	30.91	17030.4	26061.5	1.9	2.3
Assam	Mustard	240	610	6.77	9.16	35.30	11193.1	16354.4	1.75	2.00
Manipur	Mustard	60	114	7.05	12.9	82.98	15250	27141.5	1.88	2.27
Nagaland	Mustard	60	122	6	7.9	31.67	16795	29665	2.35	3.38
Tripura	Mustard	40	95	5.7	8.8	54.39	13009.7	22750.7	2.1	2.14
Uttar Pradesh	Mustard	634.15	1642	12.34	18.16	47.16	26925.4	14702.7	2.45	3
Gujarat	Mustard	24	38	14.5	17.9	23.44	62200	41700	2.5	3.04
Rajasthan	Mustard	733.87	1827	83.46	138.89	66.42	32134	43073.1	2.53	2.64
Chhattisgarh	Mustard	449.2	912	5.4	8	48.15	10672	20141	1.9	2.4
Madhya Pradesh	Mustard	513.8	1162	13	17.18	32.15	26472.3	39957.1	2.5	3.2
Odisha	Mustard	423	941	5.1	7.5	47.06	9925.7	18730	1.6	2
Andhara Pradesh	Safflower	20	10	3.35	6.00	79.10	6300	7310	1.10	1.35
Maharashtra	Safflower	70	100	8.7	12.4	42.53	26488	40570	2.4	3
Telangana	Safflower	20	31	11.92	15.94	33.72	21975	32966	2.6	3.21
Jharkhand	Sesame	20.6	30	2.4	3.37	40.42	4507.5	9665	1.9	2.6
West Bengal	Sesame	220.5	905	9.1	11.64	27.91	11906.2	19574.4	1.6	2
Andhara Pradesh	Sesame	236	421	7.1	9.2	29.58	22086	315235	2.63	3.8
Maharashtra	Sesame	20	50	4.12	6.63	60.92	19725	27975	1.87	2.28
Telangana	Sesame	50	115	7	8.6	22.86	32000	9600	4.8	3.3

State	Crop	Area in ha	Number of Farmers	Yield			Net Return (Rs./ha)		B:C Ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Chhattisgarh	Sesame	30	40	1.97	2.5	26.90	1243	1807.4	0.18	0.21
Odisha	Sesame	208	489	4.3	5.9	37.21	9075.8	15374.2	1.8	2.1
Andhra Pradesh	Sunflower	116	230	17.1	21.7	26.90	22174	30435	1.8	1.9
Odisha	Sunflower	95	239	9.4	12.1	28.72	11786.7	19762	1.3	1.6
Karnataka	Sunflower	78	195	9.93	14.81	49.14	23701	32723	2.24	2.74
Tamil Nadu	Sunflower	56	140	9.16	12.49	36.35	15681	23974	1.83	2.11

Table 5.3: Yield and economics of Summer oilseeds using seed treatment

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs./ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Uttar Pradesh	Groundnut	45	112	27.5	35	21.43	77614	10486.8	3	3.5
Gujarat	Groundnut	152	372	15.69	18.24	16.25	23234	41916.5	1.86	2.34
Odisha	Groundnut	90	242	3.75	18	79.17	34175	33635	1.74	2.23
Karnataka	Groundnut	20	50	17.51	22.47	22.1	35543	61024	1.75	2.44
Tamil Nadu	Groundnut	14	35	13	20.72	37.3	32454	44363	1.77	2.04
Assam	Sesame	35	89	2.6	4.5	70.7	7975.5	23641.5	1.49	1.88
Gujarat	Sesame	196	475	7.14	8.81	17.97	17475	25172	1.85	2.27
Odisha	Sesame	60	172	5	7.1	29.58	8175	20465	1.57	2.1
Punjab	Sunflower	40	70	15.43	18.71	21.25	18832	24158	1.71	2.03
Bihar	Sunflower	50	101	10.65	14.26	25.32	38800	50376	2.3	2.6
Odisha	Sunflower	70	93	10.25	12.3	16.67	34500	45000	1.9	2.3
Tamil Nadu	Sunflower	20	37	13.21	16.14	18.2	21912	28508	1.78	2.01

Table 5.4: Summary of performance of oilseeds using seed treatment

Season	Crop	Yield			Net Return (Rs./ha)		B:C Ratio	
		Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	11.59	16.7	44.09	29041.47	46158.71	1.8	2.33
	Niger	2.86	4	39.86	5361.25	9129.8	1.66	1.97
	Sesame	3.42	4.83	41.23	11654.6	22987.14	1.84	2.67
	Soyabean	12.26	15.18	23.82	19106.25	28105.6	1.83	2.27
	Sunflower	9.2	14.17	54.02	20210	30928.9	1.65	2.14
Rabi	Groundnut	18.12	23.56	30.02	47894.7	67686.59	2.39	2.82
	Linseed	5.86	8.21	40.10	10858.19	18597.79	1.86	2.38
	Mustard	14.86	22.08	48.59	24766.52	32168.98	2.29	2.67
	Safflower	7.62	13.85	81.76	13717.67	26612	1.87	2.52
	Sesame	4.69	6.83	45.63	14363.36	57033	2.11	2.33
	Sunflower	11.39	15.28	34.15	18335.68	26723.5	1.79	2.09
Summer	Groundnut	15.49	22.69	46.48	40604.16	38285.06	2.03	2.51
	Sesame	4.9	6.8	38.78	11208.5	23092.83	1.64	2.08
	Sunflower	12.89	15.35	19.08	28511.13	37010.5	1.9	2.24

5.2 Soil testing

Soil testing for fertility analysis is an important operational components for crop productivity. As it determines the inputs required for efficient and economic production. A proper soil test guides the application of appropriate fertilizer to meet the

requirements of the crop while taking advantage of the nutrients available in the soil. It also allow to determine lime requirements and can be used to diagnose problem areas. The list of KVKs that has carried out soil testing is given below

Table 5.5: Yield and economics of Kharif oilseeds using soil testing

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs./ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Punjab	Groundnut	10.8	29	16.5	31.7	92.12	28954.3	35103.7	1.6	1.8
Jharkhand	Groundnut	90	245	8.17	13.08	60.10	211.08.3	37691.7	1.62	2.12
West Bengal	Groundnut	90	334	12	15.81	31.75	27000	38553.3	1.73	1.93
Chhattisgarh	Groundnut	30	96	9.4	16.2	72.34	33800	58400	2.58	3.58
Madhya Pradesh	Groundnut	30	75	12.2	15.49	26.97	27106	38804	2.24	2.7
Odisha	Groundnut	275	593	12.9	16.44	27.44	23535.7	36769.8	1.7	2.1
Andhra Pradesh	Groundnut	104	185	8.52	13.77	61.62	28092	45227	1.25	1.47
Karnataka	Groundnut	84	210	9.24	13.68	48.05	20921.7	41128.3	1.67	2.41
Tamil Nadu	Groundnut	74.2	186	13.6	16.64	22.35	27597	40071	1.85	2.2
Rajasthan	Groundnut	169.6	421	20.1	24.16	20.20	48028.3	64315.6	2.07	2.9
Jharkhand	Niger	20	50	4.0	5.75	43.75	900	5272	1.08	1.39
Chhattisgarh	Niger	60	129	2.4	3.77	57.08	4710	9738	1.5	2.1
Madhya Pradesh	Niger	30	75	2.36	3.87	63.98	14000	32500	3.36	5.37
Odisha	Niger	80	125	2.6	4.49	72.96	12300	17338.3	1.8	1.9
Bihar	Sesame	20	51	2.7	3.4	25.93	22940	29700	1.7	2.2
Jharkhand	Sesame	40	55	3.35	5.26	57.01	9500	31547.5	2.1	3.6
Assam	Sesame	90	228	4.02	5.63	40.05	13417.5	24736.3	1.8	2.28
Uttar Pradesh	Sesame	109	276	3.1	4.9	58.06	14566.7	23833	1.83	2.29
Chhattisgarh	Sesame	30	63	5.2	9.05	74.04	16600	35900	1.87	2.95
Odisha	Sesame	120	300	4.4	5.9	34.09	8020.28	19364.6	1.9	2.00
Gujarat	Sesame	40	97	6.5	7.48	15.08	20100	28832.5	1.95	0.37
Rajasthan	Sesame	64.4	161	4.1	5.4	31.71	18310.8	29183.3	2.06	2.72
Punjab	Sesame	10	25	3.8	4.2	10.53	6100	11400	0.29	0.6
Haryana	Sesame	44	100	3.93	5.14	30.79	8127.5	14248.5	1.45	1.7
Himachal Pradesh	Sesame	8.5	60	2.86	4.39	53.50	15570	2943	1.6	2.36
Chhattisgarh	Soybean	30	50	8.8	11.7	32.95	18300	26200	2.48	2.57
Madhya Pradesh	Soybean	740.8	1811	11.5	15.1	31.30	17068.9	26189.2	2.3	2.4
Maharashtra	Soybean	213	525	14.1	20.08	42.41	19515	27781	1.67	1.98
Karnataka	Soybean	78	195	12.7	15.95	25.59	36396	49653	2.53	3.48
Gujarat	Soybean	40	100	16	18.9	18.13	23888	32660	2.23	2.53
Rajasthan	Soybean	63	190	8.64	10.58	22.45	9275	15674	1.56	1.89
Andhra Pradesh	Sunflower	20	25	10.0	15.45	54.50	21000	28800	1.75	2.21
Karnataka	Sunflower	78	195	9.62	16.07	67.05	21130	36986.7	2.03	2.78
Jammu & Kashmir	Sunflower	3.6	19	6.25	8.0	28.00	13050	19800	1.09	1.36

Table 5.6: Yield and economics of Rabi oilseeds using soil testing

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs./ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
West Bengal	Groundnut	30.02	129	20.5	29	41.46	23838	46939	1.48	1.9
Andhara Pradesh	Groundnut	52	87	27.3	33.46	22.56	93329	97391	2.8	2.92
Maharashtra	Groundnut	108	262	15.26	20.94	37.22	40371	55793	2.14	2.62
Odisha	Groundnut	607	1266	16.4	21.4	30.49	34157.4	51096	1.9	2.3
Tamil Nadu	Groundnut	231.8	579	17.42	24.35	39.78	41144	77831	2.06	2.66
Bihar	Linseed	40	147	7.3	9.3	27.40	12120	20873.7	1.6	2.00
Jharkhand	Linseed	10	21	8.7	12.5	43.68	10700	22350	1.53	2.08
West Bengal	Linseed	50.6	197	5.2	6.8	30.77	8610	11740	2	2.2
Assam	Linseed	40	84	5.13	7.45	45.22	18407.2	30447.2	2.08	3.00
Manipur	Linseed	50	127	5.85	7.88	34.70	11550	14862.5	2.05	2.35
Uttar Pradesh	Linseed	10.2	33	6.5	8.75	34.62	13500	20550	2.08	2.43
Maharashtra	Linseed	10	25	3.2	4.5	40.25	2120	10000	1.46	1.61
Chhattisgarh	Linseed	140	263	4.2	6.1	45.24	7287.8	13070.4	1.7	2.10
Madhya Pradesh	Linseed	230	542	6.64	10.57	59.19	14950.3	29127.9	2.15	3.05
Haryana	Mustard	122.9	277	18.55	21.99	18.54	32311.7	40756.6	2.06	2.23
Himachal Pradesh	Mustard	5.5	24	4.5	5.5	22.22	5940	6940	1.5	1.70
Punjab	Mustard	80	241	16.1	20.3	26.09	38713	47720.7	2.5	3.01
Bihar	Mustard	150	388	10.8	14.8	37.04	24444.5	36078.8	2.5	3
Jharkhand	Mustard	90.04	216	8.7	13.7	57.47	13587.2	29573	1.6	2.3
West Bengal	Mustard	234.7	877	9.9	13	31.31	16125.9	25289.1	1.8	2.3
Assam	Mustard	300	720	7.48	9.8	31.02	14242	23195.9	1.9	2.29
Nagaland	Mustard	30	75	6.9	7.9	14.49	4390	7490	1.26	1.44
Tripura	Mustard	20	33	7.00	10.5	50.00	3677	20000	1.15	1.6
Uttar Pradesh	Mustard	448	1100	12.47	18.18	45.79	25938.7	43371.5	2.48	3.2
Rajasthan	Mustard	287.2	692	144.9	173.4	19.67	35255	46258.4	2.67	2.29
Chhattisgarh	Mustard	325	603	5.9	8.9	50.85	11941.4	23836.3	2	2.6
Madhya Pradesh	Mustard	453	1086	12.5	17.2	37.60	26472.3	39957.5	2.5	3.2
Odisha	Mustard	393	864	5.1	7.5	47.06	9977	18503.2	1.6	2
Andhara Pradesh	Safflower	10	13	9.55	12.5	30.89	7750	26000	1.19	1.71
Maharashtra	Safflower	20	50	7.8	12.77	63.72	12925	26195	1.9	2.42
Jharkhand	Sesame	20.6	30	2.4	3.37	40.42	4507.5	9665	1.86	2.6
Andhara Pradesh	Sesame	156	296	6.31	8.49	34.55	9815	34244	2.7	3.7
Maharashtra	Sesame	20	50	2.42	3.9	61.15	14300	34675	1.85	2.88
Telangana	Sesame	30	65	8	9	12.50	22400	89600	3.33	9.62
Chhattisgarh	Sesame	30	40	1.97	2.5	26.90	1243	1807.4	0.18	0.21
Odisha	Sesame	208	489	4.3	5.9	37.21	9075.8	15374.2	1.8	2.10
West Bengal	Sesame	90.9	482	9.7	12.8	31.96	9039.5	18703.8	1.5	1.90
Andhara Pradesh	Sunflower	116	230	17.13	19.98	16.64	22174	30435	1.85	1.85
Odisha	Sunflower	95	239	9.4	12.1	28.72	11786.7	59286	1.37	2.60
Karnataka	Sunflower	52	130	11.87	13.41	12.97	16716	26401	1.67	2.26
Tamil Nadu	Sunflower	20	50	10.25	16.65	38.43	14999.5	25028.5	1.81	2.13

Table 5.7: Yield and economics of Summer oilseeds using soil testing

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs./ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Odisha	Groundnut	90	242	3.8	17.95	78.83	34175	33635	1.74	2.22
Gujarat	Groundnut	76	182	12.06	17.84	47.92	29536.5	42165	1.8	2.47
Tamil Nadu	Groundnut	14	35	13	20.72	37.3	32454	44363	1.77	2.04
Odisha	Sesame	50	125	3.7	6.8	45.59	4400	25800	1.24	2.16
Gujarat	Sesame	60	143	7.1	9.3	23.44	20075	33486.3	1.81	2.42
Punjab	Sunflower	20	20	18	18	0	23000	28100	1.92	2.4
Bihar	Sunflower	50	101	10.7	14.26	25.32	38800	50376	2.3	2.6
Odisha	Sunflower	70	93	10.3	12.3	16.67	34500	28425	1.9	2.1

Table 5.8: Summary of performance of oilseeds using soil testing

Season	Crop	Yield			Net return (Rs/ha)		B:C ratio	
		Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	13.78	16.18	17.42	29448.33	43606.44	1.83	2.32
	Niger	2.84	4.97	75.00	7977.5	16212.1	1.94	2.69
	Sesame	3.99	5.52	38.35	13932.1	22880.79	1.69	2.1
	Soybean	11.29	15.39	36.32	20740.48	29692.87	2.13	2.5
	Sunflower	8.6	13.17	53.14	18393.33	28528.9	1.62	2.12
Rabi	Groundnut	19.38	25.83	33.28	46567.88	65810	2.08	2.48
	Linseed	5.97	8.21	37.52	11027.26	19224.63	1.85	2.31
	Mustard	19.25	24.67	28.16	18786.84	29212.21	1.97	2.37
	Safflower	8.68	12.64	45.62	10337.5	26097.5	1.55	2.07
	Sesame	5.01	6.85	36.73	10054.4	29152.77	1.89	2.39
	Sunflower	12.16	17.29	42.19	16419.05	35287.63	1.68	2.21
Summer	Groundnut	11.29	18.84	66.87	32055.17	40054.33	1.77	2.24
	Sesame	5.4	8.05	49.07	12237.5	29643.15	1.53	2.29
	Sunflower	13	14.85	14.23	32100	35633.67	2.04	2.37

5.3 Line sowing

Oilseeds in India are generally sown by broadcasting method. The line sowing is the appropriate practice that helps in improving the yield by 12-15 percent and also saves 20 percent seed. Better crop geometry is essential to maintain the optimum plant population in crop fields. Row to row and plant to plant distances along with

right planting depth is to be maintained for proper plant establishment. The line sowing also helps in proper distribution of sunlight on crop plants and facilitates in intercultural operations like weed and pest management. The result of demonstration showed that there is potential to increase yield upto 58 percent using line sowing.

Table 5.9: Yield and economics of Kharif oilseeds using line sowing

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Jharkhand	Groundnut	90	241	8.25	9.82	19.03	13542	21625	1.44	1.8
West Bengal	Groundnut	30	61	9.5	14.6	53.68	27900	38960	1.91	2.03
Uttar Pradesh	Groundnut	20	50	9.9	14.2	43.40	13135	50635	1.52	2.78
Rajasthan	Groundnut	103.6	259	18.92	22.2	17.34	44545	59517.6	2.31	2.77
Gujarat	Groundnut	120	275	16.78	20.71	23.42	38183	58739.4	2.15	2.83
Chhattisgarh	Groundnut	30	96	9.4	16.2	72.34	33800	58400	2.58	3.58
Madhya Pradesh	Groundnut	30	75	12.23	15.49	26.66	27106	38804	2.24	2.7
Odisha	Groundnut	215	474	13.18	16.53	25.42	25192	38463.3	1.8	2.1
Karnataka	Groundnut	84	210	7	9.90	41.43	13443	29192.7	1.42	2.00
Tamil Nadu	Groundnut	74.2	186	13.62	16.64	22.17	27597	40071	1.85	2.21
Andhra Pradesh	Groundnut	20	25	3.98	10.75	170.10	3500	18500	1.13	1.77
Jharkhand	Niger	20	40	2.75	3.69	34.18	3000	8760	1.75	2.46
Chhattisgarh	Niger	60	129	2.4	3.77	57.08	4710	9738	1.5	2.1
Madhya Pradesh	Niger	105	245	7.66	4.69	38.77	13255	25810	2.7	3.9
Odisha	Niger	30	75	3.2	4.72	47.50	6500	11266.7	1.68	1.91
Haryana	Sesame	30	65	3.89	4.72	21.34	8935	11980	1.57	1.68
Himachal Pradesh	Sesame	8.5	60	2.86	4.50	57.34	15570	29430	1.6	2.36
Jharkhand	Sesame	40	101	2.78	3.85	38.49	87000	27368.7	2.02	3.21
Assam	Sesame	30	35	5.31	8.09	52.35	15980	29240	1.98	2.51
Uttar Pradesh	Sesame	69	183	2.65	4.99	88.30	6741	19646.8	1.6	2.3
Rajasthan	Sesame	158	366	4.62	6.1	32.03	22790	31997.7	2.18	2.84
Gujarat	Sesame	60	40.67	5.75	6.57	14.26	16033	22505	1.75	2.27
Chhattisgarh	Sesame	50	98	3	5.6	86.67	14050	35875	2.7	4.2
Madhya Pradesh	Sesame	30	75	1.92	2.85	48.44	5438	11670	2.29	3.15
Odisha	Sesame	90	255	4.5	6.09	35.33	10622	17539.4	1.68	1.91
Nagaland	Soybean	30	61	7.27	8.94	22.97	6810	11820	1.45	1.78
Rajasthan	Soybean	123	330	10.38	13	25.24	14969	22521	1.35	1.81
Chhattisgarh	Soybean	60	110	9.9	12.6	27.27	17950	24000	1.8	2.00
Madhya Pradesh	Soybean	309	761	9.6	12.84	33.75	14779	21611.4	1.7	2.00
Karnataka	Soybean	78	195	12.75	15.95	25.10	36393	49653	2.53	3.48
Karnataka	Sunflower	52	130	10.12	16.75	65.51	26133	39615	2.21	2.72
Jammu Kashmir	Sunflower	3.6	19	6.25	8.00	28.00	13050	19800	1.09	1.36



KVK North Tripura



KVK Amreli



KVK Rajgarh



KVK Kamrup



KVK Jhalawar



KVK Harda

Table 5.10: Yield and economics of Rabi oilseeds using line sowing

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% Changes	Local	Demo	Local	Demo
Karnataka	Groundnut	228	570	15.13	21.29	40.71	56070.3	77879.7	3.12	3.58
West Bengal	Groundnut	117	370	21	26.5	26.19	35694.5	53470.6	1.9	2.2
Andhara Pradesh	Groundnut	278	461	15.82	19.9	25.79	56579	68488	2.69	3.33
Odisha	Groundnut	591	1216	16	21.1	31.88	33602.1	50955	1.9	2.3
Tamil Nadu	Groundnut	197	492	17.02	21.61	26.97	46143	72068	2.17	2.74
Bihar	Linseed	20	97	6.4	8.66	35.31	13050	22550	1.67	2.09
Jharkhand	Linseed	20	46	5.95	8.85	48.74	5730	14855	1.3	1.8
West Bengal	Linseed	60.6	115.5	5.7	7.10	24.56	10992.5	15116.3	1.8	2
Assam	Linseed	20	50	5.1	6.80	33.33	22000	31800	2.4	3.5
Manipur	Linseed	30	77	4.7	6.35	35.11	16300	22525	2.61	2.81
Maharashtra	Linseed	10	25	4.2	4.50	7.14	2120	10000	1.46	1.61
Chhattisgarh	Linseed	243	421	4.7	7.20	53.19	9042	18644.4	1.7	2.3
Madhya Pradesh	Linseed	252	592	6.64	10.57	59.19	14950.3	29127.9	2.15	3.06
Karnataka	Linseed	56	140	1.87	3.23	72.73	5929	10346	1.59	2.11
Dehli	Mustard	20	50	22.9	26.10	13.97	64400	76560	4.58	5.4
Haryana	Mustard	162.9	353	19.53	22.8	16.74	35958.3	45294	2.18	2.38
Himachal Pradesh	Mustard	8.58	30	4.4	5.70	29.55	5270	9270	1.4	1.2
Punjab	Mustard	130.9	314	16.34	20.32	24.36	31110.7	41578.5	2.3	2.4
Bihar	Mustard	60	158	11.15	15.80	41.70	21286	34380	2.5	3.2
Jharkhand	Mustard	120.4	286	9	13.90	54.44	21675.4	36352.3	2.5	3
West Bengal	Mustard	113.5	510	9.56	13.25	38.60	15638.4	27616.9	1.9	2.4
Assam	Mustard	80	207	6.7	8.96	33.73	18568.3	26735	2.76	3.03

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% Changes	Local	Demo	Local	Demo
Tripura	Mustard	44.3	102	5.7	8.8	54.39	13009.7	22750.7	1.78	2.14
Uttar Pradesh	Mustard	626.2	1589.5	11.85	17.94	51.39	27328.6	42744.4	2.59	3.2
Gujarat	Mustard	40	100	13.21	17.32	31.11	46263	29966	3.68	2.77
Rajasthan	Mustard	713.9	1773	88.63	148.2	67.21	43153.2	31978	2.53	2.63
Chhattisgarh	Mustard	385	709	5.4	8	48.15	10659	20265.1	1.9	2.5
Madhya Pradesh	Mustard	383.8	854	12.35	16.9	36.84	26443.3	39427.5	2.6	3.3
Odisha	Mustard	273	641	4.7	7.1	51.06	7899	16491	1.5	1.9
Andhara Pradesh	Safflower	30	23	8.9	12.85	44.38	220	16150	0.9	1.53
Jharkhand	Sesame	20.6	30	2.4	3.37	40.42	4507.5	9665	1.86	2.6
West Bengal	Sesame	39.6	125	8.23	9.21	11.91	13677.5	17925	1.6	1.8
Chhattisgarh	Sesame	30	40	1.97	2.5	26.90	1243	1807.4	0.18	0.21
Odisha	Sesame	118	282	3.9	5.4	38.46	8046	14250	1.8	2.2
Rajasthan	Soyabean	20	50	21.34	24.02	12.56	56897	50225	3.55	3.49
Andhara Pradesh	Sunflower	116	230	17.13	21.74	26.91	22174	30435	1.85	1.85
Odisha	Sunflower	95	239	9.4	12.1	28.72	11786.7	19762	1.4	1.6
Karnataka	Sunflower	78	195	9.93	14.81	49.14	23701	32723	2.24	2.74
Tamil Nadu	Sunflower	10	25	10.99	12.49	13.65	14199	18848	1.47	1.61

Table 5.11: Yield and economics of Summer oilseeds using line sowing

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% Changes	Local	Demo	Local	Demo
Gujarat	Groundnut	152	372	14.10	17.24	22.26	23234.8	41916.5	1.86	2.34
Odisha	Groundnut	90	242	3.8	17.95	372.37	34175	33635	1.74	2.22
Karnataka	Groundnut	20	50	17.51	22.47	28.33	35543	61024	1.75	2.44
Gujarat	Sesame	196	475	7.14	8.81	23.39	17475	25172	1.85	2.27
Odisha	Sesame	50	125	3.7	6.8	83.78	4400	25800	1.24	2.16
Punjab	Sunflower	40	70	15.4	18.71	21.49	18832.5	24158	1.7	1.66
Bihar	Sunflower	30	80	9.3	11.3	21.51	44850	46550	2.6	2.7
Odisha	Sunflower	70	93	10.25	12.3	20.00	34500	28425	1.9	2.1
Tamil Nadu	Sunflower	20	37	13.21	16.14	22.18	21912	28508	1.78	2.01

Table 5.12: Summary of performance of oilseeds using lines sowing

Season	Crop	Yield			Net return (Rs/ha)		B:C ratio	
		Local (q/ha)	Demo (q/ha)	% Changes	Local	Demo	Local	Demo
Kharif	Groundnut	10.89	15.19	28.31	24358.45	41173.45	1.85	2.42
	Niger	4	4.22	5.21	6866.25	13893.68	1.91	2.56
	Sesame	3.73	5.34	30.15	20315.9	23725.26	1.94	2.64
	Soyabean	9.98	12.67	21.23	18180.2	25921.08	1.77	2.21
	Sunflower	8.19	12.38	33.84	19591.5	29707.5	1.65	2.04

Season	Crop	Yield			Net return (Rs/ha)		B:C ratio	
		Local (q/ha)	Demo (q/ha)	% Changes	Local	Demo	Local	Demo
Rabi	Groundnut	16.99	22.08	23.05	45617.78	64572.26	2.4	2.8
	Linseed	5.03	7.03	28.45	11123.76	19440.5	1.85	2.36
	Mustard	16.09	23.41	31.27	25910.86	33427.29	2.45	2.76
	Safflower	5.9	12.85	54.09	220	16150	0.9	1.53
	Sesame	4.13	5.12	19.34	6868.5	10911.85	1.36	1.7
	Sunflower	11.86	15.29	22.43	17965.18	25442	1.74	1.95
Summer	Groundnut	12.33	19.22	35.85	30984.27	45525.17	1.78	2.33
	Sesame	5.42	7.81	30.6	10937.5	25486	1.55	2.22
	Sunflower	10.92	14.61	25.26	30023.63	31910.25	1.99	2.12

5.4 Ridge and furrow method

Oilseeds are generally considered drought resistant, but significant reduction in yield has been observed due to water stress. This is because too much and too little water can influence the production and quality. Therefore, adequate root zone moisture and drainage are essential for maximum oilseeds production. Change over from growing crops in flat to ridge furrow system of planting crops on raised bed alters the crop geometry and land configuration, offers more effective control over irrigation and

drainage as well as their impacts on transport and transformations of nutrients, rainwater management during the monsoon season. It saves the water from 30-35 percent over flat method of irrigation. Furrow Irrigated Raised Bed planting saves 30 to 50 percent seed compared to flat bed planting. Keeping in view the advantages in terms of saving of precious resources and yield increase, the demonstrations were conducted by KVKs on Furrow Irrigated Raised Bed planting method (FIRB), oilseeds crops.

Table 5.13: Yield and economics of Kharif oilseeds using ridge and furrow

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Gujarat	Groundnut	20	80	13.4	16.8	25.37	28740	37120	2.6	2.7
Madhya Pradesh	Soybean	514.6	1120	12.2	21.9	79.51	20830	31051	1.9	2.3
Chhattisgarh	Soybean	30	50	8.8	11.7	32.95	18300	26200	1.5	1.6
Karnataka	Sunflower	26	65	8.64	14.7	41.22	11125	31730	1.7	2.9

Table 5.14: Yield and economics of Rabi oilseeds using ridge and furrow

State	Crop	Area in ha	Number of Farmers	Yield			Net Return (Rs/ha)		B:C Ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Madhya Pradesh	Linseed	10	25	7.1	10.31	45.21	10700	18585	1.7	2.06
Tamil Nadu	Groundnut	44	110	19.8	23.9	20.71	73038	89023	3.01	3.25
Tamil Nadu	Sunflower	46	115	8.25	12.49	51.39	16422	26537	2.01	2.36

Table 5.15: Summary of performance of oilseeds using ridge and furrow

Season	Crop	Yield			Net return (Rs/ha)		B:C ratio	
		Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	13.4	16.8	25.37	28740	37120	2.6	2.7
	Soybean	8.5	16.8	97.65	19565	28625.5	1.7	1.95
	Sunflower	8.64	14.7	70.13	11125	31730	1.7	2.9
Rabi	Groundnut	19.83	23.9	20.52	73038	89023	3.01	3.25
	Linseed	7.1	10.31	45.21	10700	18585	1.7	2.06
	Safflower	8.25	12.49	51.39	16422	26537	2.01	2.36



KVK Tikamgarh



KVK Raichur



KVK Mon



KVK Jajpur



KVK Barpeta



KVK Jabalpur

5.5 Raised bed planting

Raised beds can improve production as well as save space, time, and money. It is also perfect solution for dealing with difficult soils such as heavy clay. Raised beds are effective in increasing efficiency and yields. The crops produce better as the soil in the beds is deep, loose, and fertile. Plants benefit from the improved soil drainage, aeration and plant roots penetrate readily. Weeds are easy to uproot.

Table 5.16: Yield and economics of Kharif oilseeds using raised bed.

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Punjab	Groundnut	0.8	4	14.10	17.7	25.53	20808.6	29207.5	1.5	1.6
Madhya Pradesh	Soybean	192	416	12.98	17.86	37.60	19043	31886	1.7	2.2
Karnataka	Groundnut	28	70	13.9	8.73	37.19	19773	34070	1.5	2.1

Table 5.17: Yield and economics of Rabi oilseeds using raised bed

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Punjab	Mustard	1	4	14.35	22.2	54.70	24007.5	50250	1.92	2.83
Tamil Nadu	Groundnut	110	275	20.37	31.41	54.20	40920	105817	1.8	2.31

Table 5.18: Yield and economics of Summer oilseeds using raised bed

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Tamil Nadu	Groundnut	14	35	13	20.72	59.38	32454	44363	1.77	2.04

Table 5.19: Summary of performance of oilseeds using raised bed

Season	Crop	Yield			Net return (Rs/ha)		B:C ratio	
		Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	13.22	15.45	16.87	20290.8	31638.75	1.5	1.85
	Soyabean	12.98	17.86	37.60	19043	31886	1.7	2.2
Rabi	Groundnut	20.37	31.41	54.20	40920	105817	1.8	2.31
	Mustard	14.35	22.2	54.70	24007.5	50250	1.92	2.83
Summer	Groundnut	13	20.72	59.38	32454	44363	1.77	2.04



KVK Osamanabad



KVK Pratapgadh



KVK Dewas



KVK Ambala



KVK Dindigul



KVK Kutch

5.6 Micro-nutrient application

Among micro-nutrients, the zinc deficiency is common under intensive cropping system. Agricultural soils with low zinc (Zn) availability are widespread worldwide. There are estimates that more than 30 percent of agricultural soils globally are low in available Zn leading to deficiency in crops cultivated on these soils. Therefore, Zn malnutrition has become a major health concern among the resource poor people. In India, Zn is one of the multi-nutrient deficiencies that are causing poor crop yields. Zinc deficiency in Indian soils is expected to increase from 42 percent in 1970 to 63 percent by 2025 due to its continuous depletion from soil. A direct yield loss of US\$ 1.5 billion per year is estimated due to low crop yields besides huge loss due to disease concerns arising out of Zn malnutrition in the country. It is a general saying that more hungry than thirsty. There is a wide

gap in fertilizer requirement and replenishment, thus causing huge mining of soil fertility leading to complex nutrient imbalances and deficiencies. In India only about 1/3rd of the fertilizer requirements of oilseed crops are actually applied to the soil, replenishment leading to continuous mining of nutrients from the soil. Thus there is urgent need for of deficient major, secondary and micronutrients. Slow pace in productivity growth in oilseeds has been often linked to imbalanced and inadequate application of major, secondary and micro-nutrients. Among the micronutrients, Zn has gained macro importance. Adequate supply of Zn is essential. For an optimum plant growth and seed yield, therefore, demonstrations were conducted on use of micro-nutrients. Some of the interventions on micro-nutrients are application of boron, Zinc, sulphur and Mn used as micro nutrient.

Table 5. 20: Yield and economics of Kharif oilseeds using micro-nutrient application

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Jharkhand	Groundnut	60	188	10.09	12.8	26.86	19318.5	28388.5	1.6	1.8
West Bengal	Groundnut	100.1	413	12.45	16.71	26.86	41833.3	59470	2	2.3
Tripura	Groundnut	30	133	5.5	81.5	34.22	5000	15000	1.1	1.3
Gujarat	Groundnut	40	100	17.75	21.4	20.56	34381.3	55910	4	2.6
Odisha	Groundnut	90	194	14.47	18.18	17.06	20307	32020	1.6	1.9
Jharkhand	Niger	20	32	2.82	4.08	25.64	5850	9165	1.7	1.8
Bihar	Sesame	20	50	2.5	3.43	44.68	9400	15690	1.9	2.3
Jharkhand	Sesame	40	104	3.05	5.1	37.20	6815	21137.5	1.9	2.9
West Bengal	Sesame	20	69	7.95	10.47	67.21	22775	33265	2.8	3.4
Uttar Pradesh	Sesame	99	237	3.9	5.69	31.70	21905	26529	1.9	2.6
Rajasthan	Sesame	40	90	6.1	7.85	45.90	27900	16750	2.4	2.8
Madhya Pradesh	Soybean	30	75	13.75	16.5	28.69	23950	28950	2.3	3.0
Andhra Pradesh	Sunflower	40	50	10.45	13.96	20.00	16677.5	24172.5	1.8	2.2

Table 5. 21: Yield and economics of Rabi oilseeds using micro-nutrient application

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C Ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
West Bengal	Groundnut	89	321	22.8	29.6	29.82	37586.7	58552.8	2	2.4
Andhara Pradesh	Groundnut	20	25	17	20.18	18.71	61850	109650	2.93	3.18
Maharashtra	Groundnut	94	235	15.3	21.04	37.52	43253	57605	2.47	2.95
Telangana	Groundnut	40	93	19.4	22.55	16.24	63865	87870	3.19	3.9
Odisha	Groundnut	60	99	20.5	28.39	38.49	46750	74465	2.02	2.39
Tamil Nadu	Groundnut	6.8	17	19.2	25.32	31.88	26250	39553	2.21	2.65

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C Ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Jharkhand	Linseed	10	25	3.2	5.2	62.50	760	7360	1.1	1.5
West Bengal	Linseed	110.6	388	5.5	7.4	34.55	12375.8	20425.6	2	2.4
Madhya Pradesh	Linseed	50	125	8.95	13.49	50.73	24547.5	43465.5	2.84	4.01
Haryana	Mustard	40	90	21.3	24.46	14.84	39613.3	48917	2.01	2.17
Punjab	Mustard	59	142	14.9	20.18	35.44	29733.6	41256.8	2	2.55
Bihar	Mustard	150	334	10.6	14.2	33.96	21817	33284	2.3	2.8
Jharkhand	Mustard	90	210	8.8	12.9	46.59	26009	40005.5	2.8	3.3
West Bengal	Mustard	307	1151	9.7	13.5	39.18	18234	28757.4	1.9	2.4
Assam	Mustard	290	700	6.6	9.23	39.85	11018.5	17841.1	1.76	2.08
Uttar Pradesh	Mustard	308	803	14.4	20.8	44.44	30832.3	49836.8	2.58	3.32
Gujarat	Mustard	40	100	13.2	17.32	31.21	29966	46263	2.77	3.68
Rajasthan	Mustard	360	845	15.1	18.41	21.92	31901.2	42418.9	2.28	2.56
Chhattishgarh	Mustard	30	55	6.4	8.6	34.38	8587	13279	0.8	1.05
Madhya Pradesh	Mustard	190	458	11.5	16.48	43.30	22613	36087.3	2.13	2.76
Odisha	Mustard	60	99	7.5	9.83	31.07	10000	17294	1.5	1.78
Maharashtra	Safflower	20	50	7.8	12.77	63.72	12925	26195	1.9	2.42
Bihar	Sesame	10	25	4.5	5.25	16.67	31500	36500	2.4	3.3
Jharkhand	Sesame	20.6	30	2.4	3.37	40.42	4507.5	9665	1.9	2.6
West Bengal	Sesame	230	918	8.6	10.8	25.58	11513	18685	1.6	2
Andhara Pradesh	Sesame	80	176	6.01	9.19	52.91	18173	32830	2.3	3.12
Odisha	Sesame	60	157	5.7	7.8	36.84	21762.5	34572	1.9	2.2
Andhara Pradesh	Sunflower	116	230	15.19	17.20	13.23	22174	30435	1.85	1.85

Table 5. 22: Yield and economics of Summer oilseeds using micro-nutrient application

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Gujarat	Groundnut	56	132	15.67	16.65	6.25	19863.7	29568.3	1.54	1.65
Odisha	Groundnut	60	150	14.5	16.74	15.44	48000	34270	1.98	2.79
Uttar Pradesh	Groundnut	20	49	28.4	34.6	21.83	118592	153192	3.87	4.5
Gujarat	Sesame	16	40	6.5	7.6	16.92	17247.2	22951	1.65	1.95
Odisha	Sunflower	20	32	12.5	15.8	24.00	34500	45000	1.9	2.3
Bihar	Sunflower	20	122	12	17.22	43.50	32750	54202	2.1	2.58



KVK Morigaon



KVK Allahabad



KVK Nagon



KVK Baran



KVK Morigaon



KVK Morigaon

Table 5. 23: Summary of performance of oilseeds using micro-nutrient application

Season	Crop	Yield			Net return		B:C ratio	
		Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	12.78	19.39	51.72	24168	38157.7	2.06	1.98
	Niger	2.82	4.08	44.68	5850	9165	1.7	1.8
	Sesame	5.05	6.16	21.98	17759	22674.3	2.18	2.8
	Soyabean	13.75	16.5	20.00	23950	28950	2.80	3.20
	Sunflower	10.45	13.96	33.59	16677.5	24172.5	1.8	2.2
Rabi	Groundnut	19.03	24.51	28.80	46492.45	71282.63	2.47	2.9
	Linseed	5.88	8.69	47.79	12561.1	23750.37	1.98	2.64
	Mustard	11.67	15.49	32.73	23360.41	34603.4	2.07	2.51
	Safflower	7.8	12.77	63.72	12925	26195	1.9	2.42
	Sesame	5.44	7.28	33.82	17491.2	26450.4	2.02	2.64
	Sunflower	8.69	17.10	96.77	22174	30435	1.85	1.85
Summer	Groundnut	16.19	22.66	39.96	62151.9	72343.43	2.46	2.98
	Sesame	6.5	7.6	16.92	17247.2	22951	1.65	1.95
	Sunflower	13.25	16.51	24.60	33625	49601	2	2.44

5.7 Integrated nutrient management

Maintaining soil health is the key for sustainable and profitable agriculture. Fertilizers are cost intensive and the efficiency of fertilizer are less than 50 percent even under better management practice. It is advisable to use the fertilizers judiciously and proper fertilizer schedule be developed for oilseeds crops also. The most of the oilseeds required higher dose of phosphatic fertilizers. It is necessary to adopt the practices for improving the efficiency phosphatic fertilizers. The split application of nitrogenous fertilizers further improves the efficiency in these selected oilseeds crops. The requirement of potassium, particularly in groundnut and sunflower are high. The most of

the soils are deficient in either in sulphur hence integrated use of fertilizers based on soil test values and appropriate selection of fertilizers is having importance in successful cultivation of these crops. The major components of INM demonstrated by KVKs are given below :

- Soil test based fertilizer application
- Use of lime for soil amendment
- Use of Bio fertilizer, PSB and rhizobium
- Use of Farm Yard Manure
- Sulphur application
- Use of thio-urea at flowering and pod development 1 g/l

Table 5. 24: Yield and economics of Kharif oilseeds using Integrated nutrient management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Jharkhand	Groundnut	60	161	12.17	17.45	43.39	22518.5	43077	1.7	2.1
West Bengal	Groundnut	70	352	13.9	17.77	27.84	48800	69725	2.09	2.4
Tripura	Groundnut	30	133	5.5	10.5	90.91	5000	15000	1.1	1.25
Uttar Pradesh	Groundnut	20	50	8.9	14.2	59.55	13135	50635	1.52	2.78
Andhra Pradesh	Groundnut	84	135	8.61	11.23	30.43	19911	33312	1.33	0.84
Rajasthan	Groundnut	29.6	74	14.84	17.68	19.14	39399	50871	2.36	2.68
Gujarat	Groundnut	120	330	15.04	19.21	27.73	33278.8	52754	2.23	2.89
Odisha	Groundnut	80	150	14.53	17.7	21.82	22233.3	31906	1.9	2.2
Tamil Nadu	Groundnut	42	105	14.28	17.26	20.87	25773	34780	2	2.3
Bihar	Niger	30	67	2.25	3.17	40.89	3300	6114	1.53	1.84
Jharkhand	Niger	40	108	3.85	5.68	47.53	6000	18170	1.94	2.84
Jharkhand	Niger	40	108	3.85	5.68	47.53	5350	7886	1.47	1.64
Chhattisgarh	Niger	30	73	3.2	4.24	32.50	7220	10176	1.68	1.99
Haryana	Sesame	20	50	4.79	5.74	19.83	17770	22720	2.12	2.3
Himachal Pradesh	Sesame	8.5	60	2.86	4.39	53.50	15570	29430	1.62	2.36
Bihar	Sesame	40	126	3.6	5.36	48.89	23739	38508	1.92	2.5
Jharkhand	Sesame	20	61	3.3	4.31	30.61	12400	40397	1.79	3.02
Tripura	Sesame	30	95	1.75	2.5	42.86	1250	4500	1.07	1.2
Assam	Sesame	100	247	3.5	5.9	68.57	9447.5	62064	1.5	2.68
Uttar Pradesh	Sesame	171	417	3.49	5.9	69.05	21836.3	28622	2.2	2.7
Andhra Pradesh	Sesame	15	39	5.33	7.66	43.71	19310	29595	2.05	2.82
Rajasthan	Sesame	57.6	134	4.59	6.1	32.90	23661.5	33402	2.6	3.08
Gujarat	Sesame	20	50	7	7.78	11.14	23000	32220	1.88	2.37
Odisha	Sesame	90	255	5.3	6.5	22.64	16366.7	23695	1.89	2.2
Bihar	Soybean	20	50	18.6	21.7	16.67	26100	35400	1.87	2.19
Maharashtra	Soybean	331	820	16	19.91	24.44	21628	29611	1.7	2.04
Rajasthan	Soybean	20	32	11.62	13.38	15.15	12900	18030	1.62	1.81
Gujarat	Soybean	40	100	12.91	15.6	20.84	18503.8	27226	2.02	2.47
Chhattisgarh	Soybean	30	50	7.8	11.7	55.00	18300	26200	2.48	2.57
Madhya Pradesh	Soybean	210	481	9.7	14.12	45.57	15068.3	26060	2.8	2.3
Jammu & Kashmir	Sunflower	1.5	8	8	11	37.50	18500	27000	1.17	1.42
Andhra Pradesh	Sunflower	20	25	10	15.45	54.50	21000	28800	1.75	2.21
Karnataka	Sunflower	26	65	8.64	14.72	70.37	11125	31730	1.67	2.91



KVK Nagaon



KVK Namakkal



KVK Balrampur

Table 5. 25: Yield and economics of Rabi oilseeds using integrated nutrient management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C Ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Karnataka	Groundnut	152	380	12.72	19.93	56.68	46364	72270	2.74	3.33
Tamil Nadu	Groundnut	281.8	705	18.23	24.76	35.82	42660	76954	2.03	2.57
West Bengal	Groundnut	59	246	20.4	26.9	31.86	48415	70162	2.43	2.9
Andhara Pradesh	Groundnut	50	100	11.61	14.44	24.38	50202	35387	2.71	2.18
Maharashtra	Groundnut	54	135	15.97	21.3	33.38	48746	44138	2.31	2.21
Odisha	Groundnut	251	455	15.3	21.3	39.22	36446	58335	2.11	2.49
Bihar	Linseed	40	147	7.3	9.33	27.81	12119	20873	1.59	2
Jharkhand	Linseed	10	21	8.7	12.5	43.68	10700	22350	1.53	2.08
West Bengal	Linseed	80.6	257	4.86	6.92	42.39	10956	19706	2.03	2.5
Assam	Linseed	40	85	5.68	8	40.85	12207	22707	1.78	2.35
Chhattisgarh	Linseed	34	86	3.9	5.4	38.46	8661.5	15281	1.82	2.34
Madhya Pradesh	Linseed	60	150	7.6	11.76	54.74	19871	36060	2.6	3.65
Karnataka	Linseed	20	50	2.06	3.18	54.36	5469	10780	1.61	2.39
Haryana	Mustard	40	90	21.28	24.46	14.94	39613	48917	2.01	2.17
Punjab	Mustard	70	246	14.03	19.7	40.41	28043	46729	2.49	3.21
Bihar	Mustard	180	409	10.3	13.5	31.07	21451	31763	2.36	2.9
Jharkhand	Mustard	120	301	8.4	11.44	35.79	17822	29533	2.33	2.81
West Bengal	Mustard	256.7	966	9.57	13.15	37.41	18279	29642	2	2.5
Assam	Mustard	290	743	6.6	9.27	40.45	13372	22102	1.85	2.34
Uttar Pradesh	Mustard	297.9	785	14.6	20.5	40.41	32268	50852	2.53	3.29
Gujarat	Mustard	80	192	11.47	14.8	29.03	23733	27145	2.28	2.61
Rajasthan	Mustard	407.2	976	14.7	18.1	23.13	31399	40790	2.57	2.42
Chhattisgarh	Mustard	90	182	6.51	8.7	33.64	11920	19232	1.95	2.03
Madhya Pradesh	Mustard	150	358	12.6	18.03	43.10	29329	43517	2.66	3.17
Odisha	Mustard	273	540	5.4	7.7	42.59	9146	16605	1.58	1.88
Maharashtra	Safflower	70	100	8.65	12.39	43.24	40570	26487	2.95	2.4
Bihar	Sesame	10	25	4.5	5.25	16.67	31500	36500	2.37	3.28
West Bengal	Sesame	140.9	513	7.24	9.11	25.83	11377	18215	1.68	2.2
Andhara Pradesh	Sesame	186	320	7.4	8.67	17.16	37489	23272	3.86	2.78
Chhattisgarh	Sesame	30	40	1.97	2.5	26.90	1243	1807.4	0.18	0.21
Odisha	Sesame	148	337	4.15	5.39	29.88	9245	14860	1.85	2.15
Bihar	Sunflower	100	315	11.71	15.2	29.80	35866	47584	2.37	2.7
Andhara Pradesh	Sunflower	56	80	17.6	22.5	27.84	30895	12914	1.85	1.32
Odisha	Sunflower	45	114	7.2	10.92	51.67	6210	13136	0.29	0.46
Tamil Nadu	Sunflower	20	50	11.35	14.2	25.11	13965	22468	1.66	1.92

Table 5. 26: Yield and economics of Summer oilseeds using integrated nutrient management

State	Crop	Area in ha	Number of Farmers	Yield			Net Return (Rs/ha)		B:C Ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Uttar Pradesh	Groundnut	45	112	27.26	35	28.39	77614	10486.8	3	3.5
Gujarat	Groundnut	56	132	13.67	16.65	21.67	19863.7	29568.3	1.54	1.65
Odisha	Groundnut	30	92	13.00	19.15	47.30	20350	33000	1.5	1.66
Gujarat	Sesame	96	233	6	6.99	16.50	14382.4	22760.2	1.62	2.19
Odisha	Sesame	10	47	6.3	7.37	16.98	11950	15130	1.9	2.05
Bihar	Sunflower	50	101	10.65	14.26	33.90	38800	50376	2.3	2.6

Table 5. 27: Summary of performance of oilseeds using integrated nutrient management.

Season	Crop	Yield Obtained (q/ha)			Net return (Rs/ha)		B:C ratio	
		Local	Demo	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	11.75	15.89	35.23	25560.96	42451.11	1.8	2.16
	Niger	3.29	4.7	42.86	5467.5	10586.5	1.66	2.1
	Sesame	4.14	5.65	36.47	16759.19	31377.55	1.88	2.48
	Soyabean	12.27	16.07	30.97	18750	27087.8	2.08	2.23
	Sunflower	8.88	13.72	54.50	16875	29176.67	1.53	2.18
Rabi	Groundnut	15.7	21.44	36.56	45472.48	59541.36	2.39	2.6
	Linseed	5.59	8	43.11	11426.47	21108.48	1.85	2.47
	Mustard	11.29	14.95	32.42	23031.51	33902.55	2.22	2.61
	Safflower	8.65	12.39	43.24	40570	26487.5	2.95	2.4
	Sesame	5.06	6.18	22.13	18171.11	18931.09	1.99	2.13
	Sunflower	11.97	15.71	31.24	21734.17	24025.5	1.54	1.6
Summer	Groundnut	15.31	23.6	54.15	39275.9	24351.7	2.01	2.27
	Sesame	6.15	7.18	16.75	13166.2	18945.1	1.76	2.12
	Sunflower	10.65	14.26	33.90	38800	50376	2.3	2.6

5.8 Integrated pest management

The oilseed crops are susceptible to many insect-pest and diseases. It is estimated that 30-80 per cent reduction in yield was noticed due to incidences of pests in groundnut, sunflower and sesame crops. The high incidences of weeds in these Kharif oilseed crops also reduce the yield considerably. The research findings suggest that maximum yield reductions due to

incidences of weeds are recorded in groundnut and sunflower crops. More often the high crop and weed competition reduces the fertilizer and water use efficiency. The appropriate and integrated pest management schedule is required for these crops. Keeping the above background, KVK's demonstrated the technologies related to integrated pest management. The components of IPM are seed treatment, use of catch crop, use of bio-fungicides, mechanical control etc.

Table 5. 28: Yield and economics of Kharif oilseeds using integrated pest management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Punjab	Groundnut	0.8	4	14.00	17.7	26.42	20809	29207	1.49	1.63
Jharkhand	Groundnut	30	75	11.16	18.3	63.98	23400	53376	1.91	2.38
Andhra Pradesh	Groundnut	84	135	8.6	11.2	30.23	19911	33312	1.31	0.84
Rajasthan	Groundnut	64	160	16.6	19.45	17.17	42383	58081	2.11	2.52
Gujarat	Groundnut	80	230	17.59	22.21	26.26	37081	58858	2.24	2.93
Karnataka	Groundnut	28	70	2	2.65	32.50	-2664	-1737	0.82	0.88
Tamil Nadu	Groundnut	46.2	38.67	14.87	18.28	22.93	27531	41575	1.83	2.25
Jharkhand	Niger	20	50	4	5.75	43.75	900	5272	1.09	1.39
Madhya Pradesh	Niger	30	75	2.36	3.87	63.98	14000	32500	3.36	5.37
Odisha	Niger	30	75	3.2	4.72	47.50	6500	11266	1.68	1.91
Haryana	Sesame	34	85	3.5	5.35	52.86	15757	20445	1.55	2.19
Bihar	Sesame	71.8	179	4.7	5.51	17.23	17112	26853	2.19	2.65
West Bengal	Sesame	20	69	7.95	10.47	31.70	22775	33265	2.75	3.4
Jharkhand	Sesame	40	121	3.35	5.12	52.84	9365	28536	1.6	2.5
Andhra Pradesh	Sesame	15	39	5.33	7.66	43.71	19310	29595	2.05	2.82
Rajasthan	Sesame	14	35	4.45	5.3	19.10	21500	25345	1.34	1.5
Gujarat	Sesame	40	97	6.5	7.5	15.38	20100	28832	2	2.4
Odisha	Sesame	30	75	4.7	5.9	25.53	14.439	27700	2.18	2.42
Bihar	Soybean	20	50	18.6	21.7	16.67	26100	35400	1.87	2.19
Maharashtra	Soybean	331	820	16	19.9	24.38	20116	27783	1.64	1.91
Rajasthan	Soybean	20	40	12.5	16.2	29.60	17750	26105	0.93	1.2
Madhya Pradesh	Soybean	120	396	16.3	16.49	1.17	14443	26401	1.8	2
Karnataka	Soybean	52	130	10.69	17.24	61.27	34064	46213	2.54	3.3
Andhra Pradesh	Sunflower	20	25	10	15.45	54.50	21000	28800	1.75	2.21



KVK Haveri



KVK Gadag



KVK Shahjapur



KVK Batpeta



KVK Raichur



KVK Rajgarh

Table 5. 29: Yield and economics of Rabi oilseeds using integrated pest management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Karnataka	Groundnut	202	505	13.4	20.1	50.00	48504.4	72835.7	2.88	3.39
Tamil Nadu	Groundnut	382.8	957	18.5	24.25	31.08	43965	76511	2.07	2.64
Andhara Pradesh	Groundnut	98	185	21.2	26.36	24.34	84235	80576	2.91	3.04
Maharashtra	Groundnut	118	295	14.5	20.21	39.38	51555	55934	2.75	3.69
Telangana	Groundnut	40	93	19.4	22.55	16.24	63865	87870	3.9	3.19
West Bengal	Groundnut	119	450	22.3	29.4	31.84	34149.5	55649.4	1.9	2.3
Odisha	Groundnut	607	1266	16.4	21.4	30.49	34157	51096	1.99	2.3
Jharkhand	Linseed	20	46	5.9	8.9	50.85	5730	14855	1.3	1.8
Bihar	Linseed	40	147	7.3	9.3	27.40	12120	20873.7	1.6	2
West Bengal	Linseed	80.6	109.3	6	7.5	25.00	11285	15354.2	1.9	2.1
Assam	Linseed	20	50	5.1	6.8	33.33	22000	31800	2.4	3.5
Manipur	Linseed	50	127	5.9	7.88	33.56	11550	14862.5	2.05	2.35
Maharashtra	Linseed	10	25	3.2	4.5	40.62	2120	10000	1.61	1.46
Chhattisgarh	Linseed	226	360	5.1	8.1	58.82	9929.3	21534.8	1.7	2.3
Madhya Pradesh	Linseed	120	270	6.6	10.88	64.85	14317	27452.3	2.1	2.9
Karnataka	Linseed	20	50	2.06	3.18	54.36	5469	10780	1.61	2.39
Dehli	Mustard	10	25	12.6	18.24	44.76	13145	33439.3	1.41	2.05
Haryana	Mustard	120	256	19.4	23.24	19.79	34023	46021.8	2.14	2.41
Himachal Pradesh	Mustard	26.46	223	4.2	5.8	38.10	5346.67	13838.3	1.38	1.5
Punjab	Mustard	157.7	402	15.9	18.76	17.99	29114.5	40674	2.19	2.35
Assam	Mustard	150	373	6.8	9.9	45.59	10699.2	18095	1.7	2.06
Manipur	Mustard	30	41	12.12	18.9	55.94	21000	41733	2.05	2.7
Nagaland	Mustard	30	75	6.9	7.9	14.49	4390	7490	1.26	1.44
Tripura	Mustard	40	102	6.05	7.95	31.40	17676	24126	2.1	2.41
Uttar Pradesh	Mustard	360.5	890	13.7	19.05	39.05	29833.1	47088.1	2.5	3.2
Gujarat	Mustard	64	138	14.3	17.5	22.38	33877.3	51575.6	2.68	3.47
Rajasthan	Mustard	653.9	1634	9.81	16.5	67.78	31183.8	42647.8	2.44	2.6
Chhattisgarh	Mustard	415	793	5.6	8.2	46.43	11073.2	20787	1.9	2.5
Madhya Pradesh	Mustard	403.8	887	12.3	17.3	40.65	25833.9	39917.4	2.41	3
Odisha	Mustard	393	902	5.1	7.6	49.02	9948.9	18928.2	1.6	2.03
Bihar	Mustard	240	609	10.3	14.3	38.83	23385.7	34459.4	2.4	2.9
Jharkhand	Mustard	120	286	9	13.2	46.67	21675.4	36352.2	2.5	3
West Bengal	Mustard	223.7	906	9.6	13.4	39.58	16631	26885.6	1.9	2.3
Andhara Pradesh	Safflower	10	13	9.55	12.5	30.89	7750	26000	1.71	1.19
Maharashtra	Safflower	100	138	8.3	11.16	34.46	19572	28970	2.43	2.05
Telangana	Safflower	20	31	11.9	15.94	33.95	21975	32966	3.22	2.59
Bihar	Sesame	10	25	4.5	5.25	16.67	31500	36500	2.37	3.28
Odisha	Sesame	208	489	4.3	5.9	37.21	9075.8	15374.2	1.8	2.1
West Bengal	Sesame	150	529	8.1	10.6	30.86	10298.8	18064.9	1.6	2
Andhara Pradesh	Sesame	206	326	7.27	9.43	29.71	24096	40904	3.88	2.76

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Maharashtra	Sesame	40	100	4.32	6.27	45.13	17013	31325	2.58	1.87
Telangana	Sesame	50	115	7.00	9.01	28.57	89600	22400	3.33	4.8
Andhara Pradesh	Sunflower	116	230	17.1	21.74	27.13	22174	30435	1.85	1.85
Odisha	Sunflower	95	235	9.4	12.04	28.09	11786.8	19762	1.4	1.6
Karnataka	Sunflower	52	130	11.9	13.41	12.69	16716	26401	1.67	2.26
Tamil Nadu	Sunflower	46	115	8.99	12.33	37.15	15621.5	20356.5	1.67	1.83

Table 5. 30: Yield and economics of Summer oilseeds using integrated pest management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Uttar Pradesh	Groundnut	25	63	26.11	35.4	35.58	36636	55781	2.18	2.53
Gujarat	Groundnut	104	252	14.79	17.34	17.24	26015.3	40467.7	1.8	2.24
Odisha	Groundnut	90	242	13.80	17.95	30.07	34175	33635	1.74	2.22
Karnataka	Groundnut	20	50	17.51	22.47	28.33	35543	61024	1.75	2.44
Tamil Nadu	Groundnut	14	35	13	20.72	59.38	32454	44363	1.77	2.04
Gujarat	Sesame	116	282	7.13	8	12.20	19261.8	25585.2	1.94	2.35
Odisha	Sesame	50	125	3.7	6.8	83.78	4400	25800	1.24	2.16
Punjab	Sunflower	40	70	17.43	18.71	7.34	18832.5	24158	1.71	2.03
Bihar	Sunflower	50	101	10.65	14.26	33.90	38800	50376	2.3	2.6
Odisha	Sunflower	70	93	10.25	12.3	20.00	34500	28425	1.9	2.1
Tamil Nadu	Sunflower	20	37	13.21	16.14	22.18	21912	28508	1.78	2.01

Table 5. 31: Summary of performance of oilseeds using integrated pest management

Season	Crop	Yield			Net return (Rs/ha)		B:C ratio	
		Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	12.55	15.68	24.94	24064.43	38953.37	1.67	1.92
	Niger	3.12	5.11	63.78	7133.33	16346.23	2.04	2.89
	Sesame	4.16	6.5	56.25	15741.68	27571.54	1.94	2.49
	Soyabean	14.82	18.31	23.55	22494.6	32380.54	1.77	2.12
	Sunflower	10	15.45	54.50	21000	28800	1.75	2.21
Rabi	Groundnut	17.96	23.47	30.68	51490.13	68638.87	2.63	2.94
	Linseed	5.24	7.34	40.08	10502.26	18612.7	1.8	2.3
	Mustard	15.18	22.72	49.67	19931.57	32003.45	2.03	2.47
	Safflower	9.9	13.2	33.33	16432.33	29312	2.45	1.94
	Sesame	5.48	9.41	71.72	30263.93	27428	2.59	2.8
	Sunflower	11.85	14.88	25.57	16574.58	24238.6	1.65	1.89
Summer	Groundnut	15.04	22.78	51.46	32964.66	47054.14	1.85	2.23
	Sesame	5.42	7.4	36.53	11830.9	25692.6	1.59	2.26
	Sunflower	12.89	15.35	19.08	28511.13	32866.75	1.9	2.19

5.9 Integrated crop management

ICM is a method of farming that balances the requirements of running a profitable business with responsibility and sensitivity to the environment. It includes practices that avoid waste, enhance energy efficiency and minimize pollution. ICM combines the best of modern technology with some basic principles of good farming practice and is a whole farm, long term strategy. It is an approach to farming which aims to balance production with economical and environmental considerations the approach is of a combination of measures including crop rotation, cultivations, appropriate crop varieties and optimum use of inputs. One of the main objectives of ICM is the reduction or replacement of external farm inputs, such as inorganic fertilizers, pesticides and fuel, by means of farm produced substitutes and better management of inputs. Total replacement is not possible without significant loss of yields, but partial substitution of inputs can be achieved by the use of natural resources, the avoidance of waste and efficient management of external inputs. This would then lead to reduced production cost less environmental degradation and high biodiversity. ICM is a 'whole farm approach' which is site specific and includes:

- The use of crop rotations
- Appropriate cultivation techniques

- Careful choice of seed varieties
- Minimum reliance on artificial inputs such as fertilizers, pesticides and fossil fuels
- Maintenance of the landscape

The crop wise ICM packages used by KVK's under demonstration is given below:

Groundnut

- Improved variety CO.7, K.6, seed treatment, gypsum application, line sowing
- Improved variety (Devi), Line sowing, soil amendments through application of neem cake @ 2q/ha, recommended seed rate 150 kg/ha, seed inoculation with rhizobium and seed treatment with vitavax power @ 2g/kg, need based plant protection measure and soil test based fertilizer application.
- Improved variety, irrigation management, strays sowing of cowpea in Groundnut field as trap crop for minimizing the leaf minor population. application, insecticide and herbicide, line sowing, micro nutrients application

Sesame

- Improved variety, seed treatment and rhizobium culture, micronutrient application, use of tricho-cards along with other plant protection measures.

Table 5. 32: Yield and economics of Kharif oilseeds using integrated crop management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Tamil Nadu	Groundnut	14	35	18.71	22.78	21.75	23750	34000	2.11	2.5
Gujarat	Groundnut	100	280	18.72	23.41	25.05	41544.5	61591	2.24	2.93
Madhya Pradesh	Groundnut	30	75	12.23	15.49	26.66	27106	38804	2.24	2.68
Odisha	Groundnut	150	305	13.41	17.35	29.38	22864	36808.7	1.8	2.1
Karnataka	Groundnut	84	210	9.24	13.68	48.05	35889	65058.5	1.65	2.41
Odisha	Niger	50	50	4.00	6.25	56.25	18100	23410	1.92	2
Rajasthan	Sesame	51.6	129	5.15	6.41	24.47	26324	35339.5	2.07	2.47
Gujarat	Sesame	20	50	7	7.78	11.14	23000	32220	1.88	2.37
Odisha	Sesame	90	255	5.27	6.49	23.15	16366.67	23695	1.89	2.1
Haryana	Sesame	4	10	3.45	5.5	59.42	10780	21695	1.65	2.26
Rajasthan	Soybean	20	40	12.5	16.2	29.60	17750	26105	0.93	1.2

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Madhya Pradesh	Soybean	190	441	14.24	15.78	10.81	14334.72	24941.9	1.7	1.9
Karnataka	Soybean	104	260	8.86	13.28	49.89	21201.54	30913	2.33	2.81
Jammu & Kashmir	Sunflower	2.1	11	4.5	5	11.11	7600	12600	1.01	1.3



KVK Tiruvanamalai



KVK Kutch



KVK North Tripura



KVK Dhemaji



KVK Bhatinda



KVK Malkhangiri

Table 5.33: Yield and economics of Rabi oilseeds using integrated crop management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Karnataka	Groundnut	152	380	12.7	19.93	56.93	46364.1	72270	2.74	3.33
Tamil Nadu	Groundnut	281.8	705	18.2	24.76	36.04	42660	76954	2.03	2.57
West Bengal	Groundnut	90.02	280	20.9	27.3	30.62	30726	50227.5	1.8	2.1
Maharashtra	Groundnut	98	185	21.2	26.36	24.34	84235	80576	3.04	2.91
Maharashtra	Groundnut	98	237	14.8	20.56	38.92	35961	60356	2.1	2.8
Telangana	Groundnut	20	50	17	20.5	20.58	63200	90200	3.36	4.37
Odisha	Groundnut	60	99	20.5	28.39	38.49	46750	74465	2.02	2.39
Jharkhand	Linseed	10	21	8.7	12.5	43.68	10700	22350	1.5	2.1
Assam	Linseed	20	34	5.16	8.1	56.98	14814.3	29094.3	1.76	2.5
Manipur	Linseed	30	77	4.7	6.35	35.11	16300	22525	2.61	2.81
Maharashtra	Linseed	10	25	4.2	5.5	30.95	2120	10000	1.46	1.61
Madhya Pradesh	Linseed	40	100	7.1	10.79	51.97	14932.5	26340.5	2.2	2.8
Karnataka	Linseed	20	50	2.06	3.18	54.36	5469	10780	1.61	2.39
Haryana	Mustard	90	72	19.5	22.66	16.21	36359.3	45620.3	2.13	2.28
Himachal Pradesh	Mustard	5.5	24	4.5	5.48	21.78	5940	6940	1.5	1.7
Punjab	Mustard	40	76	14.3	20.95	46.50	25763.8	48321.9	1.94	2.82

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Bihar	Mustard	60	133	11.3	15.08	33.45	23992.5	35510	2.8	3.4
Jharkhand	Mustard	90.04	221	9.50	13.7	44.21	25983.8	40653	2.8	3.3
West Bengal	Mustard	113.7	510	9.60	13.25	38.02	15638.4	27617	1.9	2.4
Assam	Mustard	60	150	6.71	8.50	26.68	21537.5	37500	2.51	2.71
Uttar Pradesh	Mustard	215.3	561	12.80	18.61	45.39	25493	43861.6	2.33	3.1
Rajasthan	Mustard	267.2	643	16.20	19.80	22.22	35530.6	46762.9	2.23	2.72
Madhya Pradesh	Mustard	90	208	9.20	13.70	48.91	14051	27905.7	1.9	2.53
Odisha	Mustard	30	51	5.70	9.45	65.79	19495	24687.3	2.53	2.64
Andhara Pradesh	Safflower	10	13	9.55	12.50	30.89	7750	26000	1.19	1.71
Maharashtra	Safflower	50	50	9.50	12.00	26.32	40050	54945	2.91	3.5
Andhara Pradesh	Sesame	160	231	6.86	9.43	37.46	22629	38682	2.32	3.22
Maharashtra	Sesame	40	100	4.71	6.27	42.46	17013	31325	1.87	2.58
Telangana	Sesame	30	65	8.00	9.00	12.50	89600	22400	3.33	9.62
Odisha	Sesame	30	82	6.20	9.12	47.10	9600	18030	1.63	1.97
Andhara Pradesh	Sunflower	116	230	17.10	21.74	27.13	22174	30435	1.85	1.85
Tamil Nadu	Sunflower	20	50	11.40	14.20	24.56	13965	22468	1.66	1.92

Table 5. 34: Yield and economics of Summer oilseeds using integrated crop management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C Ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Gujarat	Groundnut	16	40	16	18.6	16.25	29250	40150	1.84	2.17
Gujarat	Sesame	96	233	6.00	6.99	16.50	14382.4	22760.2	1.62	2.19
Punjab	Sunflower	20	20	18.00	19.00	5.56	23000	28100	1.92	2.4
Bihar	Sunflower	30	80	9.30	11.3	21.51	44850	46550	2.6	2.7

Table 5. 35: Summary of performance of oilseeds using integrated crop management

Season	Crop	Yield obtained (q/ha)			Net return (Rs/ha)		B:C ratio	
		Local (q/ha)	Demo(q/ha)	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	14.46	19.54	35.13	30230.7	47252.44	2.01	2.52
	Niger	4.12	6.25	56.00	18100	23410	1.92	2
	Sesame	5.22	6.55	25.48	19.117.7	28237.38	1.87	2.3
	Soyabean	11.87	15.09	27.13	17762.09	27319.99	1.65	1.97
	Sunflower	4.5	5	11.11	7600	12600	1.01	1.3
Rabi	Groundnut	18.19	23.97	31.78	49985.16	72149.79	2.44	2.92
	Linseed	5.15	7.4	43.69	10722.63	20181.63	1.86	2.37
	Mustard	10.85	14.65	35.02	22707.72	35034.5	2.23	2.69
	Safflower	9.53	12.25	28.54	23900	40472.5	2.05	2.61
	Sesame	5.69	8.46	48.68	34710.5	27609.25	2.29	4.35
	Sunflower	14.25	17.97	26.11	18069.5	26451.5	1.76	1.89
Summer	Groundnut	16	18.6	16.25	29250	40150	1.84	2.17
	Sesame	6	6.99	16.50	14382.4	22760.2	1.62	2.19
	Sunflower	13.65	15.15	10.99	33925	37325	2.26	2.55

5.10 Integrated weed management

Integrated weed management (IWM) is the management of weeds through a long-term management approach, using several weed management techniques such as physical control, chemical control, biological and cultural approach by using several techniques for example, if an herbicide is used over a long period of time, a weed species can build up a resistance to the chemical.

Any integrated weed management plan or

strategy should focus on the most economical and effective management of the weeds and include ecological considerations. The long term approach to integrated weed management should reduce the extent of weeds and reduce the weed seed stock in the soil. It should consider how to achieve this goal without degrading the desirable qualities of the land, such as its native ecology or agricultural crops. Main aim of IWM is minimizing the residual problem in plant, soil and air, water.

Table 5.36: Yield and economics of Kharif oilseeds using integrated weed management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Gujarat	Groundnut	80	230	17.59	22.21	26.26	37080.7	58858.7	2.24	2.93
Haryana	Sesame	10	25	3.4	4.8	41.17	18720	16920	0.88	2.01
Himachal Pradesh	Sesame	4	26	3	4.5	50.00	17000	27900	1.47	2.21
Bihar	Sesame	20	44	4.4	6.8	54.55	27520	33900	0.68	3.13
Assam	Sesame	30	35	5.31	8.09	52.35	15980	29240	1.98	2.51
Rajasthan	Sesame	31.6	79	4.86	6.13	26.13	28265.3	38127.7	1.71	2.1
Gujarat	Sesame	20	50	7	7.78	11.14	23000	32220	1.88	2.37
Bihar	Soybean	20	50	18.6	21.7	16.67	26100	35400	1.87	2.19
Rajasthan	Soybean	20	40	12.5	16.2	29.60	17750	26105	0.93	1.2
Jammu & Kashmir	Sunflower	1.5	8	8	11	37.50	18500	27000	1.17	1.42



KVK Dhalai



KVK Namakkal



KVK Haveri

Table 5.37: Yield and economics of Rabi oilseeds using integrated weed management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% increase	Local	Demo	Local	Demo
Tamil Nadu	Groundnut	136	340	19.2	27.92	45.42	43884	97679	1.78	2.52
West Bengal	Groundnut	57	109.5	20.9	26.55	27.03	37219	55069	1.8	2.2
Andhara Pradesh	Groundnut	102	187	22.1	27.1	22.62	74015	81661	2.67	2.78
Maharashtra	Groundnut	105	221	16.7	21.1	26.35	37834	57758	1.86	2.44
Odisha	Groundnut	294	579	14.9	19.8	32.89	27987	44290	1.8	2.1

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% increase	Local	Demo	Local	Demo
Bihar	Linseed	20	50	8.15	10	22.70	11189	19197	1.5	1.9
Chhattisgarh	Linseed	80	117	4.4	8.2	86.36	7520	25400	1.6	2.5
Madhya Pradesh	Linseed	122	270	6.13	10.18	66.07	10458	20440	1.7	2.3
Haryana	Mustard	30	55	15.6	23.1	48.08	10500	28890	1.31	1.84
Himachal Pradesh	Mustard	11	82	4.30	6.00	39.53	4600	11600	0.63	1.27
Punjab	Mustard	80	218	15.7	20.77	32.29	29616	37784	2.19	2.94
Bihar	Mustard	180	484	9.6	13.6	41.67	21030	29694	2.4	2.9
Jharkhand	Mustard	30	65	8	11.8	47.50	8750	23450	1.4	2.00
West Bengal	Mustard	112	520	10.2	12.2	19.61	15946	22781	1.8	2.1
Nagaland	Mustard	30	47	5.15	7.98	54.95	29200	51840	3.43	5.32
Uttar Pradesh	Mustard	142	355	10.5	15.47	47.33	18982	30440	2.22	2.63
Rajasthan	Mustard	240	565	13.5	16.75	24.07	31874	41347	2.73	3.09
Chhattisgarh	Mustard	175	345	6.3	9.00	42.86	15235	25354	2.2	2.8
Madhya Pradesh	Mustard	251	504	11.00	16	45.45	20766	35309	2	2.7
Odisha	Mustard	70	175	5.00	7.5	50.00	12568	24700	1.6	2.00
Andhara Pradesh	Safflower	10	13	9.55	12.5	30.89	7750	26000	1.19	1.71
Telangana	Safflower	20	31	11.9	15.94	33.95	21975	32966	2.59	3.22
West Bengal	Sesame	40	205	11.1	16.07	44.77	7181	19435	1.3	1.8
Andhara Pradesh	Sesame	90	151	7.9	11.4	44.30	28983	54053	2.9	4.27
Telangana	Sesame	50	115	7.00	8.6	22.86	22400	89600	4.81	3.33
Odisha	Sesame	70	172	4.2	7.00	66.67	7643.7	16409	1.6	1.9
Bihar	Sunflower	100	315	11.7	15.2	29.91	35866	47584	2.4	2.7
Andhara Pradesh	Sunflower	116	230	17.1	21.74	27.13	22174	30435	1.85	1.85
Odisha	Sunflower	45	114	7.2	10.92	51.67	6210	13136	0.29	0.46
Karnataka	Sunflower	52	130	11.9	13.41	12.69	16716	26401	1.67	2.26
Tamil Nadu	Sunflower	10	25	11.00	12.49	13.55	14199	18848	1.47	1.61

Table 5.38: Yield and economics of Summer oilseeds using integrated weed management

State	Crop	Area in ha	Number of Farmers	Yield			Net return (Rs/ha)		B:C ratio	
				Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Odisha	Groundnut	90	242	13.80	17.95	30.07	33635	34175	1.74	2.22
Tamil Nadu	Groundnut	14	35	13	20.72	59.38	32454	44363	1.77	2.04
Punjab	Sunflower	40	70	15.43	18.71	21.25	18832.5	24158	1.71	2.03
Bihar	Sunflower	50	101	10.65	14.26	33.90	38800	50376	2.30	2.6
Odisha	Sunflower	20	32	12.5	15.8	26.40	34500	45000	1.90	2.3

Table 5.39: Summary of performance of oilseeds using integrated weed management

Season	Crop	Yield			Net return (Rs/ha)		B:C ratio	
		Local (q/ha)	Demo (q/ha)	% changes	Local	Demo	Local	Demo
Kharif	Groundnut	17.59	22.21	26.26	37080.67	58858.7	2.24	2.93
	Sesame	4.5	6.35	41.11	21747.56	29717.95	1.43	2.39
	Soybean	15.55	18.95	21.86	21925	30752.5	1.4	1.7
	Sunflower	8	11	37.50	18500	27000	1.17	1.42
Rabi	Groundnut	18.76	24.49	30.54	44187.44	67291.62	1.98	2.41
	Linseed	6.23	9.46	51.85	9722.7	21679.23	1.6	2.23
	Mustard	9.57	13.35	39.50	18255.89	30266	2.05	2.58
	Safflower	10.73	14.22	32.53	14862.5	29483	1.89	2.47
	Sesame	7.55	10.77	42.65	33351.93	28074.48	2.65	2.83
	Sunflower	11.78	14.75	25.21	19033.14	27280.8	1.54	1.78
Summer	Groundnut	8.4	19.34	130.24	33314.5	38999	1.76	2.13
	Sunflower	12.23	14.19	16.02	30710.83	39844.67	1.97	2.31

5.11 Other technologies

Besides of INM, IPM, ICM, IWM, Seed treatment, Soil testing technologies other than these IDM, Dibbling, Zero tillage, De topping has been demonstrated by KVKs Fatehabad, Sirsa of Haryana state in mustard crop under in 40ha area. Dibbling technology used in Andhara Pradesh by KVK Prakasam (Darsi) in groundnut which covered 4ha and in Chitoor (RAAS), Kurnool (Banavasi),

Prakasam (Darsi), Kadapa in Sunflower covered 116 ha, KVK Raigad in Maharashtra covered 20ha area of groundnut, and also in Karur KVK of Tamil Nadu state covered 15ha area in groundnut. Zero tillage used in KVKs Imphal East, Thoubal of Manipur states in mustard crop which covered 60ha and Uttar Pradesh covered 30ha area. Detopping used in Uttar Pradesh state in 42.2ha area.

SUCCESS STORIES

State: Punjab

Groundnut: TG 37A with seed treatment

Name of KVK	: Hoshiarpur
Crop and variety	: Groundnut, variety TG 37A
Farmer's name and address	: Maharaja Ranjit Singh Kandi' Self Help Group, Bhunga block
Details of technology demonstrated	: Recommended seed rate Seed treatment with fungicide M-45 2.5 g/per kg seed of kernel
Farmers feedback	: Low incidence of Tikka or Cercospora leaf-spot
Outcome	: 19.3 q/ha

Performance of technology vis-à-vis local check (increase in productivity and returns)

Variety Demonstrated	Farmers plot				Demonstration plot			
	Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/h)	Net return (Rs/ha)	B:C ratio
TG 37 A	42050	62858.6	20808.6	1.49	46165	75372.5	29207.5	1.63



State: West Bengal

Groundnut: TG 51 with INM and IPM

Name of KVK	: Jalpaiguri
Crop & variety	: Groundnut, variety TG 51
Farmer's name and address	: Shri Dilip Kumar Mandal, Village: Kamarghat, Post: Panbari, Block: Maynaguri, Dist: Jalpaiguri, 735219, West Bengal
Background information	: Shri Dilip Kumar Mandal is an innovative and marginal farmer of Kamarghat village. He is attached with Jalpaiguri KVK & also other line departments from a couple of years. Basically, he is habituate with cucurbitaceous vegetables in trellis and potato, cabbage, cauliflower during winter.
Details of technology demonstrated	: Quality seed along with INM & IPM
Institutional involvement	: After harvesting of potato most of the land remains fallow during summer. To increase the cropping intensity; Jalpaiguri KVK intervened through Cluster Front Line Demonstration Programme on oilseeds specially groundnut. To get success in the CFLD programme, first imparted the handhold training on groundnut crop and then technology demonstrated along with other farmers on cluster basis.
Success point	: Shifting of potato-fallow to potato groundnut cropping system. The introduction of groundnut engaged the fallow land to productive use and granted additional man days of employment to the family member. The family uses groundnut for household consumption while crop use was sold in the market.
Outcome	: Yield obtained 20.4 q/ha with Rs. 68,410/ha, also less infestation of weed in field due to groundnut cultivation. Women family members are also engaged during earthing up, harvesting & drying.

Practice used	Total cost of cultivation (ha)	Gross income (ha)	Net income (ha)	B:C ratio	% Increase
Quality seed along with INM & IPM	35,700	1,04,110	68,410	2.91	19.49



State: Tripura

Groundnut: TG 38 with skipped row technique

Name of KVK	: Dhalai
Crop and variety	: Groundnut, variety TG 38
Farmer's name and address	: Shri Chabi Rani Das, S/o shri Ratan North Kachucherra, Village, Salema R.D Block, Dist Dhalai
Details of technology demonstrated	: Groundnut variety TG-38 was sown in skipped row technique after seed treatment with <i>Trichoderma viride</i> @ 4 g/kg seed or <i>Pseudomonas fluorescense</i> @10 g/kg seed Borax 10 kg+gypsum 200 kg/ha was applied 45 days after sowing.
Institutional Involvement	: Monitoring, training, method demonstration, field visit, field day and input distribution.
Success Point	: Farmers harvested higher yield than local variety resulting in higher income.
Farmers feedback	: Farmers are satisfied with the performance of the variety and are willing to adopt the technology.
Outcome	: Maximum yield is 12.5 q/ha with 90 per cent increase over Control and net return of Rs 15000/ha with BC ratio of 1.3



State: Tripura

Groundnut: TG-38 with seed treatment

Name of KVK	: North Tripura, Panisagar
Crop and variety	: Groundnut Variety, TG38
Farmer's name and address	: Shri Nipendra Shil, S/o Shri Manoranjan Shil, Kaulikura Village, Gournagar Block, Kailashahar Taluq Tripura Unakoti
Details of technology demonstrated	: Line sowing of groundnut variety TG-38 after seed treatment with carbendazim @2g/kg seed. Lime was applied to soil @500kg/kg, later methomyl @1.5g/l. and mancozeb @2g/l was sprayed for insect and disease management.
Institutional involvement	: KVK North Tripura, SARS, A D Nagar, Tripura
Success point	: Higher no. of seed filled kernels harvested.
Farmers feedback	: With lime application, yield increased due to less number of empty nuts.
Outcome	: The maximum yield is 13q/ha with 44 percent increase in comparison to local check.



State: Maharashtra

Groundnut: JL 776 with ICM

Name of KVK	: Pal Taluka-Raver Dist-Jalgaon
Crop and variety	: Groundnut, variety JL 776
Farmer's name and address	: Shri Kishor Bhagwat Warke Village –Pal, Block Raver, Jalgaon, Maharashtra
Details of technology demonstrated	: Integrated crop management of groundnut (including improved variety, nutrient management, water management and plant protection along with weed management)
Farmers feedback	: High germination percentage

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Yield q/ha	Net income (Rs)	B:C ratio
Demo	11.40	28520	1.9
Check	7.25	15650	1.3
% increase	57.24	82.23	46.15



Groundnut: Western 55 with STCR based nutrient management

Name of KVK	: Pune-II
Crop & variety	: Groundnut, Variety Western 56
Farmer's name and address	: Shri. Vikas Chandrakant Doke A/P- Mahalunge Padwal. Tehsil-Ambegaon, District-Pune
Background information	: During summer season, groundnut yields are usually low farmer neither treat their groundnut seeds before sowing nor apply fertilizer on soil test basis.
Details of technology demonstrated	: Groundnut variety western 56 was sown after seed treatment, soil test based fertilizer application and IPM practices.
Institutional involvement	: Training programme was organized and frequent monitoring visits were also made to diagnose need based problems. Field day was organized.
Success point	: Germination percentage increased, reduced cost of fertilizer, more number of pods per plant with increase in yield.
Outcome	: With KVK guidance, farmers obtained yield of 32 q/ha. With an increase of 23% against the farmer's yield. Reduced cost of fertilizer application and cost of cultivation.

Practice used	Total cost of cultivation	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Variety-Western 55, Soil test based fertilizer application, IPM Practices	48800	112200	63400	2.30	23



State: Andhra Pradesh

Groundnut: K-6 with IPM

Name of KVK	: Venkataramannagudem
Crop & variety	: Groundnut, variety K-6
Farmer's name and address	: Shri Aalapati Nageswarao, s/o Subbarao, Gantavarigudem (V) Dubacherla (M), W.G.Dist
Background information	: Shri Alapati Nageswarao cultivated groundnut variety TAG 24 which was a poor yielder.
Details of technology demonstrated	: Introduction of high yielding improved variety K-6 with good management practices in W.G. District.
Institutional Involvement	: Method demonstration on seed treatment with Imidacloprid @ 2 ml / kg & Mancozeb @ 3g/kg seed Need based training programme on improved cultivation & pest and disease management practices to be followed Timely monitoring was done and diagnostic visits were conducted along with line department officials and ATMA
Success point	: Higher yield obtained with K-6 variety (42.5 q/ha) against existing variety (30q/ha). Improved variety along with recommended package of practices increased the yields with cost benefit ratio of 6.88.
Outcome	: Farmers convinced with the variety and implementation of improved package of practices especially maintaining optimum plant population and irrigation management.

Practice used	Total cost of cultivation (Rs)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Package Demonstration	39500	170000	130500	4.3	41.66



State: Telangana

Groundnut: K-6 with ICP

Name of KVK	: Malyal
Crop & variety	: Groundnut, variety K 6
Farmer's name and address	: Shri Ajmeera Venkanna, S/o. Shri Lingya, Village: Parvatagiri, Parvatagiri thanda, Mandal District: Mahabubabad, Pin Code: 506101, Telangana State.
Background information	: Shri Ajmeera was harvesting low yield of groundnut due to shrunken pods and seeds filled for the last 3 years
Details of technology demonstrated	: Maximization of yields in Groundnut with improved package of practices.
Institutional involvement	: Conducted training, field visits and organized field day, applied improved package of practices like Seed treatment (rhizobium, tebuconazole and chlorpyrifos), Gypsum application @200 kg/acre at 1 st flowering, fertilizer, irrigation and pest management (emmamectin benzoate @ 0.5g/l).
Success point	: Maximized yields and quality improved with improved package of practices
Outcome	: Realized good yield (26.9q/ha) comparing to previous yields (18-20q/ha), shrunken pods reduced compared to previous years and pod filling increased

Practice used	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Package Demonstration	35800	143047	107247	3.99	22.2



State: Gujarat

Groundnut: TG 37A with ICM

Name of KVK	: Kutch-I
Crop and variety	: Groundnut, Variety TG 37A
Farmer's name and address	: Shri Ladharam Hirji Bhavani, Village: Nani Virani, Tehsil: Mandvi Kutch
Details of technology demonstrated	: Improved variety with ICM
Institutional involvement	: Introduction and assessment of new high yielding groundnut variety TG 37A with existing variety i.e. GG 20 in Kharif season.
Success point	: TG 37A variety is higher yielding with net return of Rs. 72,520 / ha. and BC ratio 1.95 over existing variety.
Farmers feedback	: Vegetative growth of TG 37 during kharif is good compared to summer season. Compared to local check GG-20 variety there was 10 to 15 percent higher pod setting in TG-37A with 3 seeded pod in higher number. The Shelling percent is higher by 70 percent, early maturity 108 days.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Existing Yield (q/ha)	Demo. Yield (q/ha)	Farmer's Existing Plot				Demonstration Plot			
		Gross cost (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs/h.)	Net return (Rs/ha)	B:C ratio
23.60	30.60	74,600	1,34,000 (Including Fodder Income)	59,400	1.80	76,200	1,48,720 (Including Fodder Income)	72,520	1.95



State: Chhattishgarh

Groundnut: IWM

Name of KVK	: Surguja
Crop and variety	: Groundnut, Variety K-6
Farmer's name and address	: Shri Munik Das, Village –Pahadgaon, District –Surguja
Background information	: In Surguja district under Northern hills zone of Chhattisgarh, most of the soils are sandy to sandy loam where farmers grow maize, blackgram and minor millets etc. which do not fetch economic yield. KVK introduced scientific production of groundnut that gave higher yield and income. Groundnut has shown very good potential under the Agro-climatic condition of Surguja.
Details of technology demonstrated	: Improved variety (K-6), integrated nutrient management (20:50:20 NPK kg/ha+ Sulphur 20 kg/ha), weed control (<i>imazthapyr</i> @ 250 g ai/ha) and plant protection (Seed treatment with carbendazim+mancozeb and soil treatment with <i>Trichoderma</i> @ 10 kg/ha) resulted in higher yield.
Institutional involvement	: KVK imparted training to the farmers under cluster demonstration programme to convince them to replace their traditional crops of maize, blackgram and minor millets etc. with groundnut The improved technology demonstrated obtained maximum (8.4 q/acre) yield 21.0 q/ha Farmers found higher yield with K-6 even under adverse climatic condition (early and mid season dry spells). Shri Munik Das earned net profit (Rs. 23360/-acre) i.e. Rs. 58400/- ha. The neighbouring farmers also demanded for the seed of Groundnut (K6). Booked more than 70 percent seed in advance.
Success Point	: Improved variety K-6 performed well even under adverse condition. Seed treatment with carbendazim+mancozeb and soil treatment with <i>Trichoderma</i> @ 10 kg/ha) resulted in good germination and plant stand. Integrated nutrient management (20:50:20 NPK kg/ha+ Sulphur 20 kg/ha) and weed management promoted good crop growth and higher yield of K-6.

Technology	Total cost of cultivation	Gross income (R/ha)	Net income (R/ha)	B:C ratio	% increase
Improved variety K-6 performed well even under adverse condition.	22600	81000	58400	3.58	123



State: Odisha

Groundnut: Line sowing and weed management

Name of KVK	: KVK Mayurbhanj-1
Crop and variety	Groundnut, Variety TG-38
Farmers Name & Address	: Shri Bibekananda Behera, AT-Kanakpada, GP- Bahubandh, Block-Udala, Dist- Mayurbhanj, Odisha
Background Information	: Shri Bibekananda is higher secondary passed and has a cultivated area - 2 acres out of 25 acres of Cashew orchard in a group of 16 farmers (Intercropping groundnut in Rabi season, Fallow in Kharif season) along with 2 acres of land for rice in Kharif and fallow in Rabi, net income- Rs. 50,000/annum
Details of technology demonstrated	: Introduction of groundnut variety TG 38 in Kharif, line sowing with seed cum fertilizer drill, application of pendimethalin @ 5 ml/l at 2-3 DAS to control weeds, seed treatment with carbendazim + MZ @ 2 ml/lit, application of Zypmite at 30 DAS during inter culture operations.
Institutional involvement	: Bullock drawn seed cum fertilizer drill by linking AICRP on UAE, CAET, Bhubaneswar with improved method of groundnut cultivation while for shri behera was link with Department of Agriculture, Govt. of Odisha Field day was organized for sharing of experience.
Success Point	: Bringing the fallow land in kharif under groundnut cultivation, the land was utilized and Shri B. Bibekananda earned net income upto Rs. 90,000/annum By adopting improved method of groundnut cultivation yield increased upto 20.8 q/ha against average maximum yield of 17.55 q/ha by mechanization (line sowing) reduces labour requirement and cost of cultivation upto 30 percent.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Line sowing, Seed treatment with Carbendazim + MZ, Application of Zypmite	33700	66560	32860	1.98	39.47



State: Karnataka

Groundnut: Seed treatment with trichoderma, rhizobium and micro-nutrients

Name of KVK	Kalaburgi- II
Crop and variety	: Groundnut, variety K 9
Farmer's name and address	: Smt Babubai w/o shri Situnayak
Details of technology demonstrated	: ICM practices (improved seed, seed treatment, IPM and use of micro nutrients)
Success point	: Increased yield & fodder availaibility
Farmers feedback	: K-9 with high bunching vigour and high yield over traditional variety was encouranging. Dark green foliage served as good fodder. Availability of seed helped in wider adoption ICM resulted in good crop growth with less weeds, Bud necrosis and leaf spot was managed well in time. Returns were also higher as compared to local variety. Seeds are bold along with brownish in colour.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Yield obtained (q/ha)		Gross Cost (Rs/ ha)	Gross return (Rs/ ha)	Net Return (Rs/ha)	B:C ratio
Demo	23.00	28753	124800	96047	4.34
Check	14.50	30365	82371	52005	2.71
% increase				84.68	



State: Tamil Nadu

Groundnut: Pheromone traps for pod borer management

Name of KVK	: Villupuram
Crop and variety	: Groundnut variety TMV (Gn) 13
Name and address of farmer	: Shri K. Duraiwamy, Thottapadi
Details of technology demonstrated	: Improved variety Application of bio-fertilizers (<i>Rhizobium</i> & Phosphobacteria) and bio-agent (<i>Trichoderma viridae</i>), Use of Pheromone traps for pod borer (<i>Spodolure</i>)
Institutional involvement	: On campus training was imparted to Cluster FLD farmers on seed treatment with bio-fertilizers, <i>Trichoderma viride</i> and use pheromone traps for management of defoliators. Demonstrations were conducted to farmers on the seed treatment and install pheromone traps in their fields.
Success point	: Transfer of newer technology in cluster mode is fast and easier spreading it. Performance of the variety was so encouraging that there was a growing demand for more seeds of TMV (Gn) 13 in the village. Effectiveness of pheromone traps against defoliators was convincing farmers technology.
Farmers feed back	: Farmers were convinced with the importance of seed treatment with biofertilizers (<i>Rhizobium</i> and Phosphobacteria and bio agent <i>Trichoderma viride</i> along with improved variety TMV (Gn) 13.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Yield obtained (q/ha)		Gross Cost (Rs/ ha)	Gross return (Rs/ ha)	Net Return (Rs/ha)	B:C ratio
Demo	33.5	58140	234500	176360	4.03
Check	23.25	54204	160440	106236	2.96
% increase				66.00	



State: Gujarat

Groundnut: Seed treatment and crop management

Name of KVK	: Sabarkantha
Crop & variety	: Groundnut, variety GG 20
Farmers name & address	: Shri Patel Nareshbhai Punjabhai, Post - Morad, Tehsil - Vadali, District - Sabarkantha, Gujarat
Detail of technology demonstrated	: Seed variety GG 20, <i>Trichoderma harzianum</i> , Rhizobium+PSB culture liquid, method and time of seed treatment and rectification of micronutrient deficiency.
Institutional involvement	: KVK demonstrated groundnut variety GG 20 (40) kg along bio-agent <i>Trichoderma</i> -1kg 500 ml liquid bio-fertilizers and treatment, rectification of deficiency of micronutrient, timely weed management by post emergence weedicide i.e. Imazethapyr was demonstrated.
Success point	: Increased productivity up to 22.22 percent.
Outcome	: Yield 27.5 q/ha, selling rate Rs. 4200/-against the yield of local check 22.5 q/ha. Increase in yield 22.22 percent by adopting improved technology & information.



State: Karnataka

Groundnut: GPBD 4 with production technology

Name of KVK	: ICAR- KVK, Vijayapura
Crop & variety	: Groundnut, variety GPBD 4
Farmers name & address	: Shri Shivalingappa Sadashiv Basagi Hirebevanoor village, Indi taluk, Vijayapura district
Background information	: Lack of high yielding groundnut variety in during summer. GPBD 4 is a high yielding variety and resistant to foliar diseases.
Detail of technology demonstrated	: Variety along with production technologies
Institutional involvement	: Implementation of CFLDs, Group meetings, trainings organized, field visits during survey of pest incidence, production and supply of bio insecticides, Guidance on need based use of insecticides
Success point	: Groundnut variety GPBD 4 gave 12 percent more yield over farmer variety with resistance to foliar disease.
Outcome	: Demonstration gave an increase of 113.33 percent yield (32q/ha) as against check (15.00 q/ha). Further, farmers opined that there was saving of cost in disease management as the variety is foliar disease resistant and application of micronutrients boosted pod filling.

Demo			Net income		
Gross cost (Rs/ha)	Gross income (Rs/ha)	BCR	Demo (Rs/ha)	Check (Rs/ha)	Increase (%)
37564	153600	4.08	116036	47650	143.52



State: Tamil Nadu

Groundnut: Seed treatment with bio-fertilizers and balanced fertilizers

Name of KVK	: ICAR- KVK, Cuddalore
Crop & variety	: Groundnut, variety VRI-8
Farmers name & address	: Shri V.K. Kumaraguru, S/o. Shri Kaliyaperumal, village-Karuppanchavadi, post Krishnankuppam, block - Kurinjipadi, District-Cuddalore
Background information	: Lack of awareness on high yielding varieties and production technologies.
Details of technology demonstrated	: Seed treatment with bio-fertilizers (Rhizobium, Phosphobacteria) and <i>Trichoderma viride</i> . Sowing by seed drill, application of groundnut rich, gypsum, balanced fertilizers and post emergence herbicides.
Institutional involvement	: Implementation of CFLDs in clusters, conducting series of method demonstrations like seed treatment, spraying of groundnut rich, timely monitoring observations and technical guidance on production technologies, Linkage with line departments.
Success point	: The average rainfall of Kurinjipadi block is 650 mm during north east monsoon but the rainfall during the year 2016-17 was just 246 mm (deficit by 404 mm) and it lowered groundnut yield 20-30 percent in kurunijipadi block. Despite of this shortage of rainfall Shri Kurmaraguru harvested groundnut 48.80 q/ha due to the crop variety and technological intervention.
Outcome	: Demonstration gave an increase of 99.18 percent yield (48.80 q/ha) against check (24.50 q/ha). Farmer shared that the demonstrated variety produced 70-80 pods per plant due to crop variety and management practices suggested.

Demo			Net income		
Gross cost(Rs.)	Gross income (Rs/ha)	BCR	Demo (Rs/ha)	Check (Rs/ha)	Increase (%)
130900	335644	2.56	204744	130000	57.49



Groundnut: Soil application of Trichoderma and ICM

Name of KVK	: ICAR- KVK, Thiruvannamalai
Crop & variety	: Groundnut and TMV 13
Farmers name & address	: Shri S. Periyaswamy, S/o. Singaravel Village- Nammiyandhal, Block-Kizhpenathur, District- Thiruvannamalai
Background information	: Lack of awareness about high yielding varieties and production technologies of groundnut.
Details of technology demonstrated	: Integrated crop management (ICM) Gypsum application Seed treatment and soil application of <i>Trichoderma</i> Foliar application of micro-nutrient mixture, groundnut rich, PPFM, and Difenconazole use of groundnut stripper
Institutional involvement	: Implementation of CFLDs with technical guidance, ICM package and critical inputs. Monitoring and observations Linkage with other institutions
Success point	: Supply of critical inputs at right time and timely technical backup during the crop period
Outcome	: TMV-13 performed better under irrigated condition with an increase of 25.49 percent yield (26.98 q/ha) against local check (21.50 q/ha) TMV-13 has slightly higher oil content than other varieties, therefore fetched better price. When sold for seed purpose Shri S. Periyaswamy earned more as it fetched even higher price.

Demo			Net income		
Gross cost (Rs.)	Gross income (Rs/ha)	BCR	Demo (Rs/ha)	Check (Rs/ha)	Increase (%)
51192	147875	2.89	96683	63838	51.45



State: Maharashtra

Groundnut: Nutrient management and plant protection

Name of KVK	: Krishi Vigyan Kendra, Pokharni Nanded
Crop & variety	: Summer Groundnut, JL 776 (Phule Bharti)
Farmers Name & Address	: Shri. Sunil Shinde, Villegge-Vasantwadi, Post-Rohi Pimpalgaon, Tehsil-Mudkhed, District- Nanded, Maharashtra.
Background information	: The selected farmer Shri. Sunil Shinde, 37 years old had 2.5 ha land in kharif, cultivates soybean, black gram, green gram, red gram and in rabi season chickpea and wheat and in summer season Summer groundnut.
Details of technology demonstrated	: KVK conducted the demonstration with improved variety JL-776 (Phule Bharti) and package seed treatment, PSB + Rhizobium 500ml + Trichoderma 100 gm for seed treatment. Nutrient Management: Soil application of fertilizer DAP@50kg+ 10kg sulphur as per soil test base at the time of sowing+ use of vermi-compost 100 kg/acre and two spraying with Dashparni Ark@100 ml/10 liter water and 10 ton of FYM applied at the time of soil preparation. Plant Protection:- Foliar application of mancozeb 50 ml+ 100gm 19:19:19 water soluble fertilizer at 35 DAS only one spraying is given on the this crop. Irrigation-6 Irrigations were given through drip irrigation at different stages of crop. i.e. branching stage, peg formation, pod development stage, respectively.
Institutional involvement	: KVK planned the 30 demonstrations with improved variety JL-776 against TAG-24 existing variety, conducted farmer training programme, field day, field school, diagnostic field visits at different growth stages of the crop by the KVK scientists.
Success point	: Yield level was increased by 58.33% over farmer cultivation practice due to use of variety JL-776 with whole package of practice.
Outcome	: Obtained yield 30q/ha with grower got gross return up to Rs. 48000/- in one acre area with B: C ratio of 1:4.22.

Practice used	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Package demonstration	11350	48000	36650	4.22	58.33



State: Tamil Nadu

Groundnut: ICMP with improved variety Kadiri (Gn) 9

Name of KVK	: ICAR- KVK, Thoothukudi
Crop & variety	: Groundnut variety Kadiri (Gn) 9
Farmers name & address	: Shri A. Subbiah, S/o Mr. Arumugam, village-Akkanayakanpatti, Block-Ottapidaram, District-Thoothukudi
Background information	: Lack of awareness about high yielding varieties and improved production technology of groundnut.
Detail of technology demonstrated	: ICMP with variety Kadiri (Gn) 9 (year of release 2009) Seed treatment - <i>Pseudomonas fluorescens</i> @ 10 g/kg seed Fertilizer application – NPK: 30:60:90 kg/ha, gypsum application 400 kg/ha, micronutrient mixture 12.5 kg/ha, groundnut rich spray 5 kg/ha Application of Pendimethalin @2.5 l/ha at 3 DAS Quizolofop ethyl @ 50g ai/ha and Imazethepyr @ 50g ai/ha application at 15-20 DAS
Institutional involvement	: Implementation of CFLDs with critical inputs, timely technical guidance, monitoring and observations Linkage with other institutions
Success point	: Provision of critical inputs timely with technical guidance during the crop period
Outcome	: Demonstration resulted in an increase of 34.86 percent yield (23.60 q/ha) against the local check (17.50 q/ha) Farmer opined that demonstrated variety has bold seeds, less pest and disease incidence, drought tolerant, best suited for existing farming situation and gave high yield and income.

Demo			Net income		
Gross cost (Rs.)	Gross income (Rs/ha)	BCR	Demo (Rs/ha)	Check (Rs/ha)	Increase (%)
42685	99205	2.32	56520	31600	78.86



State: Maharashtra

Soybean: Seed treatment with Bio-fertilizer

Name of KVK	: Jalgaon Jamod, District-Buldana
Crop and variety	: Soybean, Phule Agrani, Check:JS 335
Name and address of farmer	: Shri Arun Tukaram Khirodkar, At/Po-Jalgaon Jamod Tq-Jalgaon Jamod, District- Buldana
Details of technology demonstrated	: Seeds of variety Phule Agrani, seed treatments with Biofertilizer (Rhizobium- 250ml, PSB-250 ml and <i>Trichoderma</i> -150g), Fertilizer (30:75:30) NP kg/ha at the time of sowing, sowing method BBF
Farmers feedback	: Germination percentage is good, vegetative growth of Phule Agrani is more than JS 335 though it matures 15 days after JS 335. Grain size is smaller than JS 335 but higher yields. Irrigation is given with reduced seed rate. However, incidence of Stem fly is more but gave more biological yield.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology demonstrated	Yield (q/ha)	Net income (Rs/ha)	B:C ratio
Demo	25.30	40430	2.26
Check	23.24	34124	2.07
% increase	8.86	18.48	



State: Maharashtra

Soybean: MAUS 158

Name of KVK	: Hingoli
Crop and variety	Soybean, MAUS 158 Check: JS 9305
Name and address	: Smt. Archanabai Aabasaheb Kadam At. Waranga Tq. Kalamnuri District-Hingoli-431701
Details of technology demonstrated	1. Soil test based nutrition management 2. Seed treatment with Bio agent (<i>Trichoderma</i>) and biofertilisers (<i>Rhizobium</i> and PSB) 3. Sulphur application 10 kg/ha 4. New variety MAUS 158
Farmers feedback	: MAUS 158 is tolerant to stem fly and bacterial diseases, non shattering with a mean of 75-85 pods per plant. ICM technology reduces the cost of cultivation up to 25-30 percent MAUS 158 tolerant to water logging and gives higher yield than JS 335 and JS 9305

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Yield (q/ha)	Net income (Rs/ha)	B:C ratio
Demo	27.50	47650	2.54
Check	21.30	30849	1.02
% increase	29.10	54.46	--



State: Maharashtra

Soybean: ICM and dibbling on ridge - furrow

Name of KVK	: Baramati
Crop and variety	: Soybean, KDS 344 (Phule Agrani)
Name and address of farmer	: Shri. Santosh Bhalchandra Gaikwad : Ap-Malegaon Tal-Baramati : Dis- Pune Mob:-9763360576
Details of technology demonstrated	: ICM and dibbling of soybean on ridge and furrow 45 x 5 cm 1) Extra labour required for sowing but easy for intercultural operations. 2) During heavy rains crop unaffected to proper drainage

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Yield (q/ha)	Net income (Rs/ha)	B:C ratio
Demo	30.00	51500	2.33
Check	24.4	41275	1.24
% increase	18.66	24.77	



State: Maharashtra

Soybean: ICM, pheromone trap

Name of KVK	: Nandurbar
Crop and variety	: Soybean, variety-Phule Agrani, Check- JS 335
Name and address of farmer	: Shri Shashikant Chunilal Patil At- Post-Mhasavad, Tahsil-shahada, District-Nandubar
Details of technology demonstrated	: Integrated crop management : Seed treatment with Biofertilizer- (Rhizobium and PSB @25g/ kg of seed), 1 st spraying of 5% neem seed kernal extract (10 kg/ acre), pheromone trap+lure (2/acre), post emergence herbicide Inazethapyr (Pursuit)at 25 DAS, Zinc sulphate (ZnSO4) application @10 kg/acre, Indoxacarb (200ml/acre).
Farmers feedback	: Seed treatment with bio-fertilizers was effective as there was better germination and plant growth than the farmer practice. Integrated Crop management package found effective for increasing the yield (33.81 %), incidence of pest is less

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Yield q/ha	Net income (Rs/ha)	B:C ratio
Demo	19.23	41182	4.51
Check	12.77	24442	3.28
% increase	33.59	40.64	27.27



State: Rajasthan

Soybean: ICM with seed treatment

Name of KVK	: Jhalawar
Crop and variety	: Soybean variety JS 9560
Name and address of farmer	: Shri Tarun Kumar S/o Shri Prakash, village Chachlao, PS Sunel, District, Jhalawar
Details of technology demonstrated	: Variety: - JS 9560, @ 80 kg seed/ha, Seed treatment with Bavistin and thiram 1:1 @ 2g/kg seed Seed inoculated with 500ml/ 80 kg seed, Rhizobium culture + Phosphorus Solubilizing Bacteria 500 ml/80 kg seed. : Disease management:- 1. Yellow Mosaic: Dimethoate 30 EC 1 lit. /ha Weed Management: - Spray of Sodium Acefluorfen 16.5 % + Clodinofofpropargyl 8% EC (Ready Mixed product) @ 1000 ml/ ha at 20-25 DAS. Fertilizer management:- 20 kg/ha N, 40 kg/ha P, 20 kg/ha K and 20 kg/ha sulphur.
Institutional involvement	: Imparted training before implementation of FLD, followed by regular field telephonic consultancy as per requirement, improved technology demonstration, extension activities, etc.
Success Point	: No or less weed infestation, timely insect pest management, higher yield
Farmers feedback	: Good germination due to seed treatment, weed control by herbicide resulted in labour saving, better growth and development of plant, higher yield and income.
Outcome	: 13.36q/ha

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio
Demo	32890	55212	22322	1.68
Check	31256	45528	14272	1.46
% increase			56	



State: Madhya Pradesh

Soybean: Seed treatment and sowing method

Name of KVK	: Ujjain
Crop and variety	: Soybean variety JS 9560
Farmers name & address	: Shri Kailash Chandra Panchal, Village & Panchyat- Nahriya; Block-Ujjain; Dist- Ujjain
Background information	: Soybean is the major kharif crop in the district and covers area 4.53 lakh hactares out of 4.89 lakh ha with average productivity of 14.2 q/ ha. Shri kailash is about 47 year old from village Nahariya educated up to 5th standard and has 5.85 ha land. The main source of income earning is from farming. Shri kailash harvested just 16-18q/ha.
Detail of technology demonstrated	: JS 95-60 @30 kg per acre+Seed treatment with fungicide (Thiram + Carbendazim) @2 g/kg seed + seed inoculation with Rizobium culture @5ml/kg seed and PSB culture @5ml/kg seed + sowing method adopted: FIRB.
Institutional involvement	: Extension serve lead to selection of farmer and village for demonstration in May-June 2016. KVK scientists interacted with farmer and explained the detail of the programme and process be followed in convergence mod with Department of Agriculture Engineering, Ujjain for implement required for FIRB.
Success Point	: Sowing of soybean in FIRB solved the problem of water stagnation and reduced plant mortality. Cost of cultivation reduced drastically due to FIRB technology and application of various components of IPM.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total cost of cultivation(Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Farmer’s Practice	14520	58464	43944	4.03	-
Recommended practice	16520	69600	53080	4.21	19.04



State: Madhya Pradesh

Soybean: Ridge furrow sowing method

Name of KVK	: Rajgarh
Crop and variety	: Soybean variety JS 335
Farmers name & address	: Shri Ram Chandra Kushwah S/o Shri Heera Lal Kushwah, Village & Post - Sandavata, Block Sarangpur, Distt. Rajgarh (M.P.)
Background information	: Village sandvata is located 55 km from KVK. Farmers in the village are innovative and adopted latest production technology following cropping pattern in the village, soybean-wheat/gram/lentil, soybean-mandarin-wheat/kalongi/fram/lentil.
Details of technology demonstrated	: Submergence and water stagnation lead to reduction in soybean crop in the past 3 successive years. KVK conducted 75 FLD to demonstrate ridge-furrow method for soybean.
Institutional involvement	: Apart from KVK, there use 3 Agricultural Extension Workers from Dept. of agriculture and ATMA besides a NGO, in the village. Linkages with Dept. of Agriculture, ATMA & NGO
Success Point	: The old soybean variety JS - 335 was replaced with JS 95-60, Seed was treated with fungicides and fertilizer before sowing in Ridge-furrow system. Good plant stand, better plant growth and timely plant protection resulted in higher yield (22 q/ha). The crop over comes the long dry during growth and maturity stage while excess rain during sowing and germination stage.

Outcome

Technology	Total cost of cultivation(Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Ridge & furrow	25300	62412	37112	2.46	11.57



Soybean: Seed treatment (fungicide and bio-fertilizer) and micronutrient supplementation

Name of KVK	: Khandwa
Crop & variety	: Soybean variety JS 95-60
Farmer's name & address	: Smt. Nathi bai w/o Shri Omkar
Detail of technology demonstrated	: Certified seed of soybean, Seed treatment with fungicide and bio-fertilizer, micronutrient supplementation, weedicide (pre-emergence) application
Institutional involvement	: Soybean certified seed (JS 95-60) @30 kg/acre treated with Vitavax - 100 g, Trichoderma - 150g and bio-culture NPK mix - 500 ml, Zinc sulphate - 10 kg, Neem seed cake - 6 kg, Pre emergence weedicide (Dichlosulum) - 12 g
Success point	: Short duration variety and seed treatment field in good stand, while pre emergence weedicide kept free weed, foliar application of NPK and basal dose of Znso4 resulted in higher yield.
Important parameters	: Seeds/pod, pods/plants, water saving, nutrient saving, labour saving, energy saving, etc.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Demo	20550	49500	28950	2.41	30
Local check	19000	41250	22250	2.17	-



State: Karnataka

Soybean: JS 93-05 with ICM

Name of KVK	: Belgaum - I
Crop and variety	: Soybean variety JS 93-05
Name and address of farmer	: Shri Sanjay Mallanna Tanodi Nidasoshiwadi, Post Nidasoshi, Hukkeri taluk, Belagavi district, Karnataka
Details of technology demonstrated	: Variety JS 93-05, ICM practices with insect-pest management by Lambda-cyhalothrin neem pesticide, rust management with penconazole and hexaconazole and moisture stress management with KNO ₃ .
Success point	: ICP and IPM helped better crop stand as well as lesser foliage feeders along with moisture stress management resulted in yield increase by 24.18 percent in demonstration (i.e. 4.7 q/ha increase in demo). Foliage feeder incidence was 9 percent in the demonstration as compared to 31 percent in check plot. Similarly rust disease incidence was 12.1 percent in demontraion, while 26 percent in local check.
Farmers feedback	: Variety JS 93-05 matured 5-7 days earlier than JS 335, so helps to take up rabi sowing early, demonstration field was least affected with foliage feeders

Performance of technology vis-à-vias local check (increase in productivity and returns)

Yield obtained (q/ha)		Gross Cost (Rs/ ha)	Gross return (Rs/ ha)	Net Return (Rs/ha)	B:C ratio	Gross cost (Rs/ ha)	Gross return (Rs/ ha)	Net return (Rs/ha)	B:C ratio	increase (%)
Check	Demo	Check				Demo				
15.30	19.00	15677	48195	32518	3.07	20550	60800	40250	2.96	23.77



State: Karnataka

Sunflower: KBSH-44 with ICM

Name of KVK	: Kalaburgi – II
Crop and variety	: Sunflower, variety KBSH 44
Name and address of farmer	: Shri Sidramappa Veerbhadrappa
Details of technology demonstrated	: ICM practices (Improved seeds, Seed treatment and micronutrient application)
Success point	: Increased yield
Farmers feedback	: Powdery mildew disease was less High yielder with black bold seed fetched higher market price

Performance of technology vis-à-vis local check (increase in productivity and returns)

Yield obtained (q/ha)		Gross Cost (Rs/ ha)	Gross return (Rs/ ha)	Net return (Rs/ha)	B:C ratio	Gross Cost (Rs/ ha)	Gross return (Rs/ ha)	Net return (Rs/ha)	B:C ratio	increase (%)
Check	Demo	Check				Demo				
15	18	19664	45981	26317	2.3	18954	53513	34559	2.8	31.31



State: Punjab

Sunflower: PSH 19-62

Name of KVK	: Jalandhar
Crop & variety	: Sunflower, variety PSH 19-62
Farmers name & address	: S. Jaswinder Singh
Details of technology demonstrated	: Improved variety PSH 19-62, seed treated with carbendazim @ 3 g per kg seed, application of Nuvan 80 SL @ 200 ml/acre for control of tobacco caterpillar at flowering stage, spray of Dithane M-45 for control of the head rot disease crop @ 250 g in 100 litres of water per acre at 15 days interval from 60 days old crop.
Institutional involvement	: Regular monitoring of the CFLD plots and imparted advice for timely control of <i>Spodoptera litura</i> and head rot disease
Success point	: Yield increased 12.35 percent as compared to other varieties of private company Low incidence of insect-pest and disease due to timely spray of recommended chemicals
Outcome	: Maximum yield obtained 22.3q/ha. with net profit of Rs. 11260/- from per acre

Practice used	Total cost of cultivation(Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Package demonstration	Rs. 11880	Rs. 23140	Rs. 11260	0.95	12.35



State: Bihar

Sunflower: PAC 8699 with ICM

Name of KVK	: Sabour, Bhagalpur
Crop & variety	: Sunflower, Variety- PAC 8699
Farmers name & address	: Md. Irfan, Vilege-Mahdatpur, Block-Navgauchhiya, District- Bhagalpur
Background information	: The soil texture was clay loam at 25°23.649'N latitude and 087°02.512'E longitude at an elevation of 15.7 metre above mean sea level. In this area Sunflower crop was sown in the second week of January, after reced of long time stagnant flood water of tall land. The seed rate of 5.0 kg/ha at 60X30 cm spacing used.
Details of technology demonstrated	: PAC 86-99 + with weed control, IPM & INM
Institutional involvement	: Provide technical information during training and field visit. KVK also provided some critical inputs like <i>Trichoderma viridi</i> @ 5 g/kg seed for seed treatment, Dichlorovas @ 1.0 l/ha for the control of bihar hairy caterpillar pest and pendimethalin (30%) @ 3.33 l/ha for weed management.
Success point	: In the month of January where there was no option for taking crop in rabi. The Sunflower was only one crop who gave bumper yield with good economic return.
Outcome	: Sowing of sunflower after rabi season and before Summer produced 25.4 q/ha with the intervention of improved production technology.

Technology	Total cost of cultivation(Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Package demonstration	32490	71120	38630	2.19	29.9



State: Andhra Pradesh

Sunflower: KBSH-44 with soil test based nutrient management

Name of KVK	: RASS
Crop & variety	: Sunflower, variety KBSH 44
Farmers name & address	: Shri S. Hemadri ,S/o Shri Narasappa Naidu, Amaramkandriga village Puttur mandal, Chittoor district
Background information	: Sunflower is one of the major oilseed crop during rabi season in Amaramkandriga village of Puttur mandal grown in area. Farmers in the village grow hybrids of sunflower sold by promote companies which are comparatively low yield 15-18q/ha. Under CFLD programme, short duration (95 days) hybrid KBSH-44 developed by GKVK Bangalore was provided.
Details of technology demonstrated	: Cluster Front Line demonstrations were conducted in Amaramkandriga, Marati Gate and Nandimangalam villages of Puttur mandal during rabi 2016-17 season. Inputs KBSH44 seed, PSB, pendimethalin, neem oil and born was supplied to farmer under CFLDs in sunflower. The crop was sown on 05.01.2016 by dibbling method on the ridges at seed rate of 5 kg per ha. Pendimethalin, (pre emergence herbicide) @ 2.5 l per ha was sprayed 2 DAS weeds up to 25 DAS. Before conducting the demonstration soil sample was collected and tested in KVK lab.
Institutional involvement	: KVK conducted pre season training on production technology of sunflower among selected farmers in the villages. KVK also involved officers from Dept. of Agriculture and scientists of RARS.
Success point	: Leading aware about the programme, use of fertilizer application on STCR basis, monitoring and guidance throughout the crop season was the basis for success.
Outcome	: An average yield of 26.25 q per ha was achieved by the farmer in the demonstration (KBSH 44) whereas it was only 19.75 q per ha in the farmers practice (Sunbred 275). There was 33 percent yield increase in the demonstration when compared to farmers practice.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Sungold	40088	52765	12678	1.32	-
KBSH 44	41708	69998	21000	1.68	123%



State: Odisha

Sunflower: MSFH with IPM

Name of KVK	: Puri
Crop & Variety	: Sunflower variety MSFH 17
Farmers name & address	: Sri Laxmidhara Swain At-Sundara, Post-Kusumvara, District- Puri, State-Odisha
Background information	: Sunflower is a photo insensitive crop. Due to favourable climatic condition and suitable soil type, sunflower is widely grown by the farmers of Astaranga block. Shri Laxmidhara Swain residing in village Sundara of Astaranga Block has 4 acres of land, out of which sunflower occupies in 3 acres land. Heavy pest infestation and high cost of cultivation were the pressing problem of sunflower grower.
Details of technology demonstrated	: KVK for seed treatment with carbendazim (1g) + Thiram (1.5g) or Vitavax power @1.5 g/kg of seed just before sowing of sunflower variety MSFH-17.
Institutional involvement	: Farmer’s scientist interaction, group discussion, field visit and, integrated pest and disease management.
Success point	: Shri Laxmidhara earlier could harvest only 8.3q/ha against the present harvest of 14.6g/ha due to seed treatment and pest management.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Recommended practice	28200	50750	22550	1.79	71.10
Farmer practice	26400	39550	13150	1.49	



Sunflower: Line sowing of MSFH-17

Name of KVK	: Kendrapara
Crop & Variety	: Sunflower, variety MSFH 17
Farmers name & address	: Shri Niranjana Behera S/o- Shri Khetrabasi Behera At-Ranki, GP-Kansar Kansar Badadandua, Block-Mahakalapada, District-Kendrapara
Background information	: Ranki, is a small village of Kansar Badadandua Panchayat of Mahakalapada block dominated by marginal and small farmers with no irrigation and poor drainage as well as soil salinity. Farmers fail to utilize their land and resources both in kharif and rabi. Shri Niranjana Behera, 47 year's old progressive farmer of this village has 6.5 acres of cultivated land and 1 acres pond excluding 0.5 acre of homestead land. Out of his 8 acre land, 2.5 acres saline affected. The returns from salt affected land is low where he was growing pulse (Greengram) and oilseed (Sunflower).
Details of technology demonstrated	: Sunflower Hybrid variety (MSFH 17)+Line sowing(60x30 cm), soil amendment through application of neem cake @ 2q/ha, recommended seed rate 5 kg/ha, inoculation of Azotobacter, Azospirillum & PSB @ 3kg each mixed with 25 Kg FYM/ha and seed treatment with Bavistin @ 2gm/kg, need based plant protection measure and soil test based fertilizer application.
Institutional involvement	: Ranki area was salt affected and the farmers grow rice in Kharif, sunflower and green gram with low productivity in Rabi. KVK interacted with 50 farmers having productive saline soil after imparting technical information through training, cluster demonstration sunflower (MSFH-17) was conducted in 20ha.
Success point	: The mean yield of sunflower in the demonstration was 24.4 percent higher than that of farmer practice. Shri Niranjana shared his experience throwing a field day as a result more farmers are adopting sunflower MSFH-17

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total cost of cultivation(Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Farmer practice	12000	28000	16000	2.33	-
Recommended practice	14375	39975	23600	2.64	47.5



State: Karnataka

Sunflower: DSFH 3 with Bio-fertilizer

Name of KVK	: Vijayapura
Crop & Variety	: Sunflower, variety and DSFH 3
Farmers name & address	: Shri Khajasab Husenasa Nadaf Village and Post-Koralli, Tahsil-Sindagi, District-Vijayapura
Background information	: Incidence of powdery mildew is the main production constraint.
Details of technology demonstrated	: Introduction of sunflower variety DSFH 3 and IPM practices
Institutional involvement	: Implementation of CFLDs. Trainings group meetings, field visits. Survey of pest incidence. Production and use of bio-insecticides. Need based use of insecticides.
Success point	: Timely supply of seeds and production technological services Demonstrated hybrid is tolerant to powdery mildew
Outcome	: The mean increase on the yield was 38.19 percent (19.9q/ha) over the farmers practice (14.4q/ha). Shri Khajasab shared that there was saving in pest management as the variety was

Demonstration			Net income		
Gross cost (Rs.)	Gross income (Rs.)	BCR	Demonstration (Rs.)	Check (Rs.)	Increase (%)
17654	69650	3.95	51996	30686	69.45



State: Tamil-Nadu

Sunflower: BRSSC3 with STCR nutrient management

Name of KVK	: Dindigul
Crop & variety	: Sunflower variety BRSSC3
Farmers name & address	: Smt Selvi, w/o Shri Antony Susairaj Marampadi post, Vedasanthur taluk, Dindigul district
Background information	: Lack of awareness about high yielding varieties/hybrids and improved production technologies of sunflower.
Details of technology demonstrated	: New variety of sunflower BRSSC3 Bio-fertilizer (Azophos) Bio-pesticide (<i>Pseudomonas</i> and <i>Trichoderma viride</i>)
Institutional involvement	: Implementation of CFLDs with critical inputs, training and extension activities, Technical guidance and monitoring, Soil test based nutrient recommendations
Success point	: Timely supply of seeds and regular technical guidance on production technologies
Outcome	: The mean increase in the yield of demonstration is 48.92 percent (16.50q/ha) over the farmer practice (11.08q/ha). Smt selvi shared that BRSSC-3 was moderately drought tolerant and heads (capitulum) were filled uniformly with seed.

Demonstration			Net income		
Gross cost (Rs.)	Gross income (Rs.)	BCR	Demo (Rs.)	Check (Rs.)	Increase (%)
20760	46101	2.22	25341	17044	48.67



Sunflower: Seed treatment of KBSH 53 with ICM

Name of KVK	: Theni
Crop & Variety	: Sunflower variety KBSH53
Farmers name & address	: Shri R. Srinivasan, s/o Shri Rangasamy Sankarapuram village, Theni district
Background information	: Shri S Shrinivasan is a marginal farmer with 2 acres irrigated land growing oilseeds and vegetable. He had little information on hybrids though could not take a risk for adopting it.
Details of technology demonstrated	: Hybrid KBSH-53 along with ICM packages, soil application of <i>Trichoderma</i> and gypsum, seed treatment, foliar application of micro-nutrient mixture, difenconazole and Borax.
Institutional involvement	: AESA analysis, training, scientist visits, seed and critical input.
Success point	: Timely supply of seeds and regular technical guidance on production technologies.
Outcome	: Increase in the yield of demonstration was 46.15 percent yield (17.10 q/ha) as against check (11.70 q/ha). application of borax increase the head diameter and seed filling was the experience shared by Shri Srinivasan.

Demonstration			Net income		
Gross cost (Rs.)	Gross income (Rs.)	BCR	Demo (Rs.)	Check (Rs.)	Increase (%)
21012	47100	2.24	26088	13731	89.99



Sunflower: Seed treatment of Co (SF)V5 with ICP

Name of KVK	: Tiruchirappalli
Crop & Variety	: Sunflower variety Co(SF)V5 (Summer)
Farmers name & address	: Shri C.Ilayaraj, S/o shri Chellaiyan Veeramachanpatti village, Thuraiyur taluk, Tiruchirapalli district
Background information	: Lack of awareness about varieties/hybrids and improved production technologies of sunflower under irrigated conditions.
Details of technology demonstrated	: Seed treatment with Imidacloprid 7 g/kg of sunflower seed, integrated crop management and IPDM, application of TNAU micro-nutrient mixture, <i>Pseudomonas</i> and <i>Trichoderma viride</i> .
Institutional involvement	: Implemented CFLDs with supply of critical inputs, training, technical guidance, monitoring and observations, soil test based nutrient recommendations.
Success point	: Timely supply of seeds and regular technical guidance on production technologies.
Outcome	: The mean increase in the yield of demonstration was 19.19 percent yield (16.90 q/ha) as against check (14.18 q/ha). Pest and disease attack was less due to seed treatment Application of micro-nutrient mixture increased the soil health and the yield

Demonstration			Net income		
Gross cost (Rs.)	Gross income (Rs.)	BCR	Demo (Rs.)	Check (Rs.)	Increase (%)
27993	56693	2.03	28700	20800	37.98



State: Andhra Pradesh

Safflower: PBNS 12 with IPM and INM

Name of KVK	: YFA-Madanapuram, Mahabubnagar District
Crop & variety	: Safflower, Variety PBNS 12
Farmers name & address	: Shri S. Bal Reddy, S/o Shri S. Rami Reddy Venkatagiri (Village), Devarakonda (Mandal), Ph. No.9912806402
Background information	: Shri Bal Reddy is a small farmer growing traditional safflower sagara mathyalu that yields 10.5q/ha. The crop is grown in 150 ha in the village venkatagiri on medium to light black soil under moisture stress condition during Rabi.
Details of technology demonstrated	: Improved variety PBNS 12 wilt resistant released by MAU, Parbhani during 2001, matures in 135-140 days with 29% oil content and production potential of 19q/ha.
Institutional involvement	: Vankatagiri treatment cultivate safflower but old variety Sagara mathalu KVK produced seeds of improved safflower variety PBNS-12 from IIOR, Rajendra nagar and distributed to farmers.
Success point	: PBNS-12 was sown in first fortnight of October after seed treatment with Carbendazim @1g/kg seed. Application of pre-emergence weedicide Pendimethalin 30%@ 1.25 l/acre one day after sowing found quite effective and nutrient application with 20 kg Urea and 60 kg SSP as basal followed by top dressing of 15 kg Urea at 45 DAS, spraying dimethoate @ 2ml/l to control aphids. All these critical interventions along with high yielding variety PBNS-12 (Parbhani Kusum-12) helped farmer to obtain higher yields of 17.25 q/ha.
Outcome	: PBNS-12 variety was found tolerant to wilt with good branching. Farmer has obtained good yield of 17.25 q/ha over local check 11.8 q/ha, i.e. 46.18 percent increase over local check Sagara Muthyalu.

Technology	Total cost of cultivation (Rs./ha)	Gross income (Rs.)	Net income (Rs.)	B:C ratio	% Increase
High yielding variety PBNS-12 + INM + IPM Practices(Package demonstration)	14,985	52,950	37,965	3.53:1.0	46.18



State: Bihar

Sesame: Krishna variety with Trichoderma and PSB

Name of KVK	: Sabour, Bhagalpur (Bihar)
Crop & variety	: Sesame (Til) Variety- Krishna
Farmers name & address	: Shri Arjun Prasad Singh, Vill.- Khurd Chiriya, Block-Jagdishpur, District- Bhagalpur, Bihar
Background Information	: The soil texture was sandy loam at 25°06.428'N latitude and 86°56.618'E longitude at an elevation of 40.3 metre above mean sea level. Sesame crop was sown after the harvesting of mustard crop in the last week of February with the seed rate of 5.0 kg/ha at 2-3 cm depth.
Details of technology demonstrated	: Seed treatment with <i>Trichoderma viride</i> @ 5 g/kg seed and PSB 20g/kg seed along with sulphur application in soil @ 20kg/ha. Applied Dichlorovos @ 1.5 ml/liter water for the control of Bihar Hairy Caterpillar pest.
Institutional involvement	: Shared technical information, training and field visits. KVK also provided critical inputs like seed @ 5.0 kg/ha, <i>Trichoderma viride</i> @ 5 g/kg seed for seed treatment and Dichlorovos @ 1.0 l/ha for the control of Bihar Hairy Caterpillar.
Success point	: Sesame performed better on sandy loam soil with limited irrigation condition.
Outcome	: Sesame is a good crop for summer season in sandy loam soil, where green gram was not possible to obtained economical yield. Shri Singh harvested 9.2 q/ha and sold at the rate of Rs. 80/kg.

Technology	Total cost of cultivation Rs/ha	Gross income Rs/ha	Net income Rs/ha	B:C ratio	% Increase
Package Demonstration	16580	73600	57080	4.43	11



State: West Bengal

Sesame: SWB 32-10-1 (Savitri) with micronutrient

Name of KVK	: Rathindra KVK, Birbhum
Crop & variety	: Sesame Variety SWB 32-10-1 (Savitri)
Farmers name & address	: Smt. Lalita Tudu d/o - Jagan Tudu Address: Village-Faridpur, Post-Bilalti Sultanpur, Block-Bolpur Sriniketan, District-Birbhum
Background information	: Smt Lalita Tudu along with several other practicers have underwent various skill development training programmes on “Crop Diversification through introduction of improved oilseeds and pulses in both Rabi and summer seasons”, organized by the Rathindra KVK, Palli Siksha Bhavana, Visva-Bharati, Sriniketan, Birbhum and expressed to shift from rice to oilseed during summer research. Therefore, were considered for cluster front line demonstration programme on summer oilseeds (sesame) in 2016-17. The existing practice in the area was growing sesame variety B-67 (Tilotama) with either 80:0:0 or 80:20:0 NPK, herbicides and micro nutrient application in practice.
Details of technology demonstrated	: Sesame variety SWB 32-10-1 (Savitri) at the seed of 5 kg/ha was sown by broadcast followed by application of Pendimethalin @ 3 lit./ha at 1- 3 DAS and micro- nutrients: - ZN EDTA @ 1 gm/ l of water at 25 and 45 DAS.
Institutional involvement	: Variety SWB 32-10-1 (Savitri) Pendimethalin and micro- nutrients (Zinc) and pesticide.
Success point	: Smt Lalita harvested 13 q/ha sesame which was 43 percent more over the local check.

Outcome

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Improved variety SWB 32-10-1 (Savitri)	15300.00	62550.00	47250.00	3.79	43.6



State: Assam

Sesame: Bohuabheti with PSB

Name of KVK	: Sonitpur
Crop and variety	: Sesame, variety Bohuabheti
Farmers name and address	: Md. Siraj Ali, Village- Borghat, District - Sonitpur
Details of technology demonstrated	: Bahuabheti seed treatment with PSB @ 150g /3kg seed. Basel nutrient application of vermicompost @ 0.5 t/ha, FYM @ 5.0 t/ ha along with 75 percent NP and 100 percent K RDF and IPM. IPM: Need based chemicals and ITKs practiced by farmers
Institutional involvement	: Technical guidance through training, field visit and field day and linking to market input support with seeds and bio-fertilizer.
Success point	: Change of variety, use of bio-fertilizers increased the productivity up to 88.37 percent without incidence of insect and pest.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Parameters	Demonstration	Check
Duration (Days)	94	90
Yield (q/ha)	8.1	4.3
Gross cost (Rs/ha)	23,000	19,000
Gross return (Rs/ha)	56,700	30,000
Net return (Rs/ha)	33,700	11,000
B: C	2.46	1.57
Income % increase	206	



Sesame: Koliabar with bio-fertilizers and vermicompost

Name of KVK	: Morigaon
Crop & variety	: Sesame, Variety-Koliabor Til
Farmers name & address	: Shri Sasidanada Bardoloi Vill. Barchola, Dist: Morigaon
Background information	: Farmer used to cultivate local varieties of Sesame
Details of technology demonstrated	: HYV Sesame Koliabor was treated with PSB and <i>Azotobacter</i> @ 50 g/kg, basal application of vermicompost @ 217.5 kg/ha during land preparation.
Institutional involvement	: RARS Shillongani , Nagaon for seeds
Success point	: The crop overcome heavy rain immediately after germination and flood at podding stage due to torrential rain. Performance in adverse condition proved the varieties vigorous growth and high yielding nature as it gave (5.78q/ha) compared to local check.
Outcome	: The performance of variety spread as crop cafeteria which was visited by most of the farmers of barchola. There is a demand for the variety from Shri sashidananda.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
HYV Koliabor Local, seed treatment with PSB and <i>Azotobacter</i> @ 50g/ kg seeds. Vermicompost @ 217.5 kg/ ha at land preparation	11990	23100	11110	1.92	62



Sesame: Nagaon local with biofertilizer & biopesticide to reduce chemical pesticide, fertilizer application

Name of KVK	: Nagaon
Crop & variety	: Sesame variety Nagaon Local
Farmers name & address	: Shri Budhen, Mukoli Nasatra, Block – Dolonghat, Nagaon district
Background information	: Shri Budhen is a progressive farmer native from village Nasatara, harvest low yield of sesame for years. During the CFLD survey his interest was noticed and included in the programme.
Details of technology demonstrated	: HYV Nagaon local with bio-fertilizers and biopesticide.
Institutional involvement	: KVK Nagaon provided quality seeds, bio-fertilizer and technological guidance. Skilled training was imparted on seed treatment with bio-fertilizer and application of bio-pesticide. The purpose was to popularize the HYV Nagaon local and reduce the input cost of sesame farmers.
Success point	: Shri Budhen's cooperation and convincing power among fellow farmers played an important role in the spread of the technology.
Outcome	: There is horizontal spread of Nagaon sesame variety initially noticed by the increase in demand of its seed.

Technmology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
HYV Nagaon local with bio-fertilizers and biopesticide.	12742	39000	26258	2.06	57



State: Uttar Pradesh

Sesame: RT 346 with application of sulphure

Name of KVK	: Kaushambi
Crop and variety	: Sesame and variety RT 346
Farmer's name and address	: Shri Kamlesh Kumar, Village- Sindhiya, Sirathu, Kauhambi (Uttar Pradesh)
Details of technology demonstrated	: Variety RT-346 and Application Sulphur @ 20kg/ha
Institutional involvement	: Critical inputs(seed, chemical, sulphur, insecticide) and regular monitoring by KVK.
Success point	: Adoption of package of practices and field visit during critical crop growth stages and strong communication.
Farmers feedback	: Apart from variety, application of sulphur increased the crop yield of sesame.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Yield (q/ha)	Cost of cultivation (Rs/ha)	Gross cost (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Demonstration	7.40	17800	59200	41400	3.35	49
Farmer practices	5.20	13820	41600	27780	3.01	



State: Uttar Pradesh

Sesame: RT 346 with pre emergent weedicide

Name of KVK	: RDS KVK Pratapgarh
Crop and variety	: Sesame (RT 346)
Farmer's name and address	: Shri Daya Shankarand Smt Susheela Devi, Village-Deideeh, Post-Saray Madhai , Tehsil-Patti, District-Pratapgarh
Details of technology demonstrated	: RT 346, @4 kg/ha seed, pre emergence weedicide @ 4 l/ha (Pendimethalin), Sulphur (80 percent WDG@1.25kg/ha)
Institutional involvement	: Critical inputs (RT 346 seed@ 4kg/ha, Pendimethalin 4 l/ha, Sulphur WDG @ 1.25kg/ha), technical guidance through training demonstration and diagnostic service.
Success point	: Healthy crop with high yield
Farmers feedback	: More yield 7.2q/ha and more earning
Outcome	

Performance of technology vis-à-vis local check (increase in productivity and returns)

Other Farmer's Plot				Demonstration Farmer Plot			
Gross cost (Rs/ha)	Gross return (Rs. /ha.)	Net return (Rs. /ha.)	B:C ratio	Gross cost (Rs/ha)	Gross return (Rs. /ha.)	Net return (Rs. /ha.)	B:C ratio
18950	47950	29000	2.5	20120	95900	75780	4.7



State: Uttar Pradesh

Sesame: Shekhar with seed treatment and STCR based nutrient management

Name of KVK	: Lalitpur
Crop and variety	: Sesame, Shekhar
Farmer's name and address	: Shri Asha Ram, s/o Shri Mohan Village: Ladwari, Block: Bar, District: Lalitpur,
Details of technology demonstrated	: Seed treatment with fungicide Carbendazim @ 3.0 g/kg seed at 4-5 days before sowing and soil test based recommended fertilizer 30:15:25 N, P, and S /ha. : Seed treatment of sesame variety shekhar with carbendazim @ 3g/ kg seed and nutrient application on STCR basis. : Shekhar variety performed better then local variety of sesame
Success point	: Sesame variety Shekhar was found better with no occurrence of Phyllody disease, seed colour is whitish. Farmers get better yield and price

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Area (ha)	Yield (q/ha)			% Increase	Demonstration (Rs./ha)			BCR	Check (Rs./ha)			BCR
		Demo		Check		Gross cost	Gross return	Net return		Gross cost	Gross return	Net return	
		High	Average										
HYV Til (Sekhar)	0.40	6.4	4.4	5.4	50.0	11390	64800	53410	5.7	8650	43200	34550	4.9



State: Andhra Pradesh

Sesame: HVY YLM 66

Name of KVK	: BCT-KVK
Crop and variety	: Sesame variety YLM 66, Check variety Gouri
Farmer's name and address	: Shri Sanivada VenkataRamana s/o Shri Appla Raju, Maduthuru-Atchuthapuram Mandal Visakapatnam district
Details of technology demonstrated	: Sanivada Venkarta Ramana of Maduthuru is a marginal farmer with 2 acres of land. Shri Sanivada grow sesame in one acre and sugarcane in the remaining. The local variety of sesame gouri is sown in the last week of May and harvested in the last week of August the improved sesame variety YLM 66 was demonstrated that gave 52 percent more yield over gouri.
Farmers feedback	: YLM 66 performed better over local variety and gave higher yields with more branches and capsules per plant compared to local variety.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Yield (q/ha)	Net income (Rs/ha)	B:C ratio	Other parameters if any
YLM-66	8.75	37150	3.1:1	3 branches/plant/117 capsules / plant/Phyllody incidence was less
Gouri	5.75	21850	2.19:1	2 branches/plant/72 capsules / plant/Phyllody incidence was more
% increase	52.17	70		



State: Gujarat

Sesame: Variety GT 4

Name of KVK	: JAU, Amreli
Crop and variety	: Sesame variety GT4
Farmer’s name and address	: Shri Dudhat Chandubhai Govindbhai, At:-Bambhaniya, Tasil-Kukavav-Vadiya, District-Amreli
Details of technology demonstrated	: Variety GT 4, Seed rate (2.5-3.0 kg/ha):Spacing (R x P) 45 x 15 cm Nutrient management 50:25:0 (N:P:K), weed management: Pre emergence weedicide (Pendimethalin @ 1 kg /ha), Insect-Pests Management(Leaf roller and Sesame mite), Methyl parathion 2% @ 25 kg /ha after appearance of leaf roller and for sesame mite first one spray (Dicofol and Wettable Sulphur) after appearance of sesame mite and second after 15 days.
Institutional involvement	: Technical guidance through training and field visits after sowing of GT 4, strong communication and skilled training on insecticide spray.
Success point	: Early maturing white seeded attracted farmers, pest management in time gave higher yield.
Farmers feedback	: White seeded, high yielding and early mature, less weed problems due to pre emergence application of pendimethalin 30EC and IPM economically beneficial.
Outcome	: 11.2q/ha

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Cost of cultivation (Rs/ha)	Gross return (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Demonstration	13685	67637	53952	4.9	25
Farmer Practices	13290	56239	42949	4.2	



State: Odisha

Sesame: Variety Kalika with seed treatment

Name of KVK	: Malkangiri
Crop and variety	: Sesame, variety Kalika
Farmer's name & address	: Shri Sukra Madhi, Vill.- Udupa, GP- Padamgiri, Malkangiri
Background information	: Farmer having 0.6 ha. land in which generally during rainy season cultivate paddy and other season kept vacant but due to the some problems, during previous season, he could not cultivate paddy also.
Details of technology demonstrated	: Sesame variety Kalika, seed treatment with vitavax powder @2g/kg seed as well as sulphur @20 kg/ha.
Success point	: Shri Sukra marginal rainfed farmer with 0.6 ha land grows rice during rainy season followed by fallow. Sesame is a perfect rainfed cash crop that helped Shri Sukra more than growing rice. HYV kalika sown with seed treatment (vitavax 2g/kg seed followed by application of sulphur @ 20 kg/ha) gave higher yield.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	19000	34650	15650	1.8	65.60
Farmer Practice	18000	27450	9450	1.5	



State: Andhra Pradesh

Sesame: Variety YLM 66 with ICM

Name of KVK	: Venkataramannagudem
Crop & variety	: Sesame variety YLM 66
Farmer’s name & address	: Shri Muppidi Murali Krishna s/o Shri Muppidi Venkata Ramireddy, Kunavaram,Village- T.P.Gudem (M), W.G.Dist
Background information	: Shri Muppidi traditional grows sesame YLM 11 (9.5q/ha) on his rainfed farming situation, being of aware of improved the variety YLM 66.
Details of technology demonstrated	: HYM with ICM
Institutional involvement	: Method demonstration on seed treatment with Carbendazim @ 3 g/Kg. Conducted need based training programme on IPM with critical inputs, Timely monitoring was done and diagnostic visits were conducted along with line department officials and ATMA
Success Point	: Higher yield obtained with YLM 66 variety (13.75 q/ha) than the existing variety (9.5 q/ha)
Outcome	: Conducting CFLDs on Sesame farmer is ready to cultivate variety YLM – 66 in place of existing variety YLM – 11. The field day and sharing of the experience, convinced other sesame grown to adopt improved variety YLM 66.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	17500	73645	56145	1:4.2	44.73



Sesame: HYV YLM 66 and STCR based nutrient management

Name of KVK	: BCT-Krishi Vigyan Kendra, Visakhapatnam
Crop & variety	: Sesame, YLM 66
Farmer's name & address	: Shri Pentakota Hareram, Chuchukonda Village, Munagapaka Mandal
Background information	: Shri Pentakota HareRam is a marginal small farmer with 1ha land grows sugarcane and rice under irrigated conditions. After harvesting of sugarcane he took sesame in one acre under irrigated conditions. Sowing date was 17 th January 2017. The soil was red sandy clay loam.
Details of technology demonstrated	: YLM-66 with STCR based nutrient management
Institutional involvement	: HYV YLM 66 with 16 kg of Phosphorus in the form of SSP application based on soil test.
Success point	: 3 irrigations at critical stages, 4 tons of FYM basal application of per acre and 100 kg of SSP
Outcome	: High yield of 13q/ha against local yield of 4.75 q/ha

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	13750	55500	41750	2.3:1	94.7



State: Rajasthan

Sesame: Variety RT 351 seed treatment and nutrient management

Name of KVK	: JAIPUR-I
Crop & Variety	: Sesame variety RT 351
Farmer's name & address	: Shri Gopal Singh, s/o Shri Bhagirath Daroga, Village -& Post-Hattupura, Tehsil-Dudu, District-Jaipur
Details of technology demonstrated	: HYV RT 351 with Seed treatment (Vitavex Power, Azato bacter and PSB Culture), Fertilizer management (40:25:20 kg/ha N: P: S), IWM, IPM.
Institutional involvement	: Technical guidance through training, field visit and field day.
Success point	: HYV with seed treatment improve of good plant stand weed free and less incidence of insect pest gave higher yield of 8.75 q/ha.
Outcome	: Variety RT 351 obtained 8.75q/ha yield.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Cost of cultivation (Rs/ha)	Gross cost (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Demonstration	21265	60890	39625	2.8	57
Check	15026	40220	25194	2.6	



State: Odisha

Sesame: Nirmala with ICM

Name of KVK	: Balasore
Crop & variety	: Sesame (Nirmala)
Farmer's name & address	: Shri Bijay Kumar Parida Village-Paikasida, GP-Paikasida, Block-Jaleswar, Balasore
Background information	: Shri Bijay, a small farmer from village Paikasida follow rice-potato-sesame cropping sequence on his 0.4 ha land. The local variety of sesame gave him 6.2 q/ha.
Details of technology demonstrated	: Technical guidance through off campus training and regular visits.
Institutional involvement	: KVK, Balasore, Odisha Agro-Industries Corporation, Balasore, Agriculture department Mangala mata krushak club.
Success point	: Trainings on scientific cultivation of sesame. Literatures on latest INM & IPM techniques were provided. Followed best scientific crop management practices with direct supervision of scientists through method demonstrations, regular field visit & interaction.
Outcome	: Shri Bijay harvested yield of 10.1q/ha, and there was an increase in yield to the tune of 62.90% over their conventional practice. He got an average net income of Rs. 18,030/ha

Technology	Total cost of cultivation (Rs./ha)	Gross income (Rs./ha)	Net income (Rs./ha)	B:C ratio	% Increase
Demonstration	18450	36480	18030	1.97	62.90



State: Odisha

Niger: Utkal Niger 150 with seed treatment and nutrient management

Name of KVK	: Rayagada
Crop & Variety	: Groundnut, TG-38
Crop & Variety	: Utkal Niger, 150
Farmer's name & address	: Shri Ganga Gouda, s/o – Shri Jhujku Gouda, Village – Dumel, Block- Kashipur Dist-Rayagada State- Odisha
Background information	: Ganga Gouda is a progressive farmer. He has studied intermediate and has passion for agriculture. He grows paddy in 4 acres, pulses and oilseeds in 3.5 acres and vegetables in 0.4 acres of land.
Details of technology demonstrated	: Utkal niger 150 after seed treatment with carbendzim 2g/kg seed was line sown after a basal nutrient application of 25:40:20:10 kg/ha of NPKZn followed by pre emergent weedicide (pendimethalin) and spray of imidacloprid.
Institutional involvement	: KVK conducted CFLD and converged.
Success point	: The cultivation of niger variety Utkal niger 150 gave average yield 7.3 q/ha which brought better benefit to farmers. Inspired by yield of niger cultivation other farmers of the village and nearby villages were interested to cultivate this HYV niger in coming years on commercial scale.

Technology	Total cost of cultivation (Rs./ha)	Gross income(Rs/ha)	Net income (RS/ha)	B:C ratio	% Increase
Line sowing, application of preemergence of weedicide, micronutrient, recommended dose of fertilizer	9850	19200	9350	0.95	48.7



State: Madhya Pradesh

Niger: JNC 6 with PSB and pre-emergent weedicide

Name of KVK	: Dindori
Crop & Variety	: Niger (JNC-6)
Farmer's name & address	: Shri. Pooran Das, s/o Babla Das Cluster-Pindrukhi, Bajag
Background information	: Shri. Pooran Dasis a marginal farmer of Pindrukhi village
Details of technology demonstrated	: Niger -JNC 6 @2 kg/acre or 5 kg/ha (Potential Yield-8-10 q/ha) 2. Seed treatment with 2 per cent salt solution 3. Soil application of PSB- 5 kg/ha 4. Pre-emergence application of Pendimethalin @ 2.5 l /ha
Institutional involvement	: Technical guidance through field training, visit and diagnostic sevices. Apart from this Shri Pooran regularly visited KVK, Dindori
Success point	: (a) Improved Variety JNC6 (b) Seed treatment with 2 % salt solution is benefitted to the crops as well as weed control (c) Soil application of PSB increases yield of Niger (d) Pre-emergence application of Pendimethlin found suitable for the management of cuscuta in niger

Technology	Total cost of cultivation(RS/ha)	Gross income (RS/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Recommended Practice	7500	40000	32500	5.33	72 %



State: West Bengal

Mustard: B 9 with ICM

Name of KVK	: Hooghly
Crop & variety	: Mustard variety B9
Farmer's name & address	: Shri Manik Mondal, Village : Uttar Shimla, P.S. Chinsurah (R.S.), Block : Chinsurah-Magra, District : Hooghly
Background information	: Shri Manik harvested low yield from local mustard variety with no sulphur application.
Details of technology demonstrated	: Mustard variety B 9 with seed treatment (carbendzim @ 2.5 g/kg seed) and RDF 80:40:40 NPK with Sulphur @22.5kg/ha during land preparation.
Institutional involvement	: Supply of Seed Mustard B 9, ICM through training and field visits.
Success point	: Varietal replacement RDF, Sulphur application and seed treatment increased in yield by 27.5% over local check
Outcome	: Yield obtained through demonstration: 1500 kg/ ha yield over Local check (1087 kg/ ha)

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	16875	52500	35625	3.11	27.53



State: West Bengal

Toria: Variety TS 67

Name of KVK	: Tinsukia
Crop & variety	: Toria, variety- TS 67
Farmer's name & address	: Shri. Ranjit Beg, Nowkota Village, Saikhowa Block, Tinsukia
Background information	: Rapeseed-mustard is cultivated in 2.81 lakh ha with a production and productivity of 1.88 lakh Mt and 6.67q/ha, respectively in Assam which is lower than the national average in Tinsukia district of Assam rapeseed-mustard the area and production is 0.14 lakh ha and 0.10 lakh Mt, respectively. The reasons for low productivity are poor knowledge about newly released varieties, crop production and protection technologies and their management practices in the farmer's field. Toria is one of the major oilseed crops in Tinsukia district of Assam.
Details of technology demonstrated	: Toria variety TS67 matures in 90-95 days and yields 10-12 q/ha with oil content of 40.7- 42.3%.
Institutional involvement	: CFLD was conducted in 20ha under Toria TS 67 with each of the participating farmer with 0.4 ha area. The source of TS 67 seeds was KVK Golaghat and AAU. Technical guidance was provided through off campus training, field visits and diagnostic services. Borax 7.5kg/ha was along provided to the farmer as input also with seeds.
Success Point	: Shri Ranjit shared his experience during field day and neighbouring farmers on the performance of TS 67. There is a demand for seeds of TS 67 for next season.
Outcome	: The farmer got bumper harvest with an average yield of 14.2 q/ha with 42% increase in yield over local variety.

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Package Demonstration	15430	47250	31820	3.06	51.74



Mustard: TS 38 with micronutrient and organic manure

Name of KVK	: Barpeta
Crop & variety	: Rapeseed, variety TS 38
Farmers name & address	: Shri Golap Hussain, Banbariya, Guma Phulbari block, Barpeta
Background information	: Shri Golap Hussain, an educated youth engaged in agriculture since a decade grows short duration paddy variety like Luit and hybrid paddy in his low lying field in Kharif. Rabi oilseed crop mainly rapeseed is cultivated.
Details of technology demonstrated	: Improved variety TS 38, soil application of micronutrient, organic manure
Institutional involvement	: Critical inputs (seed, micronutrient and organic manure) was provided to farmer from KVK. Besides technical guidance through off campus training, field visits and field day.
Success point	: Shri Golap harvested yield of 11.75 q/ha, his previous yield of 9.1 q/ha
Outcome	: Shri Gopal will be bringing his *2.6 ha of rice fallow areas under rapeseed variety TS 38, next year. *Additional 2.5 q of rapeseed from 2.65 ha of area

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Followed all recommended package of practices. micronutrient, organic manure.	Rs. 15000	31850	16850	2.12	29.1



State: Manipur

Rapeseed: M 27 with ICM

Name of KVK	: Thoubal, Manipur
Crop & variety	: Rapeseed, variety M 27
Farmer's name & address	: Shri Sagolsem Shyamkishore Singh, Khongjom Sapam
Background information	: Shri Sagolsem have been growing local mustard under zero tillage generally with high seed rate without much care of nutrient and pest management.
Details of technology demonstrated	: Seed rate-15kg/ha, fertilizer-40:20:29kg NPK/ha. Humicil-15ml/15 l water. <i>Trichoderma</i> @5g/kg seed with biofertilizer. Dimethoate @ 8ml/15 l water, spraying of sulphur using Eurosulf @ 1ml/l water.
Institutional involvement	: The soil was tested and nutrient were applied after seed treating Rapeseed variety M 27 and aphid management.
Success point	: Yield increased over the local variety.
Outcome	: Yield -9.2q/ha Net income-Rs. 26,000/ha

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Trichoderma @5g/kg seed with biofertilizer.	20,000	46,000	26,000	2.3	15



State: Nagaland

Mustard: Toria variety TS 38 under STCR based nutrient management

Name of KVK	: Dimapur
Crop & variety	: Toria, variety TS 38
Farmer's name & address	: Shri Debojit Naben, Dhansiripar village, Dimapur, Nagaland
Background information	: Shri Debojit cultivates rice in his 10 ha low land banded field while in his rest 3 ha sesame and pineapple is grown of late due to erratic rain.
Details of technology demonstrated	: KVK Dimapur introduced short to medium duration rice varieties like RCM 9, RCM 10, RCM 11 and CAU R3 to replace the existing traditional and long duration. The strategic idea was to export the soil moisture for second crops (Toria) after harvest of short and medium duration rice.
Institutional involvement	: KVK Dimapur implemented the cluster demonstration programmes to promote Mustard/Toria as second crop for increasing cropping intensity from the residual moisture management after the harvest of low land Rice. Soil testing were done prior to recommendation of micro nutrient and supply. Critical inputs viz. Toria seeds (var. TS 36 & TS 38), fertilizers and plant protection chemicals. Rice after harvest accommodates Toria.
Success point	: Shri Devojeet by adopting medium duration rice RCM 9 brought the fellow area of cultivation in rabi with toria TS 38. Thus increasing the cropping intensity as well as income. Farmer was convinced that by adopting medium duration rice RCM 9 exploring soil moisture for a second crops short duration toria as economic option.

Technology	Yield (q/ha)	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	7.2	17000	45500	28500	1.6	31.88



State: Tirpura

Mustard: TRC T1151 with ICM

Name of KVK	: Khowai
Crop & variety	: Mustard variety TRC T1151
Farmer's name & address	: Shri Porichoy Sarkar, Vill: Batapura, R. C. Ghat Post-Chebri, Khowai
Background information	: Increasing demand for edible oil and declining area under oil seeds is a serial developmental issue. Increasing the oilseed productivity by replacing the existing varieties with HYV a way out.
Details of technology demonstrated	: Introduction of HYV variety (TRC T-1-1-5-1) with ICM
Institutional Involvement	: Under National Mission on Oilseeds and Oil Palm (NMOOP) KVK introduced the HYV of mustard TRC T1151 along with ICM. Technical guidance were imparted through off campus training, group discussion, interaction during field visit and field day.
Success point	: HYV TRC T1151 performed better with 10.5 q/ ha against the local variety which gave just 5 q/ha. The mean increase in the yield was 50.38 percent and net returns was also more.
Outcome	: High yielding variety (TRC T-1-1-5-1) lured many farmers of the villages where technology was demonstrated and farmers from the adjacent villages also showed interest to grow mustard in next year.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	32500	52500	20000	1.61	81.61



Mustard: RGN 73 with seed treatment and IPM

Name of KVK	: Shahjahanpur
Crop & variety	: Mustard, variety RGN 73
Farmer's name & address	: Shri Vijendra Singh s/o Shri Chhatra Pal Village & Post – Niyamatpur, Duistrict – Shahjahanpur 242001
Details of technology demonstrated	: Variety – RGN 73 HYV @ 5 kg/ha , Carbendazim+Mancozeb 1.25 kg/ha, Bentnite sulphur @ 25 kg/ha, Imidachloprid – 0.250 l/ha
Institutional involvement	: KVK provided critical inputs (RGN 73 @5kg seed/ha, fungicides, insecticides and sulphur) and technical guidance through field visit, diagnostic visits, off campus training and field day.
Success point	: Good germination, excellent growth, good podding without disease free crop.
Farmers feedback	: RGN 73 along with application of sulphur and IPM increased the yield.
Outcome	: Average yield of demonstration was 18.22 q/ha against that (12.22 q/ha) of the check.



State: Gujarat

Mustard: NRCHB 101 with micronutrients and foliar application

Name of KVK	: Kutch-I
Crop & variety	: Mustard ,Variety NRCHB 101
Farmer's name and address	: Shri Dharendra Ishwarlal Pokar, At & Post-Jiyapar, Tahsil-Nakhtrana, Kutch (Gujarat)
Details of technology demonstrated	: Basal application of ZnSO ₄ @ 20-25 kg/ha followed by sowing of NRCHB 101 mustard after seed treatment was sprayed pre emergent weedicide pendimethalin @ 1kg a.i/ha.
Institutional involvement	: Cluster demonstration in 20 ha on mustard was conducted during Rabi-2016, among 50 farmers in Jiyapar village. A prophylactic spray of sulphur 80 WP to check powdery mildew and foliar application of micro nutrient at the time of flowering was followed by installation of yellow sticky trap. Besides initial inputs (seed, micro nutrients, weedicide yellow strick trap and sulphur) and technical guidance was imparted through off campus training. Group discussion field visits and field day. Immediate maturity.
Success point	: NRCHB 101 is an early maturing and bold seeded variety which has high market price. (Early maturing helped to increase Pest and disease Management in Gujarat). Pre emergence weedicide application kept the field weed free for 40 day and saved Rs 1550 per ha due to manual weeding, while yellow sticky trap saved the insecticide cost. Use of Sulflex 80 WP at the time of Pod formation stage helped to reduce the emergence of PM disease. Due to use of ZnSo ₄ @ 20-25 kg /ha seed weight was increased and also improved the quality of seed in respect of colour and size
Outcome	: Yield of Demonstration plot (q/ha): 31.00 against the local Check plot (q /ha): 26.50

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total cost of cultivation (Rs.)	Gross income (Rs.)	Net income (Rs.)	B:C ratio	% Increase
Demonstration	37500	93000	55500	2.48	16.98
Check	36500		43000	2.17	



State: Rajasthan

Mustard: NRCHB 101 with INM and IPM

Name of KVK	: Kota (Rajasthan)
Crop & variety	: Mustard variety NRCHB 101
Farmer's name & address	: Shri Ramesh Chand Suman, s/o Shri Mathura Lal Suman Village & Post –Gandifali, Tehsil-Ladpura, District-Kota (Rajsthan)
Background information	: Soybean-mustard cropping option with use of old mustard variety of Pusa bold, Pusa Jai kishan etc. without seed treatment practice. Spacing of 22.5 cm with high seed rate at 7-8 kg/ha resulted in to dense crop with low branching and pod formation-DAP mixed with seed during sowing and high dose of urea (180-200) kg /ha applied at first irrigation resulted high vegetative growth and high incidence of insect pests. Despite of Zn deficiency, it was not applied. Inspite of two irrigation the yield level remained around 15q/ha.
Details of technology demonstrated	: Improved variety NRCHB 101 with seed treatment (metalaxyl @ 6.0 g /kg seed and with Imidacloprid 48 FS @6 ml/kg seed) Line sowing NRCHB 101 30cm apart with seed rate of 4-5 kg/ha after seed treatment with metalaxyl 6g/kg seed and imidacloprid 48 FS 6 ml/kg seed, before soil treatment with <i>trichoderma viride</i> 3 kg per ha mixed in 20 kg FYM. Soil application NP (80:40 kg/ha) and Znso4 @ 20 kg/ha replacement of DAP with SSP and application of insects seeds for management of aphid and painted bug.
Institutional involvements	: KVK Kota conducted FLD on mustard under NMOOP during Rabi 2016-17. KVK provided critical inputs, seed variety NRCHB-101, metalaxyl and Imidacloprid for seed treatment, <i>Trichoderma viride</i> , and zinc fertilizer, technical guidance through field visit, diagnostic visits, off capus training and field crops.
Success point	: Higher yield & economic returns under demonstrated technology
Outcome	: Mustard yield: 27.5 q/ha from the demonstration practice against 20.0 q under farmers practice

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Cost of cultivation (Rs/ha)	Gross cost (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Demonstration	23422	70276	46854	3.00	35
Check	22360	56993	34633	2.55	



State: Chhattisgarh

Mustard: NRCHB 101 with INM, IPM

Name of KVK	: Surguja
Crop & variety	: Mustard, NRCHB 101
Farmer's name & address	: Shri Ram ratan yadav, Village-Batwahi, Dist-Surguja
Background information	: In Surguja district under northern hills zone of Chhattisgarh most of the soils are sandy to sandy loam where farmers are growing linseed, wheat etc. which do not fetch economic yield. KVK introduced short duration high yielding variety of mustard NRCHB 101 to replace wheat and linseed for higher returns to the small and marginal farmers.
Details of technology demonstrated	: Improved variety (NRCHB 101), nutrient management (80:50:30 NPK kg/ha), and plant protection (Seed treatment with carbendazim + mancozeb and soil treatment with <i>Trichoderma</i> @ 5 kg/ha and Spray of Dimethoate to control Mustard Aphid) has been found important for transfer of technology to attain higher yield.
Institutional involvement	: KVK provided critical input and conducted awareness programme (training, field visits, group discussion) to motivate farmer to replace the unprofitable wheat and linseed with mustard on the sandy soil.
Success point	: Mustard (NRCHB 101) the farmer gained a net income of Rs 31300/- which was 131 percent more than his previous crops during rabi.
Outcome	: Adopting the improved technology farmers got higher yield of 12.5 q/ha and earned profit of Rs. 50000/- ha. More farmers in the village are willing to grow mustard during the next rabi season.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs)	Net income (Rs)	B:C ratio	% Increase
Improved variety (NRCHB-101), (80:50:30 NPK kg/ha), and plant protection (Seed treatment with carbendazim + mancozeb and soil treatment with <i>Trichoderma</i> @ 5 kg/ha and Spray of Dimethoate to control mustard Aphid)	18700	50000	31300	2.67	131



Mustard: Pusa Vijay with IPM

Name of KVK	: Janjgir-Champa
Crop & variety	: Crop- Mustard (Variety - Pusa Vijay)
Farmer's name & address	: Shri Jawahar Lal, S/o Shri Ghasiya Chandra, Village – Malni, Block – Jaijaipur, District – Janjgir-Champa (CG)
Background information	: Rice-fallow is the crop sequence followed by most of the farmers in the village Malni. In order to increase the cropping intensity and income short duration mustard from the residual moisture was planted.
Details of technology demonstrated	: HYV, IPM practices, seed treatment with Carbendazim and PSB Culture, Soil Application of <i>Trichoderma</i> , foliar Application of fungicide Metalaxyl 6+ Mancozeb 64 percent.
Institutional involvement	: KVK provided critical input and conducted awareness programme (training, field visits, group discussion) farmers were encouraged for soil testing provided soil health card and STRCT based nutrient management.
Success point	: Higher productivity, increased net income, low insect-pests incidence.
Outcome	: An increase in net income of Rs 22133/- convinced farmer to adopt mustard after rice in their rice fallow copping system.

Technology	Yield (q/ha)	Total cost of cultivation (Rs.)	Gross income (Rs.)	Net income (Rs.)	B:C ratio	% Increase
Demonstration	11.89	15200	37333	22133	2.46	84.59



Mustard: Pusa vijay with ICM

Name of KVK	: Raigarh
Crop & variety	: Mustard variety Pusa vijay
Farmer's name & address	: Shri Bhagat Ram Sahu s/o Shri Padum Ram Sahu, Village- Lodajhar, Block-Kharsiya, District- Raigarh(C.G.)
Background information	: Mustard is grown with traditional practice and without proper management of nutrient weed, insect-pest and disease.
Details of technology demonstrated	: Improved variety and ICM (Seed treatment, weed, insect-pest, disease management and STCR based nutrient)
Institutional involvement	: Agriculture Department was associated with KVK.
Success point	: Timely sowing management timely control of weed, insect-pest & disease and nutrient
Outcome	: Yield 11.45 q/ha

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	13551.00	42365	28814	3.12	19.55



State: Madhya Pradesh

Mustard: NRCHB 101 under System of Mustard Intensification (SMI)

Name of KVK	: Neemuch
Crop & variety	: Mustard, NRCHB 101
Farmer’s name & address	: Shri Kanhayia Lal Dhakad Village & Post-Malkheda, Block & District- Neemuch
Background information	: Shri Kanhaiya Lal Dhakad is large farmer with 13 ha land growing kharif and rabi crops. He also grow mustard but use of old varieties and traditional cultivation practices. In the CFLD during Rabi 2016-17, Shri Kanhaiya Lal Dhakad grew NRCHB-101 variety of mustard in 0.4 ha.
Details of technology demonstrated	: System of Mustard Intensification (SMI technology) with spacing of (RxP) 2 ft x 2 ft. Seed treatment with Metalaxyl 35 SD @ 6 g/kg seed. Basal nutrients (N: P: K – 100:50:30 + 25 kg Zinc Sulphat) were applied Basal SSP & 1/3rd dose of N, MOP and top dressing of urea. Further need based plant protection measures was done
Institutional involvement	: KVK imported skill knowledge training in SMI nursery raising followed by plantation of field variety and diagnostic visit was other mechanise for technology.
Success point	: Farmer gained a net income of Rs. 30,200 as compared to net income from mustard i.e. Rs. 13,300.
Outcome	: Cost benefit ratio increased from 1.15 to 2.56 with the recommended practice. Also there was 71.4% increase in production.

Technology	Yield (q/ha)	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	28.8	29500	105000	75500	2.56	71.4



Mustard: Girraj (DRMR IJ 31) with seed treatment and IPM

Name of KVK	: Sheopur
Crop & variety	: Mustard variety Girraj (DRMR IJ 31)
Farmer's name & address	: Shri Hanif Mohammad S/o Shri Anjur Ali Village & Post- Occhapura Block- Veerpur Distt. Sheopur (M.P.)
Background information	: Mustard a major Rabi crop in Sheopur district, grown in about 49000 ha. with a mean productivity of 14.90 q/ha. Imbalance use of fertilizer specially no use of sulphur, incidence of weeds, painted bug and mustard aphid are reason for low productivity.
Details of technology demonstrated	: Improved variety Girraj (2kg) + Seed treatment (Imidacloprid 48% @ 5ml/kg seed) + Soil application of sulphur 20kg/ha, foliar spray of nutrient, spraying of imidacloprid 17.8 SL@ 250 ml/ha
Institutional involvement	: RVSKVV, Gwalior and KVK Baroda, Sheopur
Success point	: High yielding variety, seed treatment with Imidacloprid 48% (gauchu) minimize the incidence of aphid and soil application of sulphur enhanced the yield and oil content in mustard.
Outcome	: In the field day sharing of experience was placed, the participating farmers placed demonstration of seed of Giraj for next season. Use of imidacloprid seed treatment and foliar application also attracted them.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	20770	73792	53022	3.55	40.84



Mustard: RH 749 HYV with STV based nutrient management

Name of KVK	: Morena
Crop & variety	: Mustard variety RH749
Farmer's name & address	: Shri Satish s/o Shri Budh Pal Singh, Village-ATA, Post-Susani, District-Morena
Background information	: Shri Satish owns 2 ha irrigated land which grows is pearl millet, pigeon pea kharif and mustard, wheat, barley in Rabi. The soil nutrient status of his field was not known.
Details of technology demonstrated	: STV based nutrient management with improved variety of mustard RH 749, available N (L), Phosphorus (M), K (H), S (M)
Institutional involvement	: RVSKVV-KVK, Morena and DMR, Bharatpur (Raj.)
Success point	: Improved variety RH-749 obtained (24.3 q/ha) maximum yield without any disease and insect.
Outcome	: This variety is suitable for pearl millet-mustard and green gram-mustard. Area to increase in next year by adoption of the RH-749 variety.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	25800	90620	64820	3.51	29.25



State: Odisha

Mustard: Parvati with STCR based fertilizer application

Name of KVK	: Sambalpur
Crop & variety	: Mustard variety Parvati
Farmer's name & address	: Shri Manbodh Barik , s/o Shri Ratnamani Barik, Village-Sanatanpali, GP-Ghenupali, Block-Jujomura District-Sambalpur
Background information	: The 33 year old Shri Manbodh owns 6 area of land on which he grows rice in 4 acre while 2 acre area in fallow due to rainfed condition. In order to motivate and to bring his 2 acre fallow land under cultivation, Shri Mankodh was made participant in CFLD mustard programme.
Details of technology demonstrated	: Variety- Parvati, Seed 6Kg/ha, seed treatment with carbendazim @ 2g/kg of seed, STCR based fertilizer application, line sowing with spacing 20x10 cm and application of pendimethalin @ 3 lit/ha at 0 to 3 DAS and application of Imidachloprid @ 80 ml/ac for control of Aphids.
Institutional involvement	: A critical inputs were provided by KVK 8 kg of parvati mustard seed variety, pendimethalin @400ml/acre for control of weeds, carbendazim @ 200g/acre for control of dry root rot and imidachloprid @80ml/acre for control of vector of phyllody disease (leaf hopper).
Success point	: Shri Manbodh harvested 6.6 q of seed from his 2 acres of land (8.25 q/ha) with a net return of Rs 20120/- .This additional income is motivating to many other farmers and Shri Manbodh himself to bring rabi fallow under mustard cultivation. Looking into the success of his mustard cultivation, now he is interested to grow mustard crop in the next year.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Variety- Parvati, Seed 10 kg/ha, Seed treatment (Carbendazim @ 2gm/kg of seed), STCR based fertilizer application, Line sowing	20897	41017	20120	1.96	36



Mustard: Toria (M 27) with seed treatment, INM and IPM

Name of KVK	: Balasure
Crop & variety	: Toria, variety M 27
Farmer's name & address	: Shri Jagabandhu Bar Village-Sahada, GP- Sahada, Block- Basta, Balasure
Background information	: Shri Jagabandhu grows toria after rice. He harvests a mean yield of 5-6 q/ha.
Details of technology demonstrated	: Foundation seed of Toria variety M 27@ 10kg/ha, Soil test based balanced nutrient application, foliar spray of Borovin (20% B)@ 1.5g/ltr water at flowering stage, with seed treatment with vitavax power@ 2g/kg seed, foliar spraying of Flonicamid 50% @ 5g/15 l water for aphid, foliar spraying of Triazophos 35%+ Deltamethrin 1%@ 2ml/l water.
Institutional involvement	: KVK, Balasure, Odisha Agro-Industries Corporation, Balasure, Agriculture Department, OSSC ltd, Balasure
Success point	: The technological intervention almost doubled the production (45.20 percent) of toria from 5-6 q/ha to 10.89 q/ha with net income of Rs 17294/ha.
Outcome	: Field day organized was attended by almost all the toria growing farmers of Block-Basta. Its is expected that the technology demonstrated will be adopted by large no of farmers in the block.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	22,026	39,320	17,294	1.78	45.20



Mustard: Toria M 27 with ICM

Name of KVK	: Bolangir
Crop & variety	: Mustard Variety-M 27
Farmer's name & address	Shri Gourishankar Patel, s/o Shri Fathers name-Bibekananda Patel Village-Paruabhadi, Block-Deogaon, Dist-Bolangir
Background information	: Shri Gourishankar Patel an educated medium farmer grow rice and vegetable (1.7ha) in kharif while Greengram/Blackgram 0.8 ha in Rabi. He harvest 32q of rice while 180q vegetable earning a profit of Rs 143,000 from an investment of Rs 60,000. During rabi, his harvest 4q greengram/blackgram from 0.8ha earn gross profit of 18,000 from an investment of Rs 7,000. Shri Gourishankar Patel with an annual investment of Rs.67,000/- was getting a gross return of Rs 1,61,000/- and profit of Rs 94,000/- per annum.
Details of technology demonstrated	: Seed rate- 6 kg/ha, STB application of zinc sulphate 20 kg/ha. & Borax 10 kg/ha. , PP Chemical Indoxacarb @ 1 ml/ lit to manage borers & defoliators.
Institutional involvement	: Soil testing, critical inputs, Diagnostics visits, Trainings, FLDs, Farmers- Scientist interaction, Agriculture Department: Imparting training.
Success point	: Soil borne diseases and foliar diseases reduced by 54 & 65 percent respectively while sucking pests, defoliators are reduced by 43 & 38 percent. Weed infestation reduced by 60 per cent.
Outcome	: With an investment of Rs 17,300/- Shri Gourishanker earned a net profit of 18,100/- from Rabi oilseed mustard crop. He invested his money to purchase his motorcycle worth Rs 50,000/- to take his produce to market.

Technology	Yield (q/ha)	Total cost of cultivation(Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	7.2	17300	35400	18100	2.04	55



State: Chhattishgarh

Linseed: Kartika with seed treatment

Name of KVK	: Dhamtari
Crop & variety	: Linseed, variety Kartika
Farmer's name & address	: Shri Mehattar Ram s/o Shri Derha Ram Village–Kapalfodi, Block-Magarlod, District-Dhamtari
Background information	: Shri Mehattar followed rice-fallow cropping sequence in small land under rainfed condition.
Details of technology demonstrated	: Seed treatment with Trichoderma and IPM
Institutional involvement	: IGKV, Raipur
Success point	: An additional crop from fallow land and a net income of Rs 32910/- was quite encouraging.
Outcome	: Produced are fetched good price in the form of foundation seed to Beej Nigam

Technology	Yield (q/ha)	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	10.25	18990	51900	32910	2.73	23.69



Linseed: Linsseed RLC 92 sowing on Ridge and Furrow

Name of KVK	: Kanker
Crop & variety	: Linseed, variety RLC 92
Farmer's name & address	: Shri Bhaiya Ram s/o Shri Moti Ram, village–Dumali, Block–Kanker, District–Uttar Bastar Kanker
Background information	: Irrigated, light black soil
Details of technology demonstrated	: Seed treatment, Improved variety (RLC 92), Line sowing, Ridge and Furrow.
Institutional involvement	: IGKV Department of Plant Breeding & Genetics, Department of Agronomy
Success point	: By use of improved variety (RLC 92), line sowing technique and adopting timely plant protection measure farmer yield was increased to 9.2 q/ha which was 119 per cent as compare to farmer practices.
Outcome	: The HYV RLC 92, seed treatment and line sowing on ridge and furrow was for the first time in the village. The outcome was appreciated by linseed farmers in the block-Kanker. It is expected that many farmer will fallow the technology in the next season.

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	17600	46000	28400	2.61	119



State: Madhya Pradesh

Linseed: JLS 27 seed treatment with carbendazim and mancozeb

Name of KVK	: Raisen
Crop & variety	: Linseed, variety JLS 27
Farmer’s name & address	: Shri Vishnu Prasad s/o Shri. Hari Singh, Village- Summer, Block-Begamganj, Raisen (M.P.)
Background information	: High school passed farmer with 5 household members grow wheat and gram in rabi on his 20 ha land.
Details of technology demonstrated	: Improved variety JLS 27, seed treatment (Carbendazim + mancozeb), wettable sulphur, Quinalphos.
Institutional involvement	: KVK provided critical input and shared technology through field visits, off campus training, diagnostic visits and field day.
Success point	: Use of improved variety gave the higher yield over farmer practice.
Outcome	: As Shri Vishnu harvested yield 17.53 q/ha of linseed (102 per cent higher yield over farmer practice). More farmers in the village will adopt linseed in next year.

Technology	Total cost of cultivation (Rs./ha)	Gross income (Rs./ha)	Net income (Rs./ha)	B:C ratio	% Increase
Improved variety JLS-27, seed treatment wettable sulphur, Quinalphos.	15000	70120	55120	4.67	102



Linseed: JLS 27 line sowing by fertilizer cum seed drill

Name of KVK	: Rewa
Crop & Variety	: Linseed, variety JLS 27
Farmer's name & address	: Shri Guru Prasad, s/o Shri Ramsiya Patel
Background information	: Shri Guru Prasad harvest 5-7 q/ha linseed from his irrigated land.
Institutional involvement	: Krishi Vigyan Kendra, Rewa (M.P.)
Details of technology demonstrated	: Farmer came to contact with KVK scientist and adopted full package and practices of linseed under irrigated condition with the following technology: HYV JLS 27, Inoculated with liquid Azospirillum+PSB in Vermicompost, Spread in field just before sowing. Sowing by fertilizer cum seed drill. Applied sulphur @ of 25 kg/ha. STV based nutrient management. Irrigation on critical growth stages. Need based IPM.
Outcome	: Farmer received highest productivity of 15.5 q/ha (Net income of Rs. 40775 with 3.46 B: C ratio).

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% increase
Demonstration	16575	57350	40775	3.46	67.5



Linseed: Azad Als1 with seed treatment (PSB)

Name of KVK	: Mandsaur
Crop & variety	: Linseed, variety Azad Als1
Farmer's name & address	: Shri Ram Narayan Dhangar, Village-Fatehgarh, District-Mandsaur (Madhya Pradesh)
Background information	: Shri Ram Narayan was traditional growing medium to tall varieties of linseed due to which lodge and gave low yield of crop, yield of linseed declines drastically in existing varieties.
Details of technology demonstrated	: Azad Als1 variety of linseed in (120-125) days and can be grown under low moisture.
Institutional involvement	: KVK, Mandsaur provided critical input (AZAD Als1) along with operational line sowing method, seed treatment and inoculation with bio-fertilizers (PSB), IWM and IPM during Rabi 2016-17 at village Fatehgarh.
Success point	: The crop of Azad Als1 variety of linseed performed better than existing varieties. Under stress conditions there was good numbers of capsules and more number of filled capsules which converts in better grain yield i.e. 15.40 q/ha as compared to farmers practice i.e. 11.00 q/ha.
Outcome:	

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
Demonstration	16500	63140	46640	3.82	40



Linseed: Introduces of JLS-27 HVY

Name of KVK	: Umaria
Crop & variety	: Linseed, variety JLS-27
Farmer's name & address	: Shri Dhani Ram Singh s/o Shri Braj Raj Singh, Village-Haradarn, Block-Karkeli, District-Umaia
Background information	: Existing local variety of linseed grown and small size of capsule & poor yielding susceptible to Gall fly.
Details of technology demonstrated	: Demonstrated HYV JLS 27, resistant to Gall fly
Institutional involvement	: Provided training & seed of improved variety JLS 27 along with other critical input (Seed treatment & bio fertilizer PSB, Azotobactor & vermicompost).
Success point	: Farmers impressed with performance of HYV JLS 27

Performance of technology vis-à-vis local check (increase in productivity and returns)

Technology	Total cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	% Increase
HYV JLS-27 seed treatment, Biofertilizer	11950	44400	32450	3.71	49.59
Local variety	9400	23400	14000	2.48	-

Details	Findings/results	
	Variety/ Practice/Intervention	Local/control
Plant Height (CM)	65	60
Braches/ Plant	17	15
Pods / plant	39	28
Yield q/ha	11.10	5.85



CROP-WISE HIGHEST AND LOWEST YIELD

The Cluster Frontline Demonstration was conducted under the oilseeds in KVKs of different states. In which crop wise highest and lowest yield obtained by three zones under three states of each crops being presented below

Table 7.1: Highest yield obtaining KVKs

Zone	State	KVK	Crop	Demo (nos.)	Area (ha.)	Yield (q/ha)	Reasons
V	Andhra Pradesh	Guntur (Lam)	Groundnut	50	20	52	Improved variety, 3-4 irrigations with ICM packages
VIII	Tamil Nadu	Cuddalore	Groundnut	135	54	48.8	Number of pods per plant and yield was more in demonstration than the check due to management practices viz., seed treatment, gypsum application, balanced fertilizer application, herbicide application and timely technological services provided by TNAU Scientists.
IV	Uttar Pradesh	Mainpuri	Groundnut	63	25	39.4	Seed treatment with Rhizobium culture+ Zaivik Khad @ 5q/ha+ Sulphur@4kg/ha
VII	Madhya Pradesh	Raisen	Linseed	50	20	17.22	High yield due to use of Improved variety
II	Bihar	Patna	Linseed	50	20	11.8	Seed treatment with sulphur application
III	Tripura	Dhalai	Linseed	104	30	11.3	Newly introduced crop variety
I	Haryana	Rewari	Mustard	90	40	32	Due to high yielding variety, seed treatment through Bavistin, INM and IWM
IV	Uttar Pradesh	Firozabad	Mustard	50	20	31.2	Application of weedicide
VII	Madhya Pradesh	Sheopur	Mustard	75	30	26.9	HYV, INM and IPM
VII	Odisha	Rayagada	Niger	50	20	7.3	High yielding, variety, timely weed and pest management
VII	Madhya Pradesh	Betul	Niger	58	30	6.1	Improved variety with IPM
VII	Chhattisgarh	Jashpur	Niger	75	30	4.58	Use of improved variety, Seed treatment, INM

Zone	State	KVK	Crop	Demo (nos.)	Area (ha.)	Yield (q/ha)	Reasons
V	Telangana	Mahabubnagar (Madanapuram)	Safflower	31	20	15.94	Improved Variety PBNS-12 with Integrated crop management practices
V	Maharashtra	Beed (Ambajogai)	Safflower	50	25	13.07	Improved variety PBNS - 12 with soil test based nutrient management, seed treatment and IPM
V	Andhra Pradesh	Kurnool (Banavasi)	Safflower	13	10	8.93	Improved variety PBNS - 12 with Integrated crop management packages
II	West Bengal	Murshidabad	Sesame	134	40	16.88	Improved variety, integrated pest and crop management
VI	Gujarat	Rajkot-I	Sesame	42	20	15.25	Sesame variety G.Til-3 is high yielding for kharif season. Close line spacing and broad casting sowing method. Seed treated with Thirum. Application of bio-fertilizer PSB & Azatobactor Culture with RDF which increased the vailability of Phosphorus& Nitrogen in a soil. Timely insect pest management. Proper irrigation management.
V	Andhra Pradesh	Krishna (Garikapadu)	Sesame	26	20	14.3	YLM-66 (sarada) High yielding, tolerant to leaf spot, root rot and phyllody. Seed treatment, line sowing (30x15 cm), weed management.
VII	Madhya Pradesh	Betul	Soybean	150	60	30	Ridge and furrow, BBF and Improved technology with IPM
V	Maharashtra	Ahmednagar (Bableshwar)	Soybean	50	20	29.82	Improved variety with Integrated Crop Management
VIII	Karnataka	Belagavi-1	Soybean	65	26	19	Less foliage, rust infection and crop canopy was good as compared to check during Stress condition
II	Bihar	Supaul	Sunflower	113	50	26	Good Agronomic management practices
V	Andhra Pradesh	Prakasam (Darsi)	Sunflower	58	40	25.7	Improved hybrid, STV based nutrient management, integrated management for crop, pest and diseases
VIII	Karnataka	Vijayapura	Sunflower	65	26	19.9	Powdery mildew tolerant KBSH 53 is high yielding and escaped powdery mildew

Table 7. 2: Lowest yield obtaining KVKs

Zone	State	KVK	Crop	Demo	Area	Yield	Reasons
VIII	Karnataka	Tumakuru-II	Groundnut	70	28	2.05	Deficit rainfall resulted in lower yield
VII	Chhattisgarh	Surguja	Groundnut	95	30	4.6	Low Population due to heavy rainfall just after sowing
VII	Odisha	Gajapati	Groundnut	75	30	8.23	Due to occurrence of drought like situation for a fortnight
VIII	Karnataka	Bagalkot	Linseed	65	26	1.12	Mosisture stress
V	Maharashtra	Gadchiroli	Linseed	10	25	2.02	less moisture availablity for Linseed after paddy cultivation
VII	Chhattisgarh	Janjgir-Champa	Linseed	43	30	2.5	Late sowing
VI	Gujarat	Dahod	Mustard	50	20	2.63	Majority of the farmers are not growing the mustard as sole crop in this district. There was heavy loss due to bird and animal damage which ultimately led to the lower plant stand and thereby resulted in low production
VII	Chhattisgarh	Dantewada	Mustard	75	30	2.89	Late sowing
VII	Madhya Pradesh	Dindori	Mustard	50	20	2.94	Non availability of improved HYV
VII	Madhya Pradesh	Chhindwada	Niger	112	45	2.5	Uneven rainfall during growing period
VII	Chhattisgarh	Korea	Niger	44	30	3.2	Undulated upland and uneven rainfall during crop growing situation
VII	Odisha	Rayagada	Niger	50	20	5.4	Poor area
V	Andhra Pradesh	Anantpur (Reddipalli)	Safflower	4	10	6.16	Due to low rainfall, the yields affected
V	Maharashtra	Latur	Safflower	30	38	8.7	Poor soil residual moisture
V	Telangana	Ranga Reddy	Safflower	10	25	9.86	Poor germination and lack of Irrigation (drought)
VII	Madhya Pradesh	Chhatarpur	Sesame	75	30	1.9	Heavy rainfall damaged the crop
VII	Chhattisgarh	Korea	Sesame	35	20	1.95	Undulated upland and uneven rainfall during crop growing situation
VII	Odisha	Gajapati	Sesame	75	30	2.6	Incidence of fog during flowering stage
VII	Madhya Pradesh	Damoh	Soybean	65	30	3.5	Low yield due to heavy and continues rains during crop period (1636 mm)
VI	Rajasthan	Dungarpur	Soybean	100	20	7.5	The variety JS 95-60 have short duration. In kharif 2016-17 due to heavy rainfall, some low land fields were water logged
V	Maharashtra	Solapur (Khed)	Soybean	20	50	7.22	Crop was more affected due to dry spell of 40 days during vegetative and flowering stage in the month of August and first fortnight of September 2016. Pod initiation was adversely affected due to heavy rains during 12 to 30 September 2016
II	Bihar	Supaul	Sunflower	113	50	3.25	Due to poor performance of the variety

BUDGETARY PROVISIONS

A total budget of Rs. 10.26 crores was allocated for conducting CFLDs on oilseeds including soybean, niger, groundnut, safflower, rapeseed mustard, sunflower, sesame and linseed and organizing 41 refresher training programmes to each of the eight ATARIs for scientists, in-charge of FLDs at KVKs, provision of one SRF and one Data Entry Operator (DEO) at each of the ATARIs and Agricultural Extension Division at ICAR Headquarters, besides, the miscellaneous expenditure for documentation. The budget provisions were made as per the operational guidelines of NMOOP, Ministry of Agriculture and Farmers Welfare, Government of India.

Table 8.1: Zone wise budget allocation and expenditure for CFLD Oilseed 2016-17

Imple- menting agency /Zones	No of		Area (ha)	Budget For Clus- ter demo (Rs)	Contractual Staff (in Rs)						Training Pro- gramme		Misc. exp.	Total (In Rs.) (Col. 5+7 +9 +12 +14+15)	
	KVK	Demo			SRF		DEO		126 technology Agent at KVKs		No.	Amount Rs.			
					No	Amount Rs.	No	Amount Rs.	6 month	12 month					Amount Rs.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ATARI Zone-I Ludhiana	39	2025	810	2675000	1	360000	1	180000	0	0	0	4	144000	40000	3399000
ATARI Zone-II Kolkata	81	12975	5190	18550000	1	390000	1	180000	32	14	3600000	8	288000	40000	23048000
ATARI Zone-III Meghalaya	32	3850	1540	5025000	1	330000	1	180000	10	1	720000	4	144000	40000	6439000
ATARI Zone-IV Kanpur	47	3525	1410	6100000	1	360000	1	180000	4	0	240000	4	144000	40000	7064000
ATARI Zone-V Hyderabad	65	5550	2220	10750000	1	390000	1	180000	12	0	720000	5	180000	40000	12260000
ATARI Zone-VI Jodhpur	51	5775	2310	10035000	1	360000	1	180000	3	0	180000	5	180000	40000	10975000
ATARI Zone-VII Jabalpur	84	13125	5250	22265000	2	750000	2	360000	22	9	2400000	8	288000	80000	26143000
ATARI Zone-VIII Bangalore	24	4840	1936	10997000	1	390000	1	180000	12	7	1560000	3	108000	40000	13275000
Total	423	51665	20666	86397000	9	3330000	9	1620000	95	31	9420000	41	1476000	360000	102603000



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