First Hand Report

KVKs at farmers' doorsteps

for strengthening capabilities to combat whitefly epidemic in cotton

ICAR- Agricultural Technology Application Research Institute (ATARI)
Zone-1, PAU Campus, Ludhiana-141 004

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PREFACE

Cotton is an important commercial crop in the Zone of Agricultural Technology Application Research Institute (ATARI), Ludhiana. Cotton growing area in northern India falls in the states of Haryana, Punjab and Rajasthan. The cotton in this region suffered gravely due to whitefly epidemic; therefore, entire cotton belt was sensitized for effective management of whitefly attack by organizing a systematic mass campaign. Even though Rajasthan falls in Zone-VI, it was also covered in the campaign considering its agro-climatic integrity with cotton belt.

Deliberating the issue in a holistic approach, a Brain Storming Meeting was organised under the dynamic leadership of Prof. B. S. Dhillon, Vice Chancellor, PAU involving researchers, KVK scientists and other stakeholders for framing the immediate strategy to combat the epidemic. All the stakeholders including Department of Agriculture were assembled together on a single platform and teams were constituted for implementing the mass awareness campaign. Based on the learning, a First Hand Report on "**KVKs at Farmers' Doorsteps for strengthening capabilities to combat whitefly epidemic in cotton**" is being prepared to highlight the causes of epidemics and efforts of Team KVK in organizing mass awareness campaign.

In this context, I take this opportunity to record my sincere gratitude to Dr. S. Ayyappan, Secretary, DARE and Director General, ICAR and Dr. A. K. Singh, Deputy Director General (Agricultural Extension) for their valuable guidance and support. I also extend my sincere gratitude towards Dr. B. S. Dhillon, VC, PAU, Ludhiana and Dr. K. S. Khokhar, VC, CCSHAU, Hisar for their outstanding support, guidance, and motivation during the course of the campaign.

I thank and acknowledge the all out support and help rendered by Dr. R. S. Antil, Director (Ext), CCSHAU; Dr. R. S. Sidhu, Director (Ext), PAU; Dr. Balwinder Singh, Director (Research), PAU; Dr. S.S. Siwach, Director (Research), CCSHAU; Dr. Dilip Monga, Head and Dr. Rishi Kumar, Pri. Scientist, CICR Regional Station, Sirsa. I sincerely acknowledge their contribution in providing relevant information for compiling and editing this report.

I extend my heartfelt gratitude to Programme Coordinators of KVKs, officials from State Agriculture Departments, farmers and rural youth for their active participation in this campaign. I acknowledge the genuine efforts of the staff of ATARI particularly Dr. Keshava, Pri. Scientist and Dr. Ashish Santosh Murai, Scientist for their steadfast involvement in the preparation of this report. I fervently hope that this publication will serve as base material for ready learning experience.

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CONTENT

Executive Summary

Cotton is one of the most important commercial fibre crops which plays a vital role in the Indian economy and generates direct and indirect employment for more than eight million people. The cotton grown in Northern part of the country is mostly irrigated and mainly cultivated in the states of Haryana, Punjab and Rajasthan. Almost 90% of the cotton growing area in northern India is restricted to 11- 12 districts namely Sirsa, Fatehabad, Hisar, Jind and Bhiwani in Haryana; Bhatinda, Muktsar, Fazilka, Faridkot and Mansa in Punjab and Sriganganagar and Hanumangarh districts in Rajasthan. During kharif 2015, cotton covered about 5.81, 4.20 and 4.06 lakh hectare areas in Haryana, Punjab and Rajasthan respectively. In spite of abundant irrigation in the region, fluctuation in the productivity of cotton has always put a question mark on the sustainability of the system.

The major bio-physical constraints identified are inadequate crop stand because of poor seedling emergence through crusts formed by rains immediately after sowing; seedling burns due to high temperature at emergence stage; soil alkalinity or salinity; less turn-around time and September rains coinciding with flowering and fruit setting stages. Moreover; pest and disease incidences such as cotton bollworms earlier and currently, after the introduction of Bt-hybrids, sucking pests especially the white fly, cotton leaf curl virus (CLCuV) disease and evolving pest resistance to insecticides.

With more than 90% cotton area under Bt-Hybrids, pest population pressure has shifted towards sucking pests. Among several sucking insect pests, the whitefly, *Bemisia tabaci* (Gennadius) has assumed the status of a serious pest of cotton in the recent past. In 2015, whitefly infestation were first noticed in early June over the three states. Likewise, August 2015 witnessed severe epidemic of whitefly in the entire region with insect population above Economic Threshold Level (ETL). Whitefly attack and favourable weather conditions triggered infestation of CLCuV disease; which was much severe compared to previous three years. Fields sprayed repeatedly with insecticides and even with the mixture of insecticides like Fipronil and Pyrethroids, experienced high levels of whitefly infestation.

Punjab, in the current season, witnessed heavy incidence of the whitefly on cotton. The attack was very severe in the districts of Faridkot, Fazilka, Muktsar and Mansa. Akin to 2010, the insect appeared early in the season. Infestation of the whitefly was so severe that more than 90 adults per leaf were recorded in few fields. High severity of whitefly infestation

was recorded in August in Hansi and Hisar region of Haryana; mainly due to planting of susceptible Bt-hybrids.

One of the main causes of the crop failure may be attributed to the climatic variability like unseasonal rainfall in April, early and heavy rainfall during June followed by a long dry spell and overall deficit in the monsoon (more than 40% in the cotton belt). Due to wetness during April, the harvesting of wheat was delayed and it resulted into postponement of the date of sowing of cotton (after 15th May); the crop was more susceptible to the whitefly attack due to its poor growth. Further, surveys conducted by KVKs indicated that more than 60% of the cultivated hybrids were not at all recommended by the SAUs. Use of non-recommended varieties of cotton may be one of the reasons which led to attack of whitefly as these varieties were not tested for susceptibility to the whitefly. Moreover, there was a deficient rainfall of around 100 mm up to July (as per regional station observatory) in the region lead to severe incidence of whitefly during June and July thereby escalating leaf curl virus disease.

Looking into severe attack of whitefly in cotton, one-day Brain Storming Session (BSS) on 'Management of Whitefly Incidence on Cotton' was held at PAU- Regional Research Station, Bhatinda on 01-09-2015 under the chairmanship of Dr. Baldev Singh Dhillon, Vice-Chancellor, Punjab Agricultural University, Ludhiana. Director, ATARI, Ludhiana; Directors (Research) and Directors (Extension) from PAU, CCSHAU and RAU; scientists from CICR- Regional Station, Sirsa and scientists from KVKs participated in the meeting. The issue was deliberated with full length and breadth, a unified strategy was finalized and an action plan was immediately rolled out. It comprised extensive campaigning for popularizing recommended pesticides with prescribed doses, discouraging farmers to use cocktail of pesticides and organisation of field days for management of white fly. KVK scientists, researchers and other stakeholders were the part of the campaign. Community approach was followed for applying insecticides to control whitefly at grass root level.

The KVKs of cotton belt of Punjab (Bathinda, Faridkot, Ferozepur, Mansa and Muktsar) and Haryana (Bhiwani, Fatehabad, Hisar, Sirsa and Jind) have worked in close collaboration with State Agriculture Department and Agricultural Technology Management Agency (ATMA) of the respective districts to help the farmers mitigate the losses due to attack of whitefly on cotton crop. In total, 48 joint diagnostic visits of KVK scientists and personnel of State Agriculture Department/ATMA (28 visits in Punjab and 20 visits in Haryana) were performed in 190 villages (158 villages in Punjab and 32 villages in Haryana) to assess the severity of attack of whitefly/condition of cotton crop and advise the farmers

about suitable remedial measures. A total of 82 advisories on different facets of management of whitefly in cotton were sent through different mass media namely, radio (7 advisories), television (4 advisories), newspaper (55 advisories) and KVK Newsletter (5 advisories). The scientists of KVKs replied to 3714 queries (1365 queries in Punjab and 2349 queries in Haryana) of farmers on telephone/mobile. The KVKs also sent 38 short message on advisories (11 advisories in Punjab and 27 advisories in Haryana) through Farmers' Portal of Department of Agriculture and Cooperation, Government of India on mobiles of 44840 farmers (8148 farmers of Punjab and 36692 farmers of Haryana). Besides, the scientists of KVKs also organized capacity building/awareness programmes on whitefly management for practicing farmers and extension personnel of State Department of Agriculture. In all, 3316 farmers and 305 extension personnel were trained in 63 capacity building/awareness programmes. In addition, scientists of KVKs used social media viz. whatsapp and facebook for dissemination of advisories in local language.

1.0 Introduction

Cotton (*Gossypium* spp.) is the most important commercial crop in India and plays vital role in agricultural, industrial, social and monetary affairs of the country. Cotton popularly known as "White Gold" is grown mainly for fiber, besides, cotton seed is second important source of the edible oils. India has been a traditional home of cottons and cotton textiles. The domestication of the cotton cultivation for clothing of humanity was considered to begin in Asian sub-continent using diploid cottons. India is the only country where all the four cultivated species of cotton are grown. Our economy is consistently influenced by cotton through its production and processing sectors, and by generating direct and indirect employment to more than eight million people. The major bottleneck in cotton cultivation is biotic stresses due to attack of insect pests, diseases and competition from weeds which plays a significant role in achieving optimum yield potential. As many as 1326 species of insects have been listed on the cotton crop worldwide which also includes those of little or no economic importance, sporadic, casual or accidental visitors so far as cotton is concerned.

The northern cotton zone is mainly spread in Haryana, Punjab and Rajasthan states of India. In Haryana, the cotton area includes **five districts** in this belt namely Sirsa, Fatehabad, Hisar, Jind and Bhiwani and constitute more than 90% area of crop in the state. In Punjab, the area under in south western part of the state and includes **five districts** namely, Bhatinda, Muktsar, Faridkot, Fazilka and Mansa and covers the major and most productive area of cotton. The area in Rajasthan is categorized under Sriganganagar zone and includes **two districts** of Sriganganagar and Hanumangarh. About 80% of the total cotton area of the entire state is being grown in this zone. This is a contiguous area and the wheat is cultivated in the almost entire area after cotton during the *rabi* season. The area and production of cotton in last three year is presented in Table-1.

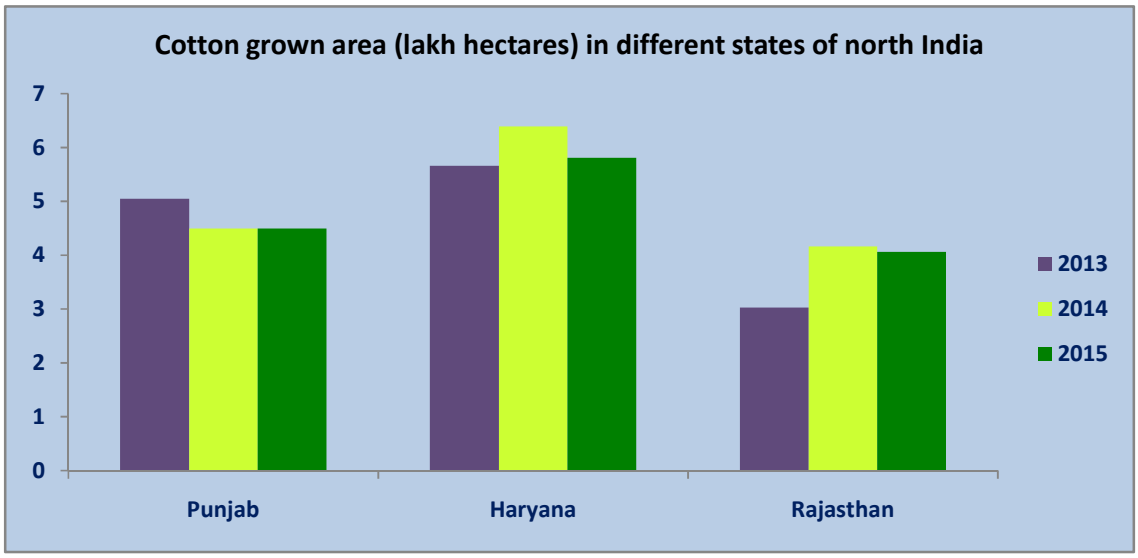
Table-1: Area and production of cotton in North India

States	**Area (Lakh Ha)**			**Production (Lakh bales)**	
	2013	**2014**	**2015**	**2013**	**2014***
Punjab	5.05	4.50	4.20	21.0	14.0
Haryana	5.66	6.39	5.81	24.0	25.0
Rajasthan	3.03	4.16	4.06	14.0	17.0
Northern India	13.74	15.05	14.37	59.0	56.0

*As per CAB dated 13th October, 2014; *Projected

2.0 Production Constraints in North Zone:

The fluctuations in productivity of cotton in the three states despite the total irrigated conditions has brought a question mark on the sustainability of the system. The major bio-physical constraints identified were: inadequate crop stand because of poor emergence due to crust formation by rains just after sowing; seedling burning due to high temperature at



emergence; alkalinity and salinity problems; less turn-around time; rising water-table & depletion of water table in some pockets; rains during September coinciding with flowering and fruit setting; pest incidence such as cotton bollworms earlier and now, after the introduction of Bt cottons, sucking pests especially the white fly, cotton leaf curl virus (CLCuV) disease, and evolution of resistance to insecticides. Development of early-maturing cotton varieties made it possible to follow cotton-wheat cropping system in a year. This doubling of cropping intensity from 100 to 200% gave a significant boost to the economy of farmers in irrigated tract in northern India. Acreage under cotton increased in all the three states manifolds due to the double cropping. With the increase in area under cotton, insects-pests also became a serious problem in the region. In spite of usage of huge amount of pesticides, the control of insect-pests became a source of socio-economic tension to the farmers. Injudicious use of pesticides created havoc not only in polluting the environment but also in development of insecticide tolerance in whitefly in cotton.

3.0 Major insects of cotton

In Northern India, cotton ecosystem harbours about 134 insect species, of which 9 are of utmost importance inflicting significant losses in yield. The insect pest complex of cotton

crop broadly categorized into three groups viz. sucking pests, foliage feeders and bollworms cause damage to various plant parts at different growth stages throughout the cropping season in the Punjab and Haryana. Among the sucking insect pests, jassid, whitefly, mealybug, thrips, etc. can cause economic damage to cotton crop. In the absence of effective genetic resistance against whitefly, farmers relied on insecticides for their effective management.

4.0 Whitefly, its biology and Nature of damage:

Among several sucking insect pests, whitefly, *Bemisia tabaci* (Gennadius) has assumed the status of a serious pest of cotton in the recent past. The cotton whitefly has originally been described on tobacco in Greece in 1889. It has been reported as a serious pest of a number of cultivated crops in tropical and subtropical areas including Africa, Asia, Central and South America, and the West Indies, where it is known by the name tobacco whitefly. In India, it was first recorded on cotton at Pusa (Bihar) during 1905 and assumed the status of a serious pest on cotton in Punjab in the 1930's. Subsequently, outbreaks of this pest were noticed in different cotton growing states in India, viz. undivided Punjab (1930-43), Andhra Pradesh (1984-87), Tamil Nadu, Maharashtra and Karnataka (1985-87), Gujarat (1986-87) and Punjab (1996). The introduction of synthetic pyrethorids in cotton to control bollworm in early eighties gave further boost to the whitefly. By now, it has created a niche in agroecosystem and has almost become a pest of regular occurrence in all the cotton growing regions of the country. Being polyphogus, its presence can be felt in many other crops as well. The period of activity of whiteflies lasts from the emergence of seedling to the full grown crop. During the end of cotton season, the adults migrate to other crops such as crucifers, cucurbits, solanaceous, malvaceous plants and other weed host plants. They migrate to new season cotton crop as soon as it is in the field.

4.1 Biology: Whitefly adults are tiny, moth-like insect that feed on plant sap. They have two pairs of white wings that fold back over their abdomen when at rest. Adult whiteflies feed and lay eggs on the new growth of plants, so these areas need to be inspected first. Eggs are laid usually in circular groups which are whitish in colour when first laid, but gradually turn brown. Female whitefly on an average laid 56.8 eggs. Hatching occurred after 3.7 days. On hatching, the first instar or crawler is flat, oval and scale-like and is the only mobile larval stage. It moves to a suitable feeding location on the lower leaf surface where it moult and becomes sessile throughout the remaining nymphal stages. The first three nymphal stages lasted for 9.6 days. The fourth nymphal stage is termed as puparium, which lasted in about 4 days. Copulation begins 12-20 hours after emergence and takes place several times

throughout the life of the adult. Pre-oviposition period was 1.2 days. A female lived for 5.7 days and male for 4.5 days. About 11 generations can occur within cotton growing season (April-October). *B. tabaci*, a haplodiploid species, reproduce by arrhenotoky i.e. unmated females produce only haploid male offspring, and mated females produce haploid male and diploid female offspring. Adults of whitefly do not fly very efficiently but, once airborne, they can be transported quite large distances by the wind.

4.2 Nature of damage: The whitefly is a devastating pest of field crops, vegetables and ornamental plants throughout the tropical and subtropical regions of the world. It is a polyphagous pest and feeds on about 600 plant species. On cotton crop, the pest causes damage by direct feeding or through contamination of lint by honeydew and sooty mould. The adults and nymphs suck cell sap resulting in leaf yellowing, leaf wilting, leaf drop, and overall decline in growth of the plant. Nymphs and adults also excrete sugary liquid called 'honeydew' on which sooty mould grows. When plants are completely covered with sooty mold, it may interfere with photosynthesis which can affect the overall health and growth of a plant. Whitefly can also acquire and transmit a range of plant viruses which produce a variety of different symptoms on susceptible plant species. Infected plants could exhibit vein yellowing, leaf yellowing, yellow blotching of leaves, yellow mosaic of leaves, leaf curling, leaf crumpling, leaf vein thickening, leaf cupping, stem twisting, plant stunting, etc.

4.3 Natural enemies of whitefly: There are several species of predators and parasitoids that are associated with cotton whitefly. Besides spiders which catch large numbers of adult whiteflies in their webs, eight species of other natural enemies were observed, including five species of predators and three species of parasitoids. The predators observed feeding on whitefly nymphs and pupae include beetles, *Serangium parcesetosum Sicard, Brumoides suturalis* (Fab.), *Cheilomenes sexmaculata* (Fab.), *Coccinella septempunctata* L., a neuropteran, *Chrysoperla zastrowi sillemi* (Esben-Petersen) and three species of parasitoids, namely, *Encarsia lutea* (Masi), Encarsia Sophia (Girault & Dodd) and *Eretmocerus* sp. Data on parasitization of whitefly pupae recorded from May to December, 2014 revealed that there was no whitefly pupae parasitization in May-June. Parasitization was recorded from July onwards as 10.0% pupae were found parasitized in the first week of July. Parasitization of whitefly pupae increased considerably from July onwards being maximum (63.9%) in 3rd week of August. During 2015, whitefly parasitization ranged from 11-41 per cent, being minimum in June and maximum in the month of August.

5.0 Whitefly attack in cotton and current status:

Whitefly is a major pest of cotton in India. The whitefly sucks sap from phloem and caused yellowing and upward curling of the leaves. The insect also deposits sticky honeydew excretion, which promotes sooty mould that interferes with photosynthesis and reduces quality of the produce. Sticky cotton makes ginning and milling difficult. In north India, whitefly is present throughout the year shifting from one crop to the other. The whitefly transmits the dreaded cotton leaf curl virus disease (CLCuD). There are no control measures for the leaf curl virus/ Disease affected plants are stunted with fewer numbers of bolls and reduced yields. Infected plants serve as source of inoculums and infestation for the remaining healthy fields.

- During the cotton season 2015-16, a severe epidemic of whitefly incidence has been noticed in the North Cotton Growing zone of India during August. The whitefly infestation levels and CLCuV disease in July-August were higher than the previous three years.
- During this season, whitefly infestation and the CLCuV disease was first noticed in early June in all the three states.
- This year incidence and severity of disease in north zone was higher compared to past three years mainly because of favorable weather factors for its development and multiplication of its vector whitefly.
- There was a deficient rainfall (Around 100 mm rain fall received up to July as per regional station observatory) in the cotton growing areas in the region up to July which lead to severe incidence of whitefly during June and July thereby escalating leaf curl virus disease.
- The whitefly incidence remained high in cotton growing areas of Haryana, Punjab and Rajasthan during this period. The insect population was above economic threshold during August in almost all the regions surveyed in Punjab, Haryana and Rajasthan.
- CLCuV was above grade-II during August in > 90% of the hybrids surveyed in the three states, except in early sown crop.
- Thus far, high levels of whitefly infestation were noticed in the second week of August in all the three states.
- Fields sprayed with repeated insecticide sprays, insecticide mixtures, fipronil and pyrethroids had the highest levels of whitefly infestation.
- In Punjab, the current season has witnessed heavy incidence of the whitefly on cotton. The incidence was very severe in Abohar, Faridkot, Fazilka, Muktsar and Mansa districts. The insect appeared early in the season, similar to the incidence in 2010. Infestation of whitefly was so serious that more than 90 adults per leaf were recorded in some fields.
- High severity of whitefly infestation was noticed in August in Hansi and Hisar region of Haryana mainly due to planting of susceptible of susceptible Bt cotton hybrids.

6.0 Major causes of epidemic of white fly in cotton:

6.1 Delay in sowing: Due to wetness during April, the harvesting of wheat was delayed and resulted into delay in sowing of cotton (after 15th May) which was more susceptible to white attack due to poor growth. Weekly sowing details of cotton during 2015 in different districts of Haryana are presented in Table 2 whereas fortnightly sowing in Punjab is presented in Table 3. The data in Fig-1 depicted that in Haryana, more than 55% area was sown upto 15th May in Sirsa, Fatehabad, Hisar and Bhiwani whereas it was only 27.7 and 29.3 % in Jind and Rohtak. In Punjab, more than 80% area was sown in Bhatinda, Faridkot, Fazilka and Sangrur where as it was only 61% in Muktsar (Fig-2).

Table 2: Weekly sowing details of total area sown in Haryana under cotton during 2015

Name of District	%age of area sown					Total area sown (ha)
	8-05-2015	15/05/2015	25/05/2015	After 5/05/2015	Total after 25/05/2015	
Sirsa	3.68	56.82	24.76	14.74	39.5	**190000**
Fatehabad	1.69	53.73	29.55	15.04	44.59	**79185**
Hisar	19.54	36.85	30.28	13.31	43.59	**125660**
Jind	1.39	26.27	56.19	16.15	72.34	**63000**
Bhiwani	5.97	54.2	19.41	20.41	39.82	**62700**
Rohtak	0.85	28.45	41.21	29.48	70.69	**14757**
Sonipat	17.33	62.87	13.86	5.94	19.8	**5050**
Kaithal	23.45	4.11	35.74	36.68	72.42	**12279**
Narnaul	3.13	3.58	84.35	8.94	93.29	**12300**
Jhajjar	15.84	39.84	28.11	16.22	44.33	**3700**
Palwal	88.26	5.27	4.01	2.46	6.47	**8724**
Rewari	13.44	5.31	36.88	44.37	81.25	**3200**
					Total	**580555**

(Source: State Department of Agriculture, Haryana)

Table 3: Sowing period of cotton during the crop season 2015-16 in Punjab

(Area in 000 ha)

District	April	1-15 May	16-31 May	1-15 June	Total
Barnala	0.00	5.78	2.22	0.00	8.00
Bathinda	0.96	111.77	26.27	0.00	139.00
Faridkot	2.41	7.45	0.15	0.00	10.00
Fazilka	2.76	78.12	18.12	0.00	99.00
Mansa	30.21	48.75	5.04	0.00	84.00
Moga	0.00	1.00	0.00	0.00	1.00
Muktsar	7.15	33.18	23.79	1.88	66.00
Sangrur	5.05	7.87	0.08	0.00	13.00
Overall	**45.84**	**285.72**	**85.56**	**2.88**	**420.00**

(Source: Field Survey; Department of Economics and Sociology, PAU, Ludhiana)

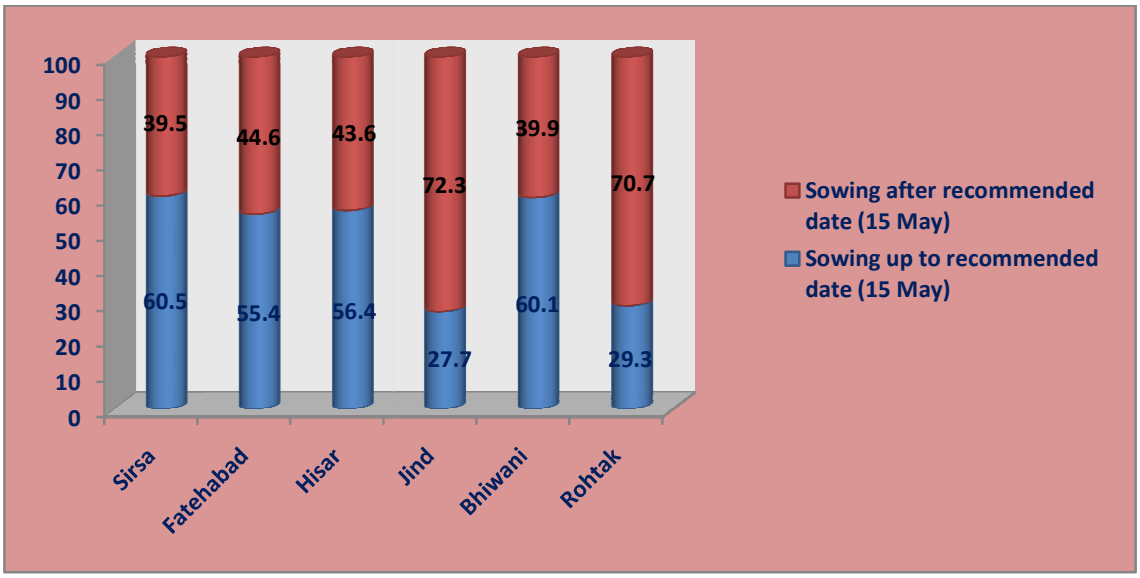


Fig-1. Percentage of area sowing under Cotton crop during 2015-16 in Districts of Haryana

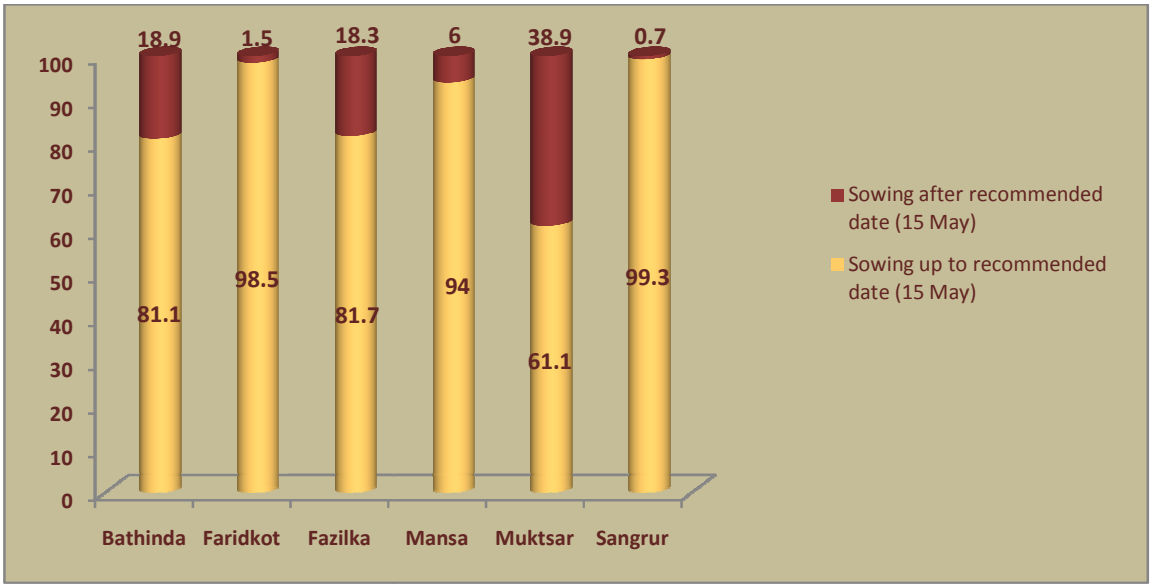


Fig-2 Percentage of area sowing under Cotton crop during 2015-16 in Districts of Punjab

6.2 Use of non-recommended hybrids of cotton: Farmers are using non-recommended Bt-hybrids which causes serious problem due to unsynchronised growth behaviour. Survey conducted by KVKs indicated that more than 60% hybrids are not recommended by SAUs. In Mansa district, the area under recommended varieties of Bt cotton was only 11% (Table 4) which clearly indicated that farmers have used non-recommended varieties. Non-

recommended varieties of cotton may be one of the reason which resulted into more attack of whitefly as these varieties may be susceptible to the attack of whitefly as these varieties have not been tested.

Table 4: Variety wise sowing time of cotton in the district

Variety	16-30 April	1-15 May	16-31 May	1-15 June	Total	Percent to Grand Total
Bt Cotton Recommended Varieties						
1. RCH 650	4.0	9.0	1.5	-	14.5	3.95
2. Ankur 3028	6.5	13.5	-	-	20.0	5.44
3. NCS 855	4.0	1.5	-	-	5.5	1.50
Sub-total (a)	**14.5**	**24**	**1.5**	**-**	**40.0**	**10.88**
American Cotton Recommended Varieties						
1.	-	-	-	-	--	-
Sub-total (b)	**-**	**-**	**-**	**-**	**-**	**-**
Desi Cotton Recommended Varieties						
1.	**-**	**-**	**-**	**-**	**-**	**-**
Sub-total (c)	**-**	**-**	**-**	**-**	**-**	**-**
Area under un-recommended varieties						
1. Sri Ram 6588	25.0	32.5	-	-	57.5	15.65
2. Sri Ram 6488	14.5	13.0	1.5	-	29.0	7.89
3. Gujarat seed	4.0	22.5	14.5	-	41.0	11.16
4. Jehlum 74634	10.0	14.0	-	-	24.0	6.53
5. RCH 653	13.0	12.0	-	-	25.0	6.80
6. Haryali	11.0	4.5	-	-	15.5	4.22
7. RCH 776	6.0	15.25	-	-	21.25	5.78
8. US 21	4.5	11.5	-	-	16.0	4.35
9. RCH 602	9.0	7.0	-	-	16.0	4.35
10. Sri ram 105	-	10.0	-	-	10.0	2.72
11. Pancham	-	9.5	-	-	9.5	2.59
12. JK 109	6.0	-	-	-	6.0	1.63
13. JK 1947	-	5.5	-	-	5.5	1.50
14. Raghav	-	4.5	-	-	4.5	1.22
15. Balwan	1.0	3.5	-	-	4.5	1.22
16. Ankur 3244	1.25	4.0	-	-	5.25	1.43
17. Sidhant	-	4.5	-	-	4.5	1.22
18. Others	12.5	15.5	4.5	-	32.5	8.84
Sub-total (d)	**117.75**	**189.25**	**20.5**	**-**	**327.5**	**89.12**
Grand Total (GT) = a+b+c+d	**132.25**	**213.25**	**22.0**	**-**	**367.5**	**100.00**

(Source: Survey report of Mansa District, KVK, Mansa, 2015)

6.3 Climatic variability: One of the main causes of this failure may be attributed to climatic variability like unseasonal rainfall in April, early and heavy rainfall during June followed by long dry spell and overall deficit in monsoon (more than 40% in cotton belt).

6.3.1 Relation of rainfall during June and outbreak of Whitefly in Haryana: Under normal weather conditions whitefly adult population was observed above economic threshold (ET) (6-8 adults/leaf) only in the month of September in surveys of cotton fields in cotton growing areas of Haryana (Table 5). However, during the last three years (2013-2015) whitefly populations was observed above ET in the months of July, August and September. Heavy and frequent rains during second fortnight of June appear to be the possible reason for whitefly outbreak in the month of July. High humidity and low temperature as a result of rains during second fortnight of June appear of have favoured whitefly multiplication during this period. Heavy rains during middle of June in 2013 and frequent rains during second fortnight of June in 2014 and 2015 could have been the reason for buildup of whitefly population during July onwards in these years (Table 6 &7).

During survey in these years it was found that whitefly damage was more in late sown (June) cotton as compared to timely sown. Stressed crops due to lack of irrigation, water logging, salts in soil and irrigation water, nutrients deficient soil, poor weed management, etc. were more damaged as compared to well managed crops. Stress plants invite more insects. Plant stress results in increased concentrations of mobile nitrogen in leaves particularly amino acids. Increased nitrogen availability results in increased insect growth, fast development, increased survivorship and fecundity and thus increased abundance and damage.

Table 5 Per cent cotton fields with whitefly adult population above economic threshold (6-8 adults per leaf) in cotton growing areas of Haryana (upto August, 2015)

Month	Year					
	2010	2011	2012	2013	2014	2015
June	0	0	0	0	0	0
July	0	0	0	8	15	55
August	0	0	0	28	43	58
September	0	0	5	44	37	-

Table 6 Rainfall pattern in different weeks in the month of June 2010-2015 at Hisar

Standard week		Year					
	SMW	2010	2011	2012	2013	2014	2015
May 28-June 3	22	0	28.2	10.5	0.0	9.0	0.0
June 4-10	23	47.8	13.9	0.0	0.0	0.0	0.0
June 11-17	24	0	0.0	0.0	97.3	37.5	40.4
June 18-24	25	0	7.5	15.0	0.0	10.6	51.6
June 25-July 1	26	2.5	21.7	1.0	0.0	14.5	69.0
Total		50.3	71.3	26.5	97.3	71.6	161.0

Table 7 Rainfall pattern in different weeks in the month of June 2010-2015 at Sirsa

Standard week	Year					
	SMW	2011	2012	2013	2014	2015
May 28-June 3	22	16.0	0.0	0.0	2.5	0.0
June 4-10	23	0.0	10.8	0.0	0.0	0.0
June 11-17	24	0.0	0.0	29.6	0.0	8.0
June 18-24	25	0.0	0.0	0.0	0.0	8.2
June 25-July 1	26	18.6	0.2	0.0	8.2	6.6
Total		**34.8**	**11.0**	**29.6**	**10.7**	**22.8**

6.3.2 Relation of rainfall during June and outbreak of Whitefly in Punjab: Under normal In Punjab, during 2014, incidence of whitefly on cotton crop remained above ETL during August and September. The higher incidence was recorded in the Abohar area of Fazilka district in comparison to all other districts of cotton belt of Punjab. However, it was controlled with the use of recommended insecticides without much impact on yield. During 2015, the higher incidence of whitefly was observed in the Abohar and Khuia Sarwar block of Fazilka district, Jhunir Block of Mansa and Sangat block of Bathinda district.

Table 8 Rainfall pattern in different weeks in the month of June 2010-2015 at Bathinda

Standard week	Year					
	2010	2011	2012	2013	2014	2015
May 28-June 3	0.0	4.8	3.6	0.0	0.0	0.0
June 4-10	7.0	0.0	2.6	0.0	0.0	0.0
June 11-17	0.0	0.0	4.8	190.0	3.2	12.4
June 18-24	0.0	0.0	0.0	0.0	13.4	0.5
June 25-July 1	40.4	18.6	0.0	10.4	4.2	4.7
July 2-9	1.0	35.2	3.0	16.4	13.2	33.7
Total	48.4	58.6	14.0	216.8	34.0	51.3

However, during the last three years (2013-2015) whitefly populations was observed above ET in the months of August and September. **Heavy and frequent rains during second fortnight of June appear to be the possible reason for whitefly outbreak in the month of July** (Table 8). High humidity and low temperature as a result of rains favoured whitefly multiplication during this period. However there was an epidemic of whitefly during this year and damage varied from block to block in different districts.

Other factors: Spurious pesticides, cocktail application of pesticides, injudicious use of chemicals etc have also contributed to this situation.

7.0 Factors contributing to outbreaks:

1. Global experimental data affirms that majority of recommended insecticides disrupt naturally occurring biological control thereby leading to whitefly outbreaks in cotton across the world. Therefore neem-oil based insecticides, soap sprays and insect growth regulators are recommended. This season insecticides such as fipronil and synthetic pyrethroids were used frequently also as mixtures with organophosphate insecticides (monocrotophos, acephate and triaxzophos) in north India right through July-August. These insecticides severely aggravate pest populations leading to resurgence and outbreaks.
2. Bt cotton hybrids cultivated in north India were released directly without subjecting them to rigorous screening for tolerance to whitefly and the leaf curl virus. More than 90% of the Bt-cotton hybrids under cultivation are highly susceptible to the whiteflies and the cotton leaf curl virus.
3. Hot and humid conditions are congenial for whitefly outbreaks. The weather during May-July was ideally suited for whiteflies. Prolonged cloudy conditions and intermittent scanty rains caused high humidity and hot weather leading to whitefly outbreaks. Late sown crop has tender foliage in June-July which coincides with whitefly peaks thus leading to higher pest infestation. Late sowing after second week of May caused high levels of CLCuV infestation coupled with whitefly outbreaks. This year sowing was delayed due to late harvesting of wheat and late release of canal water.
4. Whiteflies are present continuously in north India due the availability of wide range of crops all through the year. Crops such as rice, guar (cluster bean), and moong, groundnut and kharif vegetables are predominantly grown during the season. Both guar and moong crop are a good alternate host of whitefly. The insect is continuously subjected to selection pressure by insecticides used for its control.
5. Several weeds serve as hosts for the whitefly and the CLCuV disease. Severity of the disease depends on the level of weed infestation in the vicinity of fields.
6. Whiteflies have developed resistance to all the used insecticides. There are very few insecticides that are effective. This has resulted in excessive indiscriminate insecticide sprays that disrupted ecosystems, which led to the severe whitefly outbreaks and further development of resistance.

8.0 Organisation of Brain Storming Session: Steps towards unified effort

Looking into severe attack of whitefly in cotton, one-day Brain Storming Session (BSS) on 'Whitefly Incidence on Cotton' was held at Regional Research Station of PAU, Bhatinda on 01-09-2015 under the chairmanship of Dr Baldev Singh Dhillon, the Worthy Vice-Chancellor, Punjab Agricultural University, Ludhiana. Director, ATARI, Ludhiana, Director (Research), Director (Extension) from PAU, CCSHAU, RAU; Scientists from regional centre of CICR, Sirsa, scientists from KVKs participated in the meeting. The issue was deliberated with full length and breadth and recommendations were finalized.

9.0 Various actionable points/recommendations of BSS:

9.1) Immediate Action on Standing Crops

- Extensive campaign for:
    a) Using recommended pesticides (Ethion, Triazophos, Oberon and Polo) in recommended dose
    b) Not to use mixture of pesticides and the same insecticide second time
    c) Follow proper spray technology
    d) Field days be organized where the whitefly has been effectively managed
    e) Management of whitefly in mung and mash, okra, tomato and brinjal grown in the adjoining fields
- Community approach at village level may be followed for the application of insecticides to control whitefly (the pesticides be applied at all farmers fields of the village on the same day)

- If the crop is to be uprooted, the crop must be sprayed before doing so otherwise whitefly will move to adjoining fields
- Remove weeds in paths, water channels, roadsides etc
- Spray potassium nitrate (13:0.45) @ 2kg/acre to improve the health of the crop
- Spray blitox to control sooty-mould in cotton so that quality of lint is not affected

9.2) Action for Next Season Cotton and Other Kharif Crops

- The weeds like puthkanda, peeli buti, kanghi buti are alternate hosts for whitefly and leaf curl. An extensive campaign should be undertaken to eradicate this weed starting from the month of February
- Canal water should be supplied for timely sowing of cotton (April to 15th May)
- Since the incidence of whitefly in normal sown crop is less as compared to late sown crop, a caution to be added in the Package of Practices for the farmers to avoid delay in cotton sowing
- Extensive campaign to be launched by Department of Agriculture for the management of whitefly as was done for the control of mealy bug during 2006
- Community approach at village level be followed for the application of insecticides to control whitefly (the pesticide to be applied at all farmers fields of the village on the same day)
- Information on those pesticides which are not effective against whitefly to be highlighted in the Package of Practices
- Information on proper spray technology to be highlighted in the Package of Practices
- Air assisted boom spray pump be provided by the Government to Agromachinery Service Centre under Primary Agricultural Cooperative Credit Societies for precise and effective spray of pesticides for the control of whitefly
- The Department of Agriculture may take the services of Scouts for educating the farmers about the management of whitefly. SAUs will provide technical guidance in this regard
- Department of Agriculture to regularly monitor and check the quality of pesticides and seeds of Bt cotton hybrids
- On-farm trials will be organized by KVKs to demonstrate the plant protection technologies for the control of whitefly

9.3 Other Prevent Measures

9.3.1 Cultural control

- Grow only recommended varieties/hybrids
- Complete the sowing from April-15 May. It will help to escape the attack of whitefly to a great extent.
- Follow the recommended spacing of 67.5 x 75 cm for Bt cotton as closely sown plants attains more height and create favourable micro climate for whitefly.
- Avoid sowing of American cotton in or near the orchard.
- Avoid growing of vegetable crops like tomato, okra, brinjal and pulse crop like moong, mash and guar in or around cotton field to avoid simultaneous build up and spread of whitefly to cotton.
- Keep the fields free from alternate weed host plants in or around the cotton field as the act as a host of whitefly. Eradicate the weeds like path kanda, peeli buli, kanghi buti, gutputna, makoh, bhakra growing on field bunds, waste land, road side, irrigation channel/canals.

9.3.2 Chemical control

- Regular monitoring followed by campaign is effective strategy for management of whitefly.
- Strictly follow economic threshold levels and spray against whitefly should be done when population reaches 6 adults per leaf in the upper canopy of plant before 10 am or when honeydew appears on 50 per cent of plants,
- Triazophos 40EC @ 600 ml/acre or Ethion 50EC @ 800 ml/acre are effective against whitefly, however, in case of severe infestation, spray of Polo 50WP (Diafenthiuron) @ 200 g/acre will effectively control the whitefly.
- When adult population is low and leaf coverage by the whitefly nymphs on the under surface of leaves are more or when honeydew symptoms appear on the plants, spray of Oberon 240 Sc (spiromesifen) @ 200 ml/acre will effectively control the whitefly.
- Proper coverage of underside of leaves during the insecticidal sprays effectively reduces the whitefly population. If possible all the farmers of village should spray at same time for its effective management.
- Avoid tank mixing and readymade insecticides mixture of synthetic pyrethorids.
- Use fixed type solid cone nozzle for effective whitefly management.
- Do not use the same insecticide repeatedly.

10.0 KVKs efforts for strengthening capabilities to combat whitefly epidemics

KVKs of Punjab and Haryana played significant role in creating awareness and strengthening cotton farmers' capabilities to combat with the problems of whitefly attack in cotton. In his endeavor, the KVKs of cotton belt of Punjab and Haryana worked in close collaboration with district Agriculture Department and ATMA. The joint diagnostic visit of personnel of both the organizations were made to assess the problem and make the farmers aware. KVKs organized training programmes for famers and extension personnel to build their capabilities in mitigating the losses due to whitefly. The ICTs like radio, Television, newspaper, newsletter, mobile, telephone, etc. were used by KVKs for dissemination of suitable agro advisories among the farmers. The KVKs also executed On Farm Trials and Frontline Demonstrations to educate the farmers. The KVK wise efforts made to diminish the losses due to attack of white fly is given in the following parts of the report.

11.0 Efforts of KVK Bathinda

As per survey report of State Department of Agriculture Govt. of Punjab, Bathinda, estimated area under cotton crop in the district during Karif 2015 is 1.45 lakh ha out of which crop of 1.11 lakh ha area was damaged up to 75 %. Experts of KVK visited 6 villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Bathinda released 11 advisories on different aspects of white fly management in cotton through radio (2 advisories), TV (1 advisory), newspaper (4 advisories), leaflet (1 advisory) and SMS on mobile (3 advisories) during Kharif 2015. Messages through SMS on mobile were sent to 3045 farmers. Besides, experts of KVK replied to 750 queries of farmers regarding white fly management on telephone. Apart from these, 432 farmers/farm women of the district were educated about the solution of the problem through 2 field days and 2 awareness camps. The detailed report of KVK Bathinda is as follows:

Action taken to control White Fly in cotton by KVK Bathinda during Kharif 2015

Table: 9 Agro Advisories

Means of sending advisory	Number of Advisory	Major content of advisory
Radio	02	Management of kharif crops & white fly
TV	01	Chitti Makhi/ Machhar de hamle ton kiven narma bachaea ate khali wahna vich ki beejan kisan
Newspaper	04	1)Explain the ways to stave off whitefly attack in

		cotton 2)Management of white fly in cotton
KVK Newsletter/leaflet	01	On recommended dose & pesticides to control white fly (copy attached)
Replying farmers' query on phone	750	Control of white fly in cotton & other sucking pest

Table: 10 Agro Advisories sent through SMS on mobile

Number of Advisory	Number of farmers	Major content of advisory
03	3045	Management of white fly in cotton

Table: 11 Joint visit with State Agriculture Department

Date of Visit	No. of villages covered
04-08-2015	Maur mandi,Burj mansa, Talwndi sabo, Jeon Singh Wala
10-08-2015	Jassi pau wali, Gehri bhagi,

Table: 12 Capacity building/awareness programmes

Type of participants	Number of programme	Major subjects dealt	Number of participants		
			Male	Female	Total
Farmer/farm women/Rural youth	04 **(02 field days & 02 awareness camps)**	Selection of cotton varieties, weed management ,IPM & control of white fly & other sucking pests in cotton	390	42	432

Table: 13 Estimated loss caused by White fly to cotton crop in the district

Estimated area under Cotton crop (ha)	Varieties infested	Extent of damage (ha)			
		< 25%	25-50%	50-75%	>75%
1,45,000	All recommended & un-recommended varieties	-----	----	----	1,11,000

Source: State Department of Agriculture, Govt. of Punjab, Bathinda
Note: Naruana & Killi Nihal Singh are adopted villages and the attack of white fly is observed less as compared to surrounding villages

Efforts made by KVK for saving cotton crop from damage by white fly

Campaigns Organized: During campaigns the following villages were covered and distributed leaflets pertaining information for management of white fly. These leaflets were given to the Guruduwara Sahibs and regular announcements were made from Shri Guruduwara Sahib as per details given below:

Table: 14 Date wise and village wise announcement of messages

S.No.	Date	Visited Villages
1	01/04/2015	Jangirana, Pathrala
2	16/07/2015	Killi Nihal Singh, Mehma Swai
3	17/07/2015	Bagha, Kotshamir, Maur Mandi
4	21/07/2015	Aklia Kalan, Mehma Swai, Bajak
5	23/07/2015	Killi Nihal Singh, Kothe Chet Singh, Burj Mehma
6	24/07/2015	Killi Nihal Singh, Deon
7	27/07/2015	Badal, Kaljharani, Khudian
8	28/07/2015	Bathinda, Naruana

9	04/08/2015	Bathinda & Nearby
10	10/08/2015	Maur Mandi, Talwandi Sabo
11	14/08/2015	Jangirana
12	19/08/2015	Shergarh, Mallwala, Bangian
13	20/08/2015	Jai Singh, Naruana, Bandi, Sangat area
14	25/08/2015	Maur, Kotli, Chak Bakhtu, Bhucho
15	26/08/2015	Beer Behman, Chughe, Karamgarh Satran, Killi Nihal Singh
16	27/08/2015	Pakka Kalan, Gurthari, Fallar, Sekhu, Shergarh, Mehta
17	28/08/2015	Buladewala, Deon, Killi Nihal Singh, Burj Mehma, Tungwali
18	29/08/2015	Bajak, Kaljharani, Chak Attar Singh Wala
19	31/08/2015	Kotsamir, Maur, Khiala
20	19/08/2015	Shergarh, Mallwala, All Bangian (5), Lalleana and fields & back
21	20/08/2015	Naruana, Jai Singh Wala, Bandi, Sangat, Phullo Mithi, Mehta & back
22	21/08/2015	Kotshamir, Talwandi Sabo, Jagga Ram Tearth, Shekhpura, Bhagwan Pura
23	24/08/2015	Village Burj Mansa, Talwandi Sabo
24	24/08/2015	Adopted village Killi Nihal Singh
25	25/08/2015	Kotfatta, Kot Bhara, Maiser Khana, Maur & Maur Mandi, Kotli Kalan, Kuttiwal Kalan, Dhadhe, Balian Wali, Chak Bakhtu, Bhucho, Tungwali, Bhagu, Phoos Mandi, Bathinda & back
26	26/08/2015	Beer Behman, Multania, Beer Talab, Chugge Kalan, Chugge Khurd, Balluana, Behman Deewana
27	27/08/2015	Gurusar sehnewala,Jodhpur Romana, Gehri Butter,Dunewala, Malwala, Machana,Pakka Kalan,Gurthari,Bhagwan Garh,Shergarh & Mehta
28	28/082015	Buladewala,Deon, Burj Mehma, Killi Nihal Singh, Kothe Chet Singh, Naruana,Tungwali
29	29/08/2015	Bhai Bakhtaur,Ghaso Khanna &Kot Fatta
30	29/08/2015	Kaljharani, Bajak, Nandgarh,Chak Attar Singh Singh wala
31	31/08/2015	Conducted visit of Hon'able Minister of Agriculture Punjab regarding white fly affected area-Kot Shamir,Thuthian Wali ,Mansa and Khiala
32	03/09/2015	Killi Nihal Singh, Kot Shamir
33	07/09/2015	Killi Nihal Singh
34	07/09/2015	Killi Nihal Singh, deon, sivia
35	10/09/2015	Jhumba, Bajak, Chak atar singh wala, Kot Shamir
36	18/09/2015	Rampura ,Bhunder & surrounding villages

KVK, Bathinda has organized awareness camp for sowing of kharif crops especially cotton crop on at village jangirana on 01-04-2015 was organized in which 125 farmers/farm women took part & Kisan Sammelan on kharif crops on dated 14.8.15 – at village Jangirana, in which 120 farmers & farm women took part was also organized. The main emphasis was given on control on white fly in cotton crop. A field day on management of white fly in cotton was also organized at operational village Killi Nihal Singh on 07-09-2015 in which 150 cotton growers participated.

Table: 15 Field Days/sammelan organized

S.no	Village	Topic	Date	Participants
1	Jangirana	Kisan sammelan on kharif crops	14/08/2015	120
2	Killi Nihal Singh	Management of white fly in cotton crop	07/09/2015	150

12.0 Efforts of KVK Faridkot

As per survey report of State Department of Agriculture Govt. of Punjab, Faridkot, estimated area under cotton crop in the district during Karif 2015 is 14000 ha and the crop damage if up to 75 %. Experts of KVK visited 49 villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Faridkot released 9 advisories on different aspects of white fly management in cotton through newspaper (6 advisories) and SMS on mobile (3 advisories) during Kharif 2015. Messages through SMS on mobile were sent to 1100 farmers. A message in local language was also disseminated through whatsapp and face book to about 500 farmers. Besides, experts of KVK replied to 121 queries of farmers regarding white fly management on telephone. Apart from these, 54 farmers/farm women and 13 extension personnel of agricultural department of the district were educated about the solution of the problem through 4 capacity building programmes. The scientists of KVK Faridkot also organized a Kissan Sammelan in village Khara on 20.08.15, wherein, more than 500 farmers from the village and adjoining areas participated. Village Khara and its adjoining villages are hub of cotton cultivation. The detailed report of KVK, Faridkot is as follows:

Action taken to control White Fly in cotton by KVK Faridkot during Kharif 2015

Table: 16 Agro Advisories

Means of sending advisory	Number of Advisory	Major content of advisory
Newspaper	6	IPM in cotton
Replying farmers' query on phone	121	Suggested remedial measures against white fly with impetus on recommended pesticides and proper spray technology
Any other (Please specify)		
Social media apps **whatsapp** and **facebook** were used for dissemination of technology relevant to management of white fly		IPM in *Bt* cotton

Table: 17 Agro Advisories sent through SMS on mobile

Number of Advisory	Number of farmers	Major content of advisory
3	1100	IPM in *Bt* cotton

Table: 18 Joint visit with State Agriculture Department

Date of Visit	No. of villages covered	Remarks
3-8-2015	3	Suggested remedial measures

Date of Visit	No. of villages covered	Remarks
8-8-2015	4	against white fly with impetus on recommended pesticides and proper spray technology
14-8-2015	3	
17-8-2015	4	
18-8-2015	4	
19-8-2015	5	
24-8-2015	2	
25-8-2015	5	
26-8-2015	3	
2-9-2015	5	
3-9-2015	3	
7-9-2015	3	
8-9-2015	3	
18-9-2015	2	

Table: 19 Capacity building/awareness programmes

Type of participants	Number of programme	Major subjects dealt	Number of participants		
			Male	Female	Total
Farmer/farm women/Rural youth	3	IPM in *Bt* cotton with impetus on use of recommended pesticides and proper spray technology	52	2	54
Extension personnel	1	-do-	13	-	13

Table: 20 Estimated loss caused by White fly to cotton crop in the district

Estimated area under Cotton crop (ha)	Varieties infested	Extent of damage (ha)			
		<25%	25-50%	50-75%	>75%
14000	All the *Bt* hybrids barring RCH 650 BG II, RCH 773 BG II and RCH 776 BG II, were severely infested with white fly.			✓	

Efforts made by KVK for saving cotton crop from damage by white fly

- Kissan Sammelan was organised at village Khara on 20.08.15, wherein, more than 500 farmers from the adjoining areas participated.
- Regular SMSes regarding management of whitefly were sent through KMAS.
- Social media viz. whatsapp and facebook were made use of for dissemination of technology.
- Regular field visits were conducted to apprise the farmers about the control of this menace.

13.0 Efforts of KVK Ferozepur

The area under cotton in Ferozepur district is negligible. So as per direction from Director Extension, PAU, Ludhiana, the scientists of the Kendra visited the cotton fields regarding management of whitefly in districts of Faridkot, Fazilka and Muktsar. The whitefly appears as the main pest of the cotton during this year and infested the cotton crop severely ranging from 30 to 40 % loss.

Action taken to control White Fly in cotton by KVK Ferozepur during Kharif 2015

Table: 21 Agro Advisories

Means of sending advisory	Number of Advisory	Major content of advisory
Newspaper	2	Management of whitefly in cotton
KVK Newsletter		
Replying farmers' query on phone	72	Follow recommendations of PAU for control of cotton whitefly

Table: 21 Agro Advisories sent through SMS on mobile

Number of Advisory	Number of farmers	Major content of advisory
1	1003	Management of whitefly in cotton and other crops

Table: 23 Joint visits with State Agriculture Department

Date of Visit	No. of villages covered	Remarks
19.8.15 28.8.15 3.9.15 15.9.15	12	DC, Ferozepur and officials of Dept. of Agriculture also accompanied the team.

Table: 24 Capacity building/awareness programmes

Type of participants	Number of programme	Major subjects dealt	Number of participants		
			Male	Female	Total
Farmer/farm women/Rural youth	7	Strategies for managing whitefly in cotton, Integrated management of Cotton Whitefly, Farmer field interaction cum training programme, Demonstrations on use of electrostatic sprayer for effective management of cotton whitefly	413	15	428
Extension personnel	2	• Integrated management of Cotton Whitefly	16	-	16

Efforts made by KVK for saving cotton crop from damage by white fly

- A Kisan Goshti was organized by KVK Ferozepur on "Strategies for managing whitefly in cotton" at vill. Bajeke for awareness among farmers of villages Baje ke, Mattad Uttar and Chak Madi ke of Guru harsahai (Dist.Ferozepur) visited on 19.8.15. In this Kisan goshti 20 farmers interacted.
- A training programme on Integrated management of Cotton Whitefly was arranged at Village Ghallu of Dist. Fazilka on 27-8-15 in which 15 farmers interacted. Survey of 20 farmers on use of pesticides in vill. Bajidpur Kattian wali and Nihalkhera revealed that incidence of whitefly was less in timely sown and irrigated crop and where neem based biopesticides were used as initial sprays to manage whitefly.
- On 28.8.15 a farmer field interaction cum training programme was arranged on cotton whitefly at village Basti Piyareana of Ferozepur. In this, District Collector of Ferozepur also interacted with the cotton farmers. It was revealed that resurgence of cotton whitefly occurred due to use of unrecommended pesticides that too in overdose by mixing with other insecrtcides and at inappropriate time.
- Two demonstrations on use of electrostatic sprayer for effective management of cotton whitefly were conducted in collaboration with engineers from Dept. Of Farm machinery and power engineering, PAU at Bajidpur Kattian wali and Ghallu villages of Fazilka on 3.9.15.
- A farmer's training cum discussion programme was also organized on this topic in village bajidpur kattianwali in which 60 farmers participated. Farmers of these villages highlighted the issue of prevalence of spurious insecticides and seeds as part of their resentment.
- On 4.9.15 cotton field in village Piyareana in Ferozepur was visited.

14.0 Efforts of KVK Mansa

Experts of KVK Mansa visited 51 villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Mansa released 4 advisories on different aspects of white fly management in cotton through newspaper during Kharif 2015. Besides, experts of KVK replied to 122 queries of farmers regarding white fly management on telephone. The detailed report of KVK, Mansa is as follows:

Action taken to control White Fly in cotton by KVK Mansa during Kharif 2015

Table: 25 Agro Advisories

Means of sending advisory	Number of Advisory	Major content of advisory
Newspaper	04	• Effective insecticides for control of white fly • Spraying techniques
Replying farmers' query on phone	122	• Effectiveness of different pesticides • Economic threshold level of white fly

Table: 26 Joint visit with State Agriculture Department

Date of Visit	No. of villages covered	Remarks
30-31 August 2015 2,3,4 and 5 September 2015	51	Lectures were delivered regarding management of whitefly

SURVEY OF COTTON CROP IN DISTRICT MANSA DATED 28 JULY, 6-7 AUGUST, 2015

Survey of cotton crop was conducted in Nangal Kalan, Khyala Kalan, Khyala Malkpur, Kot lallu, Khokhar Khurd, Khokhar Kalan, Kotli, Ramdittewala, Korwala, Nandgarh, Chak Bhai Ke, Ghudduwala, Ramanandi, Jawaharke, Bhamme Kalan, Kot Dharmu, Burj Bhlai Ke, Chuhrian and Piplian village of Jhunir, Budladha and Mansa Blocks was of district on 28.07.15 06.08.2015 and 07.08.2015.

Incidence of whitefly: Incidence of whitefly was observed in all the fields. At most of the fields whitefly incidence was below ETL. Attack of whitefly was more severe in Shri Ram 6488, 6588 and other un-recommended varieties.

Number of sprays for whitefly: Majority of the farmers have conducted two numbers of sprays for the control of whitefly.

Pesticides used: Majority of the farmers were using Oberon (Available from Deptt of Agriculture on subsidy), Triazophos and Ethion for the control of whitefly. At few places farmers were using un-recommended pesticides viz; Pride (Acetamiprid) and Acephate for the control of whitefly. Farmers have used Monocrotophos also for control of whitefly.

Spraying Technology: At some field farmers were using pressure guns to spray the cotton crop. Due to fast discharge of water through pressure guns proper spraying was not done, resulting in poor control of the target pests. Some farmers were also mixing two pesticides (Pesticides for control of jassid and whitefly) together to save time and labour.

Incidence of jassid: Incidence of jassid was below ETL at all the places.

SURVEY OF COTTON CROP IN DISTRICT MANSA DATED 14, 17-18 AUGUST, 2015

Survey of cotton crop was conducted in Deluana, Fatta Maluka, Sharana, Jhunir, Khara, Sadda Singh Wala, Barnala, Jawaharke of Mansa and Jhunir Blocks of district on 13.08.15, 14.08.2015, 17.08.2015 and 18.08.2015. Attack of white fly was serious in these villages. Phone calls have also been received from villages Mander, Akkanwali, Bhai Desa, Bhamme Khurd, Burj Dhilwan, Beerewala Jattan, Kot Dharmu etc where farmers are complaining about serious attack of whitefly.

Incidence of whitefly has become very serious: Incidence of whitefly is becoming very serious. During the last week situation has become worse due to favourable weather (Cloudy weather and high humidity) condition for the multiplication of white fly. In large number of cotton fields lower leaves are shedding due to deposit of excreta of white fly and further development of fungus on leaves. Attack of whitefly was more severe on un-recommended varieties. Five cases have come to notice where standing cotton crop has been uprooted by the farmers. Farmers from Jhunir (Jagtar Singh, Balwinder Singh, Baldev Singh), Bhamme Khurd (Avtar Singh S/o Rafal Singh, Mobile no. 95306-90443) and Bajewala (Mehar Singh S/o Jeeta Singh, Mobile no. 99144-44307) villages have uprooted cotton crop due to severe attack of whitefly. The varieties grown by these farmers were US 21 and Monsanto 5080. Situation of cotton crop is worse in other villages also.

Number of sprays for whitefly: Majority of the farmers have conducted three sprays for the control of whitefly. Pesticide dealers are campaigning aggressively in the villages and supplying un-recommended pesticides to the farmers. Some farmers are tank mixing two to three sprays for control of white fly on the advice of the pesticide dealers.

Pesticides used: Majority of the farmers were using Oberon, Triazophos, Ethion and Polo for the control of whitefly. At few places farmers were using un-recommended pesticides viz; Monocrotophos, Pride and Acephate for the control of whitefly. Farmers have used Monocrotophos also for control of whitefly.

Table: 27 Details of Field and Diagnostic Visit

Sr. No.	Date	Village	Purpose	Scientist Visited
1.	07.09.15	Bhikhi , Dhaipi, Hero kalan, Ssardhulgharh, Khan singh wala	Monitoring of paddy crop for shlith blight and blast. Surveillance visit to the cotton field at village Bhundar, Mansa	Dr Gurdeep Singh, Dr Daljinder Singh, Dr. Bharat Singh
2.	10.09.15	Joga, Ralla, Bheni bhage,	Regarding the publicity of	Er Ankit Sharma,

Sr. No.	Date	Village	Purpose	Scientist Visited
		Bhai Desa, Kharkh singh wala, Bhai Desa	kisan mela and surveillance of cotton field	Dr Gurdeep Singh
3.	18.09.15	Moja, Dalel Singh Wala, Kot laluana, Mansa Khurd, Bapiana, Jawarke	Regarding the publicity of kisan mela and surveillance of cotton and paddy field	Er Ankit Sharma, Dr Gurdeep Singh
4.	21.09.15	Sadad Singh Wala, Khokahr, Raipur, Kot Dharmu, Bhamme Kalan	Regarding the publicity of kisan mela and monitoring of cotton and paddy field	Dr. Daljinder Singh, Dr. Bharat Singh
5.	24.09.15	Bhame kalan,Bhame Kalan, Burj Bhalaike, Birewala Jattan	Regarding the publicity of kisan mela and surveillance of cotton and paddy field	Er Ankit Sharma, Dr Gurdeep Singh
6.	29.09.15	Biroake kalan, Gudhki, Hodlan kalan,Bhikhi, Kotllalu, Gurnekalan	Regarding the field visit of DSR, monitoring of basmati	Er Ankit Sharma, Dr Daljinder Singh, Dr. Bharat Singh

Field day on 'Integrated Pest Management in Cotton' was organized at village Karandi on 11.09.15. Experts from PAU Ludhiana delivered lecture on Integrated Pest Management in cotton crop. Dr D S Buttar, Sr. Plant Pathologist and Dr Harpal Singh Bhullar, Asstt Entomologist delivered lecture on IPM and disease management in cotton and paddy crop About 250 farmers participated in this field day. KVK Mansa exhibited various products, live samples, mineral mixture, Uromin licks, vegetable kits for sale etc.

15.0 Efforts of KVK Muktsar

Estimated area under cotton crop in the district during Karif 2015 is 74000 ha out of which crop of 45553 ha area was damaged more than 75 %. Experts of KVK visited 40 villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Muktsar released 10 advisories on different aspects of white fly management in cotton through radio (1 advisory), newspaper (5 advisories) and SMS on mobile (4 advisories) during Kharif 2015. Messages through SMS on mobile were sent to 3000 farmers. Besides, experts of KVK replied to 300 queries of farmers regarding white fly management on telephone. Apart from these, 61 extension personnel of the district were educated about the solution of the problem through training programme. The detailed report of KVK Muktsar is as follows:

Action taken to control White Fly in cotton by KVK Muktsar during Kharif 2015

Table: 28 Agro Advisories

Means of sending advisory	Number of Advisory	Major content of advisory
Radio	1	Management of major insect/pest of kharif crops Main emphases was given on management of white fly
Newspaper	5	Kisan semalan organized in which farmer were advised to use pesticides according to PAU recommendation for control of white fly in cotton fields
Replying farmers' query on phone	300	Farmers were advised to adopt recommended practices to mange white fly in cotton. They were advised to apply frequent irrigation to the crop They were also suggested not to mix different pesticide

Table: 29 Agro Advisories sent through SMS on mobile

Number of Advisory	Number of farmers	Major content of advisory
4	3000	Narme/Kapah upar jekar chiti makhi di ginti 6 makhian/pata hove tan Sulathon 600ml/ Ethion 800ml/ Polo 200gm/ Oberon 200ml nu 125 Liter pani vich prati acre de hisab nal chidko Narme wich Acephate (800gm/acre) sirf amrican/tambakoo sundi di rok-tham lai hi warto. Acephate jyada warton naal chitti makhi wadh jandi hai

Table: 30 Joint visit with State Agriculture Department

Date of Visit	No. of villages covered	Remarks
01/09/15	2	District administration made 18 teams for organized farmer camps in all villages of Muktsat District from 1st September to 7th September, 2015. Out of these, 14 teams were from Department of agriculture and 4 teams were from Krishi Vigyan Kendra, in collaboration of agriculture department which cover total of 39 village of District. Farmers were advised to adopt recommended practices to mange white fly in cotton. Pamphlets regarding white fly management in cotton were also distributed. Farmers were advised to apply recommended pesticides like Polo, Oberon, Triazophos, Ethion for control of white fly. They were also suggested not to mix different pesticide. They were advised to apply frequent irrigation to the crop.
02/09/15	12	
03/09/15	10	
04/09/15	8	
05/09/15	4	
07/09/15	4	

Table: 31 Capacity building/awareness programmes

Type of participants	Number of programme	Major subjects dealt	Number of participants		
			Male	Female	Total
Extension personnel	1	One day Training on management of white fly in cotton for farmers friends of ATMA at KVK.	61	0	61

Table: 32 Estimated loss caused by White fly to cotton crop in the district

Estimated area under Cotton crop (ha)	Varieties infested	Extent of damage (ha)			
		< 25%	25-50%	50-50-75%	>75%
74000	--	7000	10897	10550	45553

(Source: State Department of Agriculture)

Efforts made by KVK for saving cotton crop from damage by white fly

Table: 33 Details of villages visited

SR No	Date	Village visited	Farmers contacted	Remarks
1.	20.8.15	Goneana, Ropana, Rahurianwali, Mahabadar, Chibranwali, Gandhar, Sherewala, Bam, Tharkhanwala, Khunana kalan	60	Farmers were advised to apply recommended pesticides like Polo, Oberon, Triazophos, Ethion for control of white fly. They were also suggested not to mix different pesticide. They were also advised to applt frequent irrigation as soon as possible. Pamphlets regarding management of white fly were distributed to the farmers
2.	21.8.15	Maur,Balamgarh, Ramgarh chungan, Chak Badhai, Akakgarh, Karaiwala, Chak Janisar, Ratta khera, Telupura, Lakhewali, Rorawali mandi, Samewali, Nandgarh,Jandwala Bhime shah, Jhotianwali, Tahliwala bodhlan,Dhabwali dhab, Arniwali	88	
3.	24.8.15	Aulakh, Malout village, Alam wala, Jand Wala Charat Singh, Midda, Mohlan, Raniwala, Bodiwala, Paniwala	60	
4.	25.08.15	One day Training on management of white fly in cotton for farmers friends of ATMA at KVK. The programme was in collaboration with ATMA & Deptt. of Agriculture Muktsar	60	Sixty two farmer's friends of cotton growing area of Sri Muktsar sahib district participated. Farmer friends were given the important tips to mange white fly in cotton. Pamphlets regarding white fly management in cotton were also distributed and they were asked to convey the message to the farmers.
5.	25.08.15	Ratta khera, Bhulerian, Jhurar, Lakar wala, tamkot, phulewala, shergargh were surveyed.	50	Farmers were advised to adopt recommended practices to mange white fly in cotton. Pamphlets regarding

				white fly management in cotton were also distributed
6.	26.08.15	Kisan Sammelan were organized at village Tarkhan wala	200	Approximate 200 famers from different villages participated in this programme. Farmers were advised for judicious use of pesticides. The management of white fly was discussed in detail
7.	27.08.15	Aulakh, Ena khera, Chapianwali, Kolianwali, Dhabwali malko, Sham khera, Khangan Khera, Fulokhera, Sherawali, Tarmala, Bhitiwala, Sikhawali, Panjawa, Lambi, Maan, Badal, Beedowali, Lalbai, Husnar, Madhir, Giljewala	65	Farmers were advised to apply recommended pesticides like Polo, Oberon, Triazophos, Ethion for control of white fly. They were also suggested not to mix different pesticide. They were advised to apply frequent irrigation to the crop. Pamphlets regarding management of white fly were distributed to the farmers
8.	28.08.15	Sohnewala, Sadarwala, Lambi Dhab, Atari, Gulabewala, Khapianwali, Nurpur kirpalke, Khnaiwala, Wangal, Maan Singh wala, Bhangewala, Lubaniawali, Jaseana, Burra jgujjar, Kotli devan, Udekaran.	70	
9.	11/9/15	Field day at village Chhattiana	--	Field day on cotton crop was organized in village Chatteana in which 200 farmers participated

16.0 Efforts of KVK Bhiwani

Estimated area under cotton crop in the district during Karif 2015 is 62700 ha out of which crop of 30924 ha area was damaged less than 25 %. Experts of KVK visited 6 villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Bhiwani released 12 advisories on different aspects of white fly management in cotton through radio (2 advisories), TV (3 advisories), newspaper (3 advisories), news letter (2 advisories) and SMS on mobile (2 advisories) during Kharif 2015. Messages through SMS on mobile were sent to 25835 farmers. Besides, experts of KVK replied to 550 queries of farmers regarding white fly

management on telephone. Apart from these, 1520 farmers/farm women and 20 extension personnel of the district were educated about the solution of the problem through 21 training programmes. The detailed report of KVK Bhiwani is as follows:

Action taken to control White Fly in cotton by KVK Bhiwani during Kharif 2015

Table: 34 Agro Advisories

Means of sending advisory	Number of Advisory	Major content of advisory
Radio	02	Live-in-programme
TV	03	Cotton crop particularly sucking pests management
Newspaper	03	Integrated pest management
KVK Newsletter (Krishi Pramarsh Patrika)	02	Kharif crops particularly cotton, pearlmillet, clusterbean, mungbean, sesame, vegetables, fruit crops etc.
Replying farmers' query on phone	550 farmers	Sucking pests like whitefly, jassids, thrips management
Any other (Please specify)		
Special lectures on Integrated Insect-pests management in cotton-05	440 farmers	Major emphasis on sucking pests like white fly, thrips, jassids management in cotton

Table: 35 Agro Advisories sent through SMS on mobile

Number of Advisory	Number of farmers	Major content of advisory
Two	25835	Sucking pests management in cotton

Table: 36 Joint visit with State Agriculture Department

Date of Visit	No. of villages covered	Remarks
27.7.15	Jamalpur	Kisan goshthi specially on white fly management
8.9.15	Bhiwani Jonpal, Dhana Narsan	Awareness on whitefly management
14.9.15	Chiriya, Dadri, Ranilla	-Do-

Table: 37 Capacity building/awareness programmes

Type of participants	Number of programme	Major subjects dealt	Number of participants		
			Male	Female	Total
Farmer/farm women/Rural youth	19	Production technology of cotton with emphasis on sucking pests management in cotton	1370	150	1520
Extension personnel	02	Integrated insect-pests and disease management of kharif crops particularly cotton, clusterbean	20	0	20

Table: 3840 Estimated loss caused by White fly to cotton crop in the district

Estimated area under Cotton crop (ha)	Varieties infested	Extent of damage (ha)*			
		< 25%	25-50%	50-75%	>75%
62700	RCH 602, RCH 650, Bioseed 6488, Biseed 6588, Bunty	30924	19117	7005	235

* Data collected from Agriculture Dept., Bhiwani

Efforts made by KVK for saving cotton crop from damage by white fly

- Two Kisan goshthis were organized at Vill. Jamalpur on 27.7.2015 and at KVK Bhiwani on 8.8.2015 and a total of 580 farmers were benefitted.
- Five rural youth trainings on spray techniques, bee-keeping, vermicomposting, dairy farming and mushroom production technology were organized by KVK Bhiwani and in each training one specialized lecture on Whitefly management in cotton was organized and a total of 440 youths were benefitted.
- KVK Bhiwani organized two on farm trials on sucking pests management in cotton at vill. Ranilla and Siwara.
- KVK Bhiwani organized 12 farmers trainings on production technology of cotton and IPM in cotton.
- KVK Bhiwani organized a field day on Cotton.

17.0 Efforts of KVK Fatehabad

Estimated area under cotton crop in the district during Karif 2015 is 79185 ha out of which crop of around 56000 ha area was damaged up to 50%. Experts of KVK visited 2 villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Fatehabad released 24 advisories on different aspects of white fly management in cotton through newspaper (15 advisories), news letter (1 advisories) and SMS on mobile (8 advisories) during Kharif 2015. Messages through SMS on mobile were sent to 9350 farmers. Besides, experts of KVK replied to 150 queries of farmers regarding white fly management on telephone. Apart from these, 221 farmers/farm women and 71 extension personnel of the district were educated about the solution of the problem through 12 training programmes. The detailed report of KVK fatehabad is as follows:

Action taken to control White Fly in cotton by KVK Fatehabad during Kharif 2015

Table: 39 Agro Advisories

Means of sending advisory	Number of Advisory	Major content of advisory
Newspaper	15	COPY ATTACHED
KVK Newsletter	KVK PATRIKA (JULY-SEPT. 2015) Prepared a Pamphlet on Kapas kee Mukya Bimaria avem unki roktham	CCS HAU, Recommendation
Replying farmers' query on phone	150	CCS HAU, Recommendation
Any other (Please specify)	**No. of Activity**	**No. of Participants**
Farmers' Scientist Interaction	3	48
Campaign on White Fly	4	135
Cotton Field Day	1	50
Kisan Sammalen on Kharif Crops – 2015	1	50
Conducted OFT on White Fly and other Sucking pest in cotton	No. of Farmers – 5 Area – 4 Ha	-

Table: 40 Joint visit with State Agriculture Department

Date of Visit	No. of villages covered	Remarks
04.08.15	DDA Office Fatehabad	Meeting with DDA, SMS, BAO, APPO, TA regarding white fly management strategies
06.08.15	Tohana	To see the performance of the Krishma B.T. variety as compared to Bioseed 6588 along with Deptt. of Agriculture Officers
14.08.15	Bhimawala	Field visit for white fly attack in the village

Table: 41 Capacity building/awareness programmes

Type of participants	No. of programme	Major subjects dealt	Number of participants		
			Male	Female	Total
Farmer/farm women/Rural youth	3 7	Agronomy Plant Protection	64 157	- -	64 157
Extension personnel	2	IPM in major Kharif crop IPM in Cotton	15 56	- -	15 56

Table: 42 Estimated loss caused by White fly to cotton crop in the district

Estimated area under Cotton crop (ha)	Varieties infested	Extent of damage (ha)			
		< 25%	25-50%	50-75%	>75%
79185	Shri Ram 6488, 6588, Ankur 3028, Xylum Om 3366, Raghav, Kribhco Raja, Krishma (Kohinoor), Rashi 602, 653, 650, 773, Amar Seed 3366	11682	45026	17108	5369

Efforts made by KVK for saving cotton crop from damage by white fly:-

- KVK Fatehabad conducted various farmers' training, Farmers' Scientist Interaction, Group Meetings, Campaign, Kisan Sammalen for the management of White Fly at different villages of Fatehabad District.
- Dr. Rakesh Kumar, DES (PP), KVK Fatehabad attended meeting on IPM in Kharif Crops at PAU, Ludhiana organized by ZPD and NCIPM , New Delhi on 20-22 Aug. 2015.

18.0 Efforts of KVK Hisar

Estimated area under cotton crop in the district during Karif 2015 is 125660 ha out of which crop of around 72370 ha area was damaged less than 25%. Experts of KVK visited 11 villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Hisar released 14 advisories on different aspects of white fly management in cotton through radio (2 advisories), newspaper (11 advisories) and news letter (1 advisories) during Kharif 2015. Besides, experts of KVK replied to more than 1400 queries of farmers regarding white fly management on telephone. Apart from these, 298 farmers/farm women and 100 extension personnel of the district were educated about the solution of the problem through 9 training programmes. The detailed report of KVK Hisar is as follows:

Action taken to control White Fly in cotton by KVK Hisar during Kharif 2015

Table: 43 Agro Advisories

Means of sending advisory	Number of Advisory	Major content of advisory
Radio	2	Management of insect pests in Kharif crops
Newspaper	11	Safe use of insecticides and management of white fly

Means of sending advisory	Number of Advisory	Major content of advisory
KVK Newsletter	1	Safe use of insecticides and management of white fly
Replying farmers' query on phone	>1400 mobile/landline	Management of white fly in Bt cotton
Any other (Please specify) Field visit & advisory	>40 fields	Attended farmers field for diagnosis

Table: 44 Joint visit with State Agriculture Department

Date of visit	No. of villages covered	Remarks
9.6.15	Kohli	Kribhaco
7.7.15	Kinala	BAO Uklana
9.7.15	Ghursal	BAO Adampur
23.7.15	Agroha	BAO Agroha
30.7.15	Chuli	KVK Sadalpur
30.7.15	Chuli Khurd	BAO Adampur
25.8.15	Modakhera	BAO Adampur
26.8.15	Prabhuwala	BAO Uklana
1.9.15	Sadalpur	KVK, Sadalpur
07.09.15	Mothsara	BAO,Adampur
15.9.15	Pabra	BAO Uklana

Capacity building/awareness programmes

Type of Participants	Number of Programme	Major subjects dealt	Number of participants		
			Male	Female	Total
Farmer/farm women/ Rural Youth	8	1. Farmers trainings on management of sucking pests in cotton 2. Management of white fly in cotton 3. Safe and judicious use of pesticides	230	68	298
Extension personnel	1	Cooperative sammelan (organized by Kribhaco) 4.8.15	100	-	100

Table: 45 Estimated loss caused by White fly to cotton crop in the district

Estimated area under Cotton Crop(ha)	Varieties Infested	Extent of damage(ha)			
		<25%	25-50%	50-75%	>75%
125660	All the Bt. Cotton varieties are infested with White Fly due to prevailing dry conditions	**72370**	**31030**	**15760**	**6500**

Table: 46 Campaign organized

Date	Title	Venue	Participants
23-30.7.15	White fly management in cotton	Chuli, Ladwai, Agroha, Bhodia	205

Date	Title	Venue	Participants
1-7.8.15	Campaign on white fly management	Sadalpur, Tokas, Hisar	250
01.09.15 - 08.09.15	Management of white fly in cotton	Tokas, Mohabatpur, Khairampur, Sadalpur, Chuli	140

Table: 47 Scientist Farmers-Interface Meetings organized

Date	Title	Venue	Participants	Scientist involved
9.6.15	Kisan Sabha (Coll with Kribhaco)	Kohali	32	Dr. Narendra Kumar
7.7.15	Farmers scientist interaction meet (Coll with department of Agri)	Kinala	60	Dr Narendra Kr
9.7.15	Farmers scientist interaction meet (Coll with department of Agri)	Ghursal	70	Dr Narendra Kr
14.7.15	Farmers scientist interaction meet (Coll with department of Agri)	Surewala	80	Dr Avtar Singh, Dr Pawan, Dr. Narendra Kumar, Dr SS Kundu
17.7.15	Farmers scientist interaction meet (Coll with department of Agri)	Sadalpur	25	Dr Avtar Singh, Dr Pawan, Dr. Narendra Kumar, Dr SS Kundu
30.7.15	Farmers scientist interaction meet (Coll with department of Agri)	Chuli Kalan	60	Dr Avtar Singh, Dr Pawan, Dr. Narendra Kumar
27.8.15	Scientist Farmers-Interface Meetings	Mangali	22	Dr Avtar Singh, Dr.Pawan Kr, Dr. Narendra Kumar
27.8.15	Scientist Farmers-Interface Meetings	Balawas	25	Dr Avtar Singh, Dr.Pawan Kr, Dr. Narendra Kumar
27.8.15	Scientist Farmers-Interface Meetings	Hajampur	30	Dr Avtar Singh, Dr.Pawan Kr, Dr. Narendra Kumar
27.8.15	Scientist Farmers-Interface Meetings	Moth Rangran	32	Dr Avtar Singh, Dr.Pawan Kr, Dr. Narendra Kumar
27.8.15	Scientist Farmers-Interface Meetings	Bir Hansi	18	Dr Avtar Singh, Dr.Pawan Kr, Dr. Narendra Kumar
28.8.15	Scientist Farmers-Interface Meetings	Gabipur	12	Dr Avtar Singh, Dr.Pawan Kr, Dr. Narendra Kumar
4.9.15	Safe and Judicious use of	Chuli	60	Dr SK Dhanda, Dr

	pesticide	Bagrian		Avtar Singh, Dr. Pawan Kumar, Dr. Narendra Kumar
17.09.15	Safe and Judicious use of pesticide	Chuli Bagrian	20	Dr Avtar Singh, Dr. Narendra Kumar
26.09.15	Crop Production Tech. for Rabi	Dhani Mohbbatpur	25	Dr Avtar Singh, Dr. Pawan Kumar, Dr. Narendra Kumar

Table: 48 Kisan gosthi/Group meeting organised

Date	Title	Venue	Participants	Scietist involved
12.6.15	Kharif crop production	Nagthala	35	Dr. S. K. Dhanda, Dr Avtar Singh, Dr. Narendra Kumar
23.7.15	Agriculture Education Day	Sadalpur	20	Narendra Kumar, Kanta Gupta
31.8.15	Group meeting	Sadalpur	80	Dr SK Dhanda, Dr Avtar Singh, Dr.Pawan Kr, Dr. Narendra Kumar

Table: 49 FLD conducted

Crop	Title	Treatments	Area (ha)	No. of trials	Beneficiary (Gen)	Beneficiary (SC)
Cotton	Management of whitefly and other sucking pests in cotton	Farmer Practices: (Indiscriminate use of Insecticides) HAU Recommendation: (First two sprays at economic threshold (6-8 nymphs or adults / leaf) with nimbecidine / neemguard/ achook 300 ppm @ 1 litre in 200 L of water/acre. Third spray with 250-350 ml dimethoate 30 EC or 300-400 ml metasystox 20 EC in 200 L of water/acre	2.0	5	4	1

Table: 50 Method Demonstration/trial

Date	Title	Venue	Participants
20.7.15	Demo on yellow sticky trap for white fly in cotton	Sadalpur	12

Table: 51 Field day

Date	Title	Venue	Participants
26.09.15	Cotton field day	Dhani Mohbbatpur	25

19.0 Efforts of KVK Sirsa and KVK Jind

Experts of KVK visited 12 villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Sirsa released 34 advisories on different aspects of white fly management in cotton through newspaper (5 advisories), news letter (12 advisories) and SMS on mobile (17 advisories) during Kharif 2015. Messages through SMS on mobile were sent to 1507 farmers. Besides, experts of KVK replied to 249 queries of farmers regarding white fly management on telephone. Apart from these, 363 farmers/farm women and 24 extension personnel of the district were educated about the solution of the problem through 13 training programmes. The detailed report of KVK Sirsa is as follows:

Action taken to control White Fly in cotton by KVK Sirsa during Kharif 2015

Table: 52 Agro Advisories

Agro Advisories on cotton crop		
Means of sending advisory	**Number of Advisory**	**Major content of advisory**
Newspaper	5	Judicious use of insecticides
KVK Newsletter	12	Timely surveillance and spraying
Replying farmers' query on phone	249	Regarding control measures of cotton pests.

Table: 53 Agro Advisories sent through SMS on mobile

Number of Advisory	**Number of farmers**	**Major content of advisory**
17	1507	Management of sucking pests in cotton

Table: 54 Joint visit with State Agriculture Department

Date of Visit		**No. of villages covered**	**Remarks**		
01.08.2015, 26.8.2015, 10.9.2015		12	Incidence of whitefly was noticed above ETL in more than 45 % fields.		
Capacity building/awareness programmes					
Type of participants	**Number of programme**	**Major subjects dealt**	**Number of participants**		
			Male	**Female**	**Total**
Farmer/farm women/Rural youth	12	Judicious use of insecticides	335	28	363
Extension personnel	1	Management of pests in cotton and paddy	24	-	24

Efforts of KVK Jind : Experts of KVK visited three villages jointly with the personnel of State Agriculture Department to diagnose the problem of white fly in cotton and advise the farmers the appropriate measures for its control. KVK Sirsa released 3 advisories on different aspects of white fly management in cotton through newspaper (1 advisories), news letter (0 advisories) and SMS on mobile (01 advisories) during Kharif 2015. Messages through SMS on mobile were sent to 100107 farmers. Besides, experts of KVK replied to more than1000 queries of farmers regarding white fly management on telephone. Apart from these, 127farmers/farm women and 120 extension personnel of the district were educated about the solution of the problem through 3 training programmes. The detailed report of KVK Sirsa is as follows:

Agro Advisories on cotton crop		
Means of sending advisory	**Number of Advisory**	**Major content of advisory**
Radio	01	Management of white-fly by use of *Neem* based insecticides and spray of Potassium Nitrate & NPK.
TV	--	--
Newspaper	01	--do--
KVK Newsletter	01	--do--
Replying farmers' query on phone	More than 1000	--do--
Any other (Please specify)		

Agro Advisories sent through SMS on mobile

Number of Advisory	**Number of farmers**	**Major content of advisory**
01	1200	Management of white-fly by use of *Neem* based insecticides

Joint visit with State Agriculture Department

Date of Visit	**No. of villages covered**	**Remarks**
30.06.2015	01 (Igrah)	Observed the insect population
30.09.2015	02 (Khatkar & Dohana Khera)	Field day and observation of crop performance.

Capacity building/awareness programmes					
Type of participants	**Number of programme**	**Major subjects dealt**	**Number of participants**		
			Male	**Female**	**Total**
Farmer/farm women/Rural youth	02	Package practice	65	06	71
Extension personnel	01	Management of white-fly and para-wilt	120	--	120

Estimated loss caused by White fly to cotton crop in the district

Estimated area under Cotton crop (ha)	Varieties infested	Extent of damage (ha)			
		< 25%	**25-50%**	**50-50-75%**	**>75%**
55000	All Bt. varieties	5000	10000	18000	22000

The population of white-fly was above ETL (6-18 adults/leaf) up-to end of September in almost all the fields. There are two categories of farmers (i) Using no insecticides (ii) Using insecticides. The observation from the few farmers is as under:

1. **Smt. Kamlesh w/o Sh. Joginder Village Nidana (Mob. 9467062050)** Bt. cotton (0.4 ha) grown **without any insecticide** use. The farmer sprayed DAP=2.5 Kg, Urea 2.5 Kg and $ZnSo_4$ 500gm per acre (0.4 ha) in 150 lt. water mostly at 12-15 days interval. The expected yield of seed cotton is 12 qtl/ha. The yield is at par with few plots of fellow farmers who used 5-6 insecticide sprays.
2. **Sh. Jai Bhagwan s/o Sh. Maha Singh Village: Nidani**- No insecticide used and **participation of NCIPM, New Delhi**. The farmer has grown Sri Ram 6588 and Bt. 7334 in 3.75 acres out of which one acres is under NCIPM observation (Madam Ajanta) but Dr. Y.P. Malik could not meet her. In rest area use of DAP, Urea, Zn done as in case 1st. In addition spray of Mg and Boron done under guidance of Dr. Kamal, ADO. The expected seed cotton yield is 12 qtl/ha. The farmer has used *Neem* based insecticide only.
3. **Sh. Joginder c/o Sh. Hokma s/o Jamuna Village Alewa 9466735759**. The farmer has three plots of 6588.
   Plot No. 1 : No spray of insecticides only DAP, Urea and Zn on Nidana pattern sprayed.
   Plot No. 2: Use of *Neem* based insecticide on IPM basis.
   Plot No. 3: Cotton sprayed 5 times using Imidachloprid, Acephate etc. at the desire of the farmer.
   Observations: The expected yield in the Plot No. 1 &2 is 6 qtl/ha each but the yield in 3rd plot with insecticide use is expected to be 9 qtl/ha.

Hope for future planning: Cultivation of **Desi Cotton (HD-432)** should be encouraged. The performance of Desi Cotton HD-432 at the field of **Sh. Shamsher Singh Village Dohana Khera (Mob. No. 8607843896)** under supervision of Dr. Y.P. Malik, Sr. DES (Agronomy) from sowing to picking. The crop was given spray of Imidachloprid followed by *Neem* based products and one spray of Malathion followed by Monocrotophos as per requirement. The farmer has picked seed-cotton 4.0 qtl. from half acre plot i.e. 20 qtl. per hectare. The final yield may be above 25 qtl/ha.

20.0 Glimpses of activities of KVKs during mass campaigning

Scientists of KVK Ferozepur along with farmers observing attack of whitefly in Cotton

A view of cotton field

Scientist taking cotton crop data at farmer's field

Kisan Samelan

DC Ferozepur KVK Scientists and Dept. of Agriculture officials interacting with farmers on cotton whitefly problem at Basti Piyreana

Programme Coordinator and Scientists of KVK, Ferozepur interacting with the farmers regarding management of whitefly on cotton.

Interaction of scientist with farmers regarding cotton crop






Scientists giving the advise at insecticide and pesticide shop

Demo of fly trap

Scientist interacting with farmers about the integrated weed management

Interaction of scientist with farmers during camp

KVK employee sticking the pamphlet regarding awareness of white fly

awareness camp about white fly during field day

Survey of cotton

View of leaf showing presence of beneficial insect
(Green lacewing)

Survey of cotton in village Ramanandi on 07.08.2015

KVK Scientist inspecting the field of cotton crop at Mansa


Village level camp organised on White fly at Khiali chelan wali and Koerwala


Village level camp organised on White fly at Dalelwala and Ghurakni

View of Field Day on Integreatred Pest Management in Cotton at Village Karandi, Mansa

Invitation lecture at village Beniwal, Mansa


Dr. GS Butter Additional Director (Ext. Edu) PAU Ludhiana addressing the farmers at Kisan sammelan


Director ATARI Zone-1 inspecting the cotton crop at KVK Bathinda

A field day on "management of white fly in cotton crop" in NICRA adopted village

Live demonstration on electro static spray pump for control of white fly in cotton crop in NICRA adopted village


Live demonstration on Air-assisted spray pump for control of white fly in cotton crop in NICRA adopted village


Scientists of KVK Bathinda inspecting cotton crop in adopted village


Awareness camp for the farmers about white fly

Awareness camp for the farmers about cotton crop

Inspecting the cotton crop at farmers field






Inspecting the cotton crop at farmers field

Different camps organised on white fly at different places

Different camps organised on white fly at different places

21.0 Glimpses of activities of KVKs in press and media

ਕਿਸਾਨ ਸੰਮੇਲਨ ਲਗਾਇਆ

ਫਰੀਦਕੋਟ, 23 ਅਗਸਤ (ਹਾਸ਼ੀ)- ਪੰਜਾਬ ਖੇਤੀਬਾੜੀ ਯੂਨੀਵਰਸਿਟੀ ਲੁਧਿਆਣਾ ਅਧੀਨ ਕੇਮ ਕਰ ਰਹੇ ਕ੍ਰਿਸ਼ੀ ਵਿਗਿਆਨ ਕੇਂਦਰ ਫਰੀਦਕੋਟ ਦੇ ਡਾ. ਨਵਦੀਪ ਸਿੰਘ ਗਿੱਲ, ਉਪ ਨਿਰਦੇਸ਼ਕ (ਸਿਖਲਾਈ) ਦੀ ਰਹਿਨੁਮਾਈ ਹੇਠ ਕਿਸਾਨ ਸੰਮੇਲਨ ਪਿੰਡ ਖਾਰਾ ਵਿਖੇ ਲਗਾਇਆ ਗਿਆ।ਸੰਮੇਲਨ 'ਚ ਪਿੰਡ ਖਾਰਾ ਦੇ ਆਲੇ-ਦੁਆਲੇ ਦੇ ਪਿੰਡਾਂ ਤੇ ਪਿੰਡ ਪਿੰਡੀ ਬਲੋਚਾਂ ਤੋਂ ਲੱਗਭਗ 500 ਕਿਸਾਨਾਂ ਨੇ ਭਾਗ ਲਿਆ।ਸੰਮੇਲਨ ਦੌਰਾਨ ਡਾ. ਗਿੱਲ ਨੇ ਕ੍ਰਿਸ਼ੀ ਵਿਗਿਆਨ ਕੇਂਦਰ ਦੀਆਂ ਗਤੀਵਿਧੀਆਂ ਤੇ ਲੋਕਾਂ ਨੂੰ ਖੇਤੀ

ਕਿਸਾਨ ਸੰਮੇਲਨ ਦਾ ਦ੍ਰਿਸ਼।

ਸਹਾਇਕ ਧੰਦਿਆਂ ਨੂੰ ਅਪਣਾਉਣ ਲਈ ਉਤਸ਼ਾਹਿਤ ਕੀਤਾ।ਡਾ.ਕੁਲਦਰਸ਼ਨ ਸਿੰਘ ਨੇ ਸਬਜ਼ੀਆਂ ਤੇ ਫਲਾਂ ਦੀ ਕਾਸ਼ਤ ਸੰਬੰਧੀ ਵਿਸਥਾਰਪੂਰਵਕ ਦੱਸਿਆ। ਡਾ. ਪ੍ਰਦੀਪ ਗੋਇਲ ਨੇ ਕਿਸਾਨਾਂ ਨੂੰ ਦੇਸੀ ਕਪਾਹ, ਕਣਕ, ਛੋਲਿਆਂ ਤੇ ਦਾਲਾਂ ਦੀ ਖੇਤੀ ਕਰਨ ਲਈ ਨਵੀਨਤਮ ਤਕਨੀਕਾਂ ਬਾਰੇ ਦੱਸਿਆ।

ਡਾ. ਏ. ਪੀ. ਐੱਸ. ਬਰਾੜ ਨੇ ਨਰਮੇ ਦੇ ਰਸ ਚੂਸਣ ਵਾਲੇ ਕੀੜਿਆਂ ਦੀ ਰੋਕਥਾਮ ਲਈ ਵਿਸਥਾਰਪੂਰਵਕ ਜਾਣਕਾਰੀ ਦਿੱਤੀ ਤੇ ਨਰਮੇ ਅਤੇ ਝੋਨੇ ਨੂੰ ਲੱਗਣ ਵਾਲੀਆਂ ਬੀਮਾਰੀਆਂ ਦੀ ਰੋਕਥਾਮ ਲਈ ਯੂਨੀਵਰਸਿਟੀ ਵਲੋਂ ਸਿਫਾਰਿਸ਼ ਕੀਤੀਆਂ ਗਈਆਂ ਦਵਾਈਆਂ ਸਹੀ ਤਰੀਕੇ ਨਾਲ ਛਿੜਕਣ ਦੀ ਸਲਾਹ ਦਿੱਤੀ ਡਾ.ਆਰ. ਕੇ. ਸਿੰਘ ਨੇ ਕਿਸਾਨਾਂ ਨੂੰ ਦੱਸਿਆ ਕਿ ਖੇਤੀ ਮਸ਼ੀਨਾਂ ਨੂੰ ਕਿਰਾਏ 'ਤੇ ਲੈ ਕੇ ਚਲਾਉਣਾ ਹੀ ਕਿਸਾਨਾਂ ਲਈ ਲਾਹੇਵੰਦ ਹੈ। ਇਸ ਮੌਕੇ ਕੋਆਪ੍ਰੇਟਿਵ ਸੁਸਾਇਟੀ ਦੇ ਇੰਸਪੈਕਟਰ ਗੁਰਮੇਲ ਸਿੰਘ, ਜਗਦੇਵ ਸਿੰਘ ਬਰਾੜ ਸਾਬਕਾ ਸਰਪੰਚ ਪਿੰਡ ਖਾਰਾ, ਮੇਘ ਸਿੰਘ ਸਰਪੰਚ ਖਾਰਾ, ਗੁਰਤੇਜ ਸਿੰਘ ਪ੍ਰਧਾਨ, ਗੁਰਦੀਪ ਸਿੰਘ ਸੈਕਟਰੀ ਕੋਆਪ੍ਰੇਟਿਵ ਸੁਸਾਇਟੀ, ਅਮਨਦੀਪ ਸਿੰਘ ਆਦਿ ਹਾਜ਼ਰ ਸਨ।

ਜਗ ਬਾਣੀ Mon, 24 August 2015
jagbani.epapr.in/c/6299982

ਚਿੱਟੀ ਮੱਖੀ ਤੋਂ ਬਚਾਅ ਸੰਬੰਧੀ ਕੈਂਪ ਲਗਾਏ

ਫਰੀਦਕੋਟ, 9 ਸਤੰਬਰ (ਹਾਸ਼ੀ)- ਬਲਾਕ ਖੇਤੀਬਾੜੀ ਅਫਸਰ ਫਰੀਦਕੋਟ ਡਾ. ਦਵਿੰਦਰ ਸਿੰਘ ਧਾਲੀਵਾਲ ਦੀ ਅਗਵਾਈ ਹੇਠ ਡਾ.ਰਾਮ ਸਿੰਘ ਏ. ਡੀ. ਓ. (ਰੰਡੀ ਰੋਡ), ਡਾ. ਰੁਪਿੰਦਰ ਸਿੰਘ ਗਿੱਲ ਏ. ਡੀ. ਓ. (ਪੀ. ਪੀ.) ਡਾ. ਸਕਨੀਤ ਸਿੰਘ ਤੇ ਡਾ. ਪ੍ਰਦੀਪ ਗੋਇਲ ਡੀ. ਈ. ਐੱਸ. ਨੇ ਦੋ ਟੀਮਾਂ ਬਣਾ ਕੇ ਬਲਾਕ ਫਰੀਦਕੋਟ ਦੇ ਪਿੰਡਾਂ ਚੰਦ ਸਿੰਘ ਵਾਲਾ, ਕਿਲਾ ਨੌ, ਢਾਬ ਸ਼ੇਰ ਸਿੰਘ ਵਾਲਾ, ਚਹਿਲ, ਡਾਣਾ, ਰੰਡੀ ਰੋਡੀ, ਦਾਨਾ ਠੇਆਣਾ, ਕੋਟ ਸੁਖੀਆ, ਜੰਡ ਸਿੰਘ ਵਾਲਾ ਤੇ ਬੀਹਲੇਵਾਲਾ 'ਚ ਨਰਮੇ ਦੀ ਫਸਲ ਨੂੰ ਚਿੱਟੀ ਮੱਖੀ ਦੇ ਹਮਲੇ ਤੋਂ ਬਚਾਅ ਲਈ ਜਾਗਰੂਕਤਾ ਕੈਂਪ ਲਗਾਏ। ਕੈਂਪਾਂ 'ਚ ਖੇਤੀਬਾੜੀ ਮਾਹਿਰਾਂ ਵਲੋਂ ਕਿਸਾਨਾਂ ਨੂੰ ਚਿੱਟੀ ਮੱਖੀ ਦੀ ਰੋਕਥਾਮ ਲਈ ਪੰਜਾਬ ਖੇਤੀਬਾੜੀ ਯੂਨੀਵਰਸਿਟੀ ਵਲੋਂ ਸਿਫਾਰਿਸ਼ ਕੀਟਨਾਸ਼ਕ ਦਵਾਈਆਂ ਓਬਰੋਨ 200 ਮਿ. ਲੀ. ਪ੍ਰਤੀ ਏਕੜ, ਪੋਲੋ 200 ਗ੍ਰਾਮ ਪ੍ਰਤੀ ਏਕੜ, ਈਥੀਆਨ 800 ਮਿ.ਲੀ. ਪ੍ਰਤੀ ਏਕੜ, ਟਰਾਈਜੋਫਾਸ 600 ਮਿ. ਲੀ. ਪ੍ਰਤੀ ਏਕੜ ਦੇ ਹਿਸਾਬ ਨਾਲ ਸਪਰੇਅ ਕਰਨ ਦੀ ਸਲਾਹ ਦਿੱਤੀ।

ਇਸ ਤੋਂ ਇਲਾਵਾ ਸਾਉਣੀ ਦੀ ਮੁੱਖ ਫਸਲ ਝੋਨੇ ਨੂੰ ਕੀੜੇ-ਮਕੌੜਿਆਂ ਤੇ ਬੀਮਾਰੀਆਂ ਤੋਂ ਬਚਾਉਣ ਦੀ ਵੀ ਜਾਣਕਾਰੀ ਦਿੱਤੀ ਗਈ। ਕੈਂਪਾਂ 'ਚ ਕਿਸਾਨਾਂ ਨੇ ਵੱਡੀ ਗਿਣਤੀ 'ਚ ਸ਼ਮੂਲੀਅਤ ਕਰ ਕੇ ਖੇਤੀ ਮਾਹਿਰਾਂ ਨਾਲ ਵਿਚਾਰ-ਵਟਾਂਦਰਾ ਕੀਤਾ। ਕੈਂਪਾਂ ਦੇ ਪ੍ਰਬੰਧ ਦਵਿੰਦਰਪਾਲ ਸਿੰਘ, ਬੇਅੰਤ ਸਿੰਘ, ਬਲਵੰਤ ਸਿੰਘ ਤੇ ਸੇਵਕ ਸਿੰਘ ਖੇਤੀਬਾੜੀ ਉਪ-ਨਿਰੀਖਕ ਵਲੋਂ ਕੀਤੇ ਗਏ।

ਜਗ ਬਾਣੀ Thu, 10 :
jagbani.

Kisan sammelan organised in Faridkot village

FARIDKOT: The Krishi Vigyan Kendra here organised a kisan sammelan which was sponsored by the Indian Council of Agricultural Research (ICAR), Delhi, in Khara village. Over 500 farmers from the region participated in the sammelan. The aim of the programme was to impart scientific knowhow on latest agricultural technology among the farmers.

Farmers were apprised of the importance of subsidiary occupations to lift the sagging farm economy and the role of horticultural crops in crop diversification. Farmers were told about the judicious use of agricultural inputs to combat the deteriorating soil and crop health besides various integrated pest management measures. HTC

ਨਰਮੇ ਵਿਚ ਚਿੱਟੀ ਮੱਖੀ ਤੋਂ ਬਚਾਓ ਲਈ ਸਿਫਾਰਸ਼ ਕੀਤੇ ਕੀਟਨਾਸ਼ਕ ਹੀ ਵਰਤੋ : ਡਾ. ਗਿੱਲ

ਫ਼ਰੀਦਕੋਟ, 15 ਸਤੰਬਰ (ਹਾਸ਼ੀ)-ਕ੍ਰਿਸ਼ੀ ਵਿਗਿਆਨ ਕੇਂਦਰ ਫ਼ਰੀਦਕੋਟ ਵੱਲੋਂ ਨਰਮਾ ਉਤਪਾਦਕਾਂ ਨੂੰ ਚਿੱਟੀ ਮੱਖੀ ਦੀ ਰੋਕਥਾਮ ਲਈ ਪੰਜਾਬ ਖੇਤੀਬਾੜੀ ਯੂਨੀਵਰਸਿਟੀ ਵੱਲੋਂ ਕੀਟਨਾਸ਼ਕ ਦਵਾਈਆਂ ਓਬਰੋਨ 200 ਮਿ. ਲੀ. ਪ੍ਰਤੀ ਏਕੜ, ਪੋਲੋ 200 ਗ੍ਰਾਮ ਪ੍ਰਤੀ ਏਕੜ, ਈਥੀਆਨ 800 ਮਿ. ਲੀ. ਪ੍ਰਤੀ ਏਕੜ, ਟਰਾਈਜੋਫਾਸ 600 ਮਿ. ਲੀ. ਪ੍ਰਤੀ ਏਕੜ ਦੇ ਹਿਸਾਬ ਨਾਲ ਛਿੜਕਾਅ ਕਰਨ ਦੀ ਸਿਫਾਰਸ਼ ਕੀਤੀ ਹੈ। ਇਹ ਜਾਣਕਾਰੀ ਡਾ. ਨਵਦੀਪ ਸਿੰਘ ਗਿੱਲ ਉੱਪ ਨਿਰਦੇਸ਼ਕ (ਸਿਖਲਾਈ) ਨੇ ਦਿੱਤੀ। ਉਨ੍ਹਾਂ ਦੱਸਿਆ ਕਿ ਛਿੜਕਾਅ ਸਵੇਰੇ 10 ਵਜੇ ਤੋਂ ਪਹਿਲਾਂ ਕਰਨ, ਫਿਕਸ ਟਾਈਪ ਨੋਜ਼ਲਾਂ ਦੀ ਵਰਤੋਂ ਕਰਨ ਅਤੇ ਕੀਟਨਾਸ਼ਕ ਜ਼ਹਿਰਾਂ ਦੇ ਮਿਸ਼ਰਣ ਨੂੰ ਆਪ ਬਣਾ ਕੇ ਜਾਂ ਬਣੇ ਬਣਾਏ ਵਰਤਣ ਤੋਂ ਸੰਕੋਚ ਕਰਨ ਦੀ ਸਿਫਾਰਸ਼ ਕੀਤੀ ਗਈ। ਇਨ੍ਹਾਂ ਦਵਾਈਆਂ ਦੀ ਵਰਤੋਂ ਅਦਲ-ਬਦਲ ਕੇ ਕੀਤੀ ਜਾਵੇ। ਚਿੱਟੀ ਮੱਖੀ ਕਾਰਨ ਨਰਮੇ ਦੇ ਕਾਲੇ ਹੋਏ ਪੱਤਿਆਂ ਉੱਪਰ ਕਾਲੀ ਉੱਲੀ ਦੀ ਰੋਕਥਾਮ ਲਈ 500 ਗ੍ਰਾਮ ਕਾਪਰ ਆਕਸੀਕਲੋਰਾਈਡ ਪ੍ਰਤੀ ਏਕੜ ਦੀ ਸਿਫਾਰਸ਼ ਕੀਤੀ ਹੈ। ਉਨ੍ਹਾਂ ਕਿਹਾ ਕਿ ਮਾਹਰਾਂ ਮੁਤਾਬਕ ਜੇਕਰ ਪਿੰਡ ਪੱਧਰ 'ਤੇ ਇਕੋ ਸਮੇਂ ਕੀਟਨਾਸ਼ਕ ਦਾ ਛਿੜਕਾਅ ਕੀਤਾ ਜਾਵੇ ਤਾਂ ਚਿੱਟੀ ਮੱਖੀ ਦੀ ਰੋਕਥਾਮ ਜ਼ਿਆਦਾ ਅਸਰਦਾਰ ਸਾਬਤ ਹੋ ਸਕਦੀ ਹੈ।

Newspaper: Punjab Kesri
Edition: Faridkot Kesri

सफेद मक्खी से बचाव के लिए कीटनाशक का ही प्रयोग करें : डा. गिल

फरीदकोट, 15 सितम्बर (हाशी) : कृषि विज्ञान केंद्र द्वारा नरमा उत्पादकों को सफेद मक्खी की रोकथाम के लिए पंजाब कृषि यूनिवर्सिटी द्वारा सिफारिश कीटनाशक दवाइयां ओबेरोन 200 मि.ली. प्रति एकड़, पोलो 200 ग्राम प्रति एकड़, ईथियान 800 मि.ली. प्रति एकड़, ट्राईजोफास 600 मि.ली. प्रति एकड़ के हिसाब से छिड़काव करने की सिफारिश की है। यह जानकारी डा. नवदीप सिंह गिल उप निदेशक (सिखलाई) ने दी।

उन्होंने बताया कि छिड़काव सुबह 10 बजे से पहले करें, फिक्स टाइप नोजल का प्रयोग करने और कीटनाशक जहरों के मिक्सर को स्वयं बनाकर या बने बनाए प्रयोग करने से संकोच करने की सिफारिश की गई। इन दवाइयों का प्रयोग अदल-बदलकर किया जाए।

ਕੇ.ਵੀ. ਕੇ. ਵੱਲੋਂ ਤਰਖਾਣ ਵਾਲਾ ਵਿਖੇ ਕਿਸਾਨ ਸੰਮੇਲਨ ਦਾ ਆਯੋਜਨ

ਨੌਜਵਾਨਾਂ ਨੂੰ ਕੇ.ਵੀ.ਕੇ. ਤੋਂ ਕਿੱਤਾ ਮੁੱਖੀ ਸਿਖਲਾਈ ਲੈਣ ਦਾ ਸੱਦਾ

'Kisan mittars' to save cotton from whitefly

TRIBUNE NEWS SERVICE

MUKTSAR, AUGUST 26

To give expertise to farmers to save their growing cotton crop from the attack of whitefly, the Agriculture Department has deputed 115 'kisan mittars' (farmer friends) to cover 230 villages in Muktsar district. Each farmer friend has been told to cover two villages, meet farmers, visit their fields and inform them of how to save their growing crop from the attack of whitefly.

Beant Singh, Chief Agriculture Officer, Muktsar, said, "The department has already made available subsidised pesticides, insecticides to the farmers. Now, to make direct contact with the cotton growers, the department has deputed farmer friends."

Meanwhile, the farmer friends were given training at the Krishi Vigyan Kendra here yesterday.

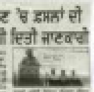
Dr Nirmal Singh Dhaliwal, Deputy Director, KVK, Muktsar, and Kanwjit Singh, project director, ATMA scheme, Muktsar, said, "The basic aim of this scheme is to provide direct benefit to farmers who have grown cotton crop in 72,000 hectare area in Muktsar district. The farmers must not go by the hearsays. They should act upon experts' advice to save their crops, rather than uprooting the growing cotton crop."

Mangal Singh Sandhu, Director, Agriculture Department, Punjab, said, "Farmers should clean the growing cotton crop with water. It will help them save the crop from whitefly. Further, they should not mix two or more insecticides to kill the whitefly."

- To give expertise to farmers to save their growing cotton crop from whitefly attack, the Agriculture Department has deputed 115 'kisan mittar' (farmer friends) to cover 230 villages in Muktsar.
- Each farmer friend has been told to cover two villages, meet farmers, visit their fields and inform them of how to save their growing crop from the attack of whitefly.

The Tribune Thu, 27 August 2015 epaper.tribuneindia.com/c/

ਕਿਸਾਨ ਸੰਮੇਲਣ 'ਚ ਫ਼ਸਲਾਂ ਦੀ ਦੇਖ-ਭਾਲ ਸਬੰਧੀ ਦਿੱਤੀ ਜਾਣਕਾਰੀ



ਕੇ.ਵੀ. ਕੇ. ਵੱਲੋਂ ਤਰਖਾਣ ਵਾਲਾ ਵਿਖੇ ਕਿਸਾਨ ਸੰਮੇਲਨ ਦਾ ਆਯੋਜਨ

ਪੰਜਾਬੀ ਟ੍ਰਿਬਿਊਨ

ਮਾਲਵਾ

ਚਿੱਟੀ ਮੱਖੀ ਦੇ ਟਾਕਰੇ ਲਈ ਸਿਫ਼ਾਰਸ਼ਸ਼ੁਦਾ ਜ਼ਹਿਰਾਂ ਹੀ ਵਰਤਣ ਦੀ ਸਲਾਹ

ਖੇਤੀਬਾੜੀ ਯੂਨੀਵਰਸਿਟੀ ਦੇ ਮਾਹਿਰਾਂ ਨੇ ਲਿਆ ਨਰਮੇ ਦੇ ਖੇਤਾਂ ਦਾ ਜਾਇਜ਼ਾ; ਕਿਸਾਨਾਂ ਨੂੰ ਮਿੱਤਰ ਕੀੜੇ ਬਚਾਉਣ ਦਾ ਸੱਦਾ

ਮਾਲਵਾ Thu, 27 August 2015

ਮਾਲਵਾ ਖੇਤਰ 'ਚ ਨਰਮੇ ਦੀ ਫ਼ਸਲ 'ਤੇ ਚਿੱਟੀ ਮੱਖੀ ਦਾ ਹਮਲਾ

ਮਾਨਸਾ, 25 ਜੁਲਾਈ (ਗੁਰਚੇਤ ਸਿੰਘ)

ਪਿੰਡ ਮਾਨਸਾ ਖੁਰਦ (ਮਾਨਸਾ) ਵਿਖੇ ਨਰਮੇ ਦੇ ਪੱਤੇ ਨੂੰ ਖਾ ਰਹੀ ਚਿੱਟੀ ਮੱਖੀ ਤੇ ਮੱਖੀ ਦੇ ਹਮਲੇ ਨਾਲ ਕਾਲਾ ਹੋਇਆ ਪੱਤਾ। ਤਸਵੀਰਾਂ: ਸੇਖੀ ਮਾਨਸਾ

ਫੋਰੇਵਾਲੀਆ)-ਮਾਲਵਾ ਖੇਤਰ 'ਚ ਨਰਮੇ ਦੀ ਫ਼ਸਲ 'ਤੇ ਚਿੱਟੀ ਮੱਖੀ ਨੇ ਹਮਲਾ ਕਰ ਦਿੱਤਾ ਹੈ, ਜਿਸ ਨੇ ਕਿਸਾਨਾਂ ਦੀ ਚਿੰਤਾ 'ਚ ਵਾਧਾ ਕਰ ਦਿੱਤਾ ਹੈ। ਭਾਵੇਂ ਇਹ ਹਮਲਾ ਅਜੇ ਵੱਡੇ ਪੱਧਰ 'ਤੇ ਨਹੀਂ ਹੋਇਆ ਪਰ ਜੇਕਰ ਇਸ ਨੂੰ ਸ਼ੁਰੂਆਤੀ ਦੌਰ 'ਚ ਹੀ ਗੰਭੀਰਤਾ ਨਾਲ ਨਾ ਲਿਆ ਗਿਆ ਤਾਂ ਇਹ ਅੱਗੇ ਜਾ ਕੇ ਵੱਡੇ ਨੁਕਸਾਨ ਦਾ ਕਾਰਨ ਬਣ ਸਕਦਾ ਹੈ। ਪਤਾ ਲੱਗਾ ਹੈ ਕਿ ਚਿੱਟੀਆਂ ਮੱਖੀਆਂ ਦਾ ਝੁੰਡ ਸਵੇਰੇ 10 ਵਜੇ ਤੋਂ ਪਹਿਲਾਂ ਪੱਤਿਆਂ 'ਤੇ ਹਮਲਾ ਕਰ ਦਿੰਦਾ ਹੈ, ਜਿਸ ਕਾਰਨ ਪੱਤੇ ਸੁੰਗੜਣੇ ਸ਼ੁਰੂ ਹੋ ਜਾਂਦੇ ਹਨ।ਮਾਨਸਾ, ਬਠਿੰਡਾ, ਮੁਕਤਸਰ, ਫ਼ਰੀਦਕੋਟ, ਫ਼ਾਜ਼ਿਲਕਾ, ਫ਼ਿਰੋਜ਼ਪੁਰ ਆਦਿ ਜ਼ਿਲ੍ਹਿਆਂ 'ਚ ਇਹ ਹਮਲਾ ਦੇਖਣ ਨੂੰ ਮਿਲ ਰਿਹਾ ਹੈ। ਪੰਜਾਬ ਖੇਤੀਬਾੜੀ ਯੂਨੀਵਰਸਿਟੀ ਲੁਧਿਆਣਾ ਦੇ ਵਧੀਕ ਡਾਇਰੈਕਟਰ ਪਸਾਰ ਸਿੱਖਿਆ ਡਾ: ਗੁਰਮੀਤ ਸਿੰਘ ਬੁੱਟਰ ਦੀ ਅਗਵਾਈ 'ਚ ਟੀਮ ਵੱਲੋਂ ਮਾਨਸਾ ਤੇ ਬਠਿੰਡਾ ਦੇ ਚੋਣਵੇਂ ਪਿੰਡਾਂ ਦਾ ਦੌਰਾ ਕੀਤਾ ਗਿਆ। ਡਾ: ਬੁੱਟਰ ਨੇ ਮੰਨਿਆ ਕਿ ਨਰਮੇ 'ਤੇ ਚਿੱਟੀ ਮੱਖੀ ਦਾ ਹਮਲਾ ਹੈ ਪਰ ਇਹ ਬਹੁਤ ਥੋੜ੍ਹਾ ਹੈ ਤੇ ਕਿਸਾਨਾਂ ਨੂੰ ਘਬਰਾਉਣ ਦੀ ਕੋਈ ਜ਼ਰੂਰਤ ਨਹੀਂ। ਉਨ੍ਹਾਂ ਕਿਹਾ ਕਿ ਨਰਮੇ 'ਤੇ ਸਪਰੇਅ ਸਵੇਰੇ 10 ਵਜੇ ਤੋਂ ਪਹਿਲਾਂ ਪਹਿਲਾਂ ਕਰ ਦੇਣੀ ਚਾਹੀਦੀ ਹੈ, ਕਿਉਂਕਿ ਦੁਪਹਿਰ ਸਮੇਂ ਚਿੱਟੀ ਮੱਖੀ ਨਰਮੇ ਦੇ ਪੱਤਿਆਂ ਹੇਠਾਂ ਲੁਕ ਜਾਂਦੀ ਹੈ। ਉਨ੍ਹਾਂ ਦੱਸਿਆ ਕਿ ਪੋਲੋ 200 ਗਰਾਮ, ਓਵਰਾਨ 200 ਮਿਲੀ ਲੀਟਰ, ਇਥਿਆਨ 800 ਤੇ ਟ੍ਰਾਈਜੋਫਾਸ 600 ਮਿਲੀ ਲੀਟਰ, ਇਨ੍ਹਾਂ ਚਾਰਾਂ ਸਪਰੇਅਾਂ 'ਚੋਂ ਕਿਸੇ ਇਕ ਦਾ ਨਰਮੇ 'ਤੇ ਛਿੜਕਾਅ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ। ਡਾ: ਬੁੱਟਰ ਦੀ ਅਗਵਾਈ 'ਚ ਟੀਮ ਵੱਲੋਂ ਜ਼ਿਲ੍ਹੇ ਦਾ ਪਿੰਡ ਭਾਈਦੇਸਾ, ਮਾਨਸਾ ਕੈਂਚੀਆਂ ਆਦਿ ਵਿਖੇ ਨਰਮੇ ਦੀ ਫ਼ਸਲ 'ਤੇ ਚਿੱਟੀ ਮੱਖੀ ਦੇ ਹਮਲੇ ਦਾ ਮੁਆਇਨਾ ਕੀਤਾ ਗਿਆ। ਇਸ ਮੌਕੇ ਉਨ੍ਹਾਂ ਨਾਲ ਡਾ: ਐਸ. ਕੇ. ਬਿਦ ਮੁਖੀ ਪੌਦਾ ਹਸਪਤਾਲ ਤੇ ਡਾ: ਗੁਰਦੀਪ ਸਿੰਘ ਖੇੜੀ ਵਿਗਿਆਨ ਕੇਂਦਰ ਮਾਨਸਾ ਆਦਿ ਸਨ।

ਡਾ: ਬੁੱਟਰ ਦੀ ਅਗਵਾਈ 'ਚ ਟੀਮ ਵੱਲੋਂ ਮਾਨਸਾ ਤੇ ਬਠਿੰਡਾ ਜ਼ਿਲ੍ਹੇ ਦਾ ਦੌਰਾ

दैनिक भास्कर | रोहतक/सोमवार 20 जुलाई, 2015

पौध संरक्षण का दिया प्रशिक्षण

कृषि कार्यालय में शिविर का आयोजन, 15 कृषि अधिकारियों ने लिया भाग

भास्कर न्यूज | टोहाना

सूक्ष्मकृमियों की पहचान बताई

कृषि विज्ञान केंद्र की ओर से खरीफ फसलों में पौध संरक्षण विषय पर उपमंडल कृषि कार्यालय में त्रिदिवसीय शिविर रविवार को आयोजित किया गया। प्रशिक्षण में टोहाना व जाखल खंडों से 15 कृषि अधिकारियों ने भाग लिया।

शिविर के संयोजक डॉ. राकेश कुमार ने कृषि अधिकारियों को बताया कि धान में बीज उपचार करने से ही बकाने/झोंदा रोग की रोकथाम की जा सकती है। उन्होंने बताया कि पनीरी को उखाड़ने के एक हफ्ते पहले बाविस्टीन नामक दवा पनीरी में डालें। उन्होंने धान में लगने वाली मुख्य बीमारियों एवं कीटों की पहचान, लक्षण एवं समन्वित रोकथाम के बारे में बताया।

एवं समन्वित रोकथाम के बारे में प्रेजेंटेशन के माध्यम से वैज्ञानिक जानकारी दी। इसके अलावा कपास में उखेड़ा रोग व पत्ते की बीमारियों के बारे में भी विस्तार से बताया। कपास में सफेद मक्खी की रोकथाम अधिकारियों को सलाह दी कि वे किसानों को बताएं कि दो-तीन रसायन आपस में मिलाकर स्प्रे न करें। पहले स्प्रे नीम से निर्मित पदार्थों जैसे निम्बेसीडीन, अचूक, नीमेक आदि का प्रयोग करें।

कृषि अधिकारियों को दिया पौध संरक्षण बारे प्रशिक्षण

किसानों को जानकारी देते कृषि वैज्ञानिक।

जागरण संवाददाता, फतेहाबाद : कृषि विज्ञान केंद्र फतेहाबाद द्वारा खरीफ फसलों में पौध संरक्षण विषय पर प्रशिक्षण कार्यक्रम का आयोजन किया गया। इस प्रशिक्षण में टोहाना व जाखल खंडों से 15 कृषि अधिकारियों ने भाग लिया।

शिविर के संयोजक डॉ. राकेश कुमार ने कृषि अधिकारियों को बताया कि धान में बीज उपचार करने से बकाने या कांडे झोंदा रोग की रोकथाम की जा सकती है। पनीरी को उखाड़ने के एक सप्ताह पहले बाविस्टीन नामक दवाई पनीरी में डालें। धान में लगने वाली मुख्य बीमारियों एवं कीटों की पहचान, लक्षण एवं समन्वित रोकथाम के बारे में बताया।

• धान में लगने वाली बीमारियों व रोकथाम बारे दी वैज्ञानिक जानकारी

उन्होंने कपास में उखेड़ा रोग व पत्तों की बीमारियों के बारे में भी जानकारी दी। कपास सहित सब्जी की रोकथाम के बारे में जानकारी देते हुए कृषि अधिकारियों को सलाह दी कि किसानों को बताएं कि दो-तीन रसायन आपस में मिलाकर स्प्रे न करें। पहले स्प्रे नीम से निर्मित पदार्थों जैसे निम्बेसीडीन, अचूक, नीमेक आदि का प्रयोग करें।

सूक्ष्मकृमि विशेषज्ञ डॉ. सतपाल धान ने धान एवं कपास में लगने वाले सूक्ष्मकृमियों की पहचान, लक्षण एवं रोकथाम विषय पर विस्तार से जानकारी दी। डॉ. धान ने बताया कि धान में सूक्ष्मकृमि जड़ों पर हुकनुमा गांठें बना देते हैं।

इस अवसर पर विषय विशेषज्ञ डॉ. रामेश्वर दास, डॉ. संजय कुमार, डॉ. अजय, खंड कृषि अधिकारी डॉ. बलबीर सिंह भी मौजूद थे।

फतेहाबाद केसरी
सोमवार MONDAY 20 जुलाई 2015

कृषि अधिकारियों को दिया पौध संरक्षण बारे प्रशिक्षण

प्रशिक्षण शिविर में कृषि अधिकारियों को जानकारी देते कृषि वैज्ञानिक।

रोहतक (विभेद): कृषि विज्ञान केंद्र फतेहाबाद द्वारा खरीफ फसलों में पौध संरक्षण विषय पर उपमंडल कृषि कार्यालय टोहाना में त्रिदिवसीय कार्यकर्ता प्रशिक्षण कार्यक्रम का आयोजन किया गया। इस प्रशिक्षण में टोहाना व जाखल खंडों से 15 कृषि अधिकारियों ने भाग लिया। शिविर के संयोजक डा.राकेश कुमार ने कृषि अधिकारियों को बताया कि धान में बीज उपचार करने से बकाने/झोंदा रोग की रोकथाम की जा सकती है। उन्होंने बताया कि पनीरी को उखाड़ने के एक सप्ताह पहले बाविस्टीन नामक दवाई पनीरी में डालें। डा.राकेश कुमार ने धान में लगने वाली मुख्य बीमारियों एवं कीटों की पहचान, लक्षण एवं समन्वित रोकथाम के बारे में विस्तार से प्रेजेंटेशन के माध्यम से वैज्ञानिक जानकारी दी। उन्होंने कपास में उखेड़ा रोग व पत्तों की बीमारियों के बारे में भी विस्तार से बताया। डा.राकेश ने कपास में सफेद मक्खी की रोकथाम के बारे में जानकारी देते हुए कृषि अधिकारियों को सलाह दी कि किसानों को बताएं कि 2-3 रसायन आपस में मिलाकर स्प्रे न करें। पहले स्प्रे नीम से निर्मित पदार्थों जैसे निम्बेसीडीन, अचूक, नीमेक आदि का प्रयोग करें। सूक्ष्मकृमि विशेषज्ञ डा.सतपाल धान ने धान एवं कपास में लगने वाले सूक्ष्मकृमियों की पहचान, लक्षण एवं रोकथाम विषय पर विस्तार से जानकारी दी। डा.धान ने बताया कि धान में सूक्ष्मकृमि जड़ों पर हुकनुमा गांठें बना देते हैं। उन्होंने अधिकारियों से कहा कि समन्वयात्मक खेती के किसानों से कहें कि पहले 45 दिन तक पौड़ा पानी खड़ा रखें जिससे कि इसका नुकसान कम हो सके। डा.सतबीर यादव ने धान में खरीफ सिंचाई विषय पर खतावार प्रबंधन व खाद प्रबंधन विषय पर विस्तार से जानकारी दी। उपमंडल कृषि अधिकारी डा.बलबीर सहारण ने कृषि वैज्ञानिकों का इस स्तर का प्रशिक्षण आयोजित करने के लिए धन्यवाद किया व भविष्य में भी अहवान किया कि इस स्तर के प्रशिक्षण आयोजित किए जाएं। इस अवसर पर विषय विशेषज्ञ डा.रामेश्वर दास, डा.संजय कुमार, डा.अजय, खंड कृषि अधिकारी डा.बलबीर सिंह भी मौजूद थे।

दैनिक जागरण हिसार, 31 अगस्त 2015

हिसार केसरी
मंगलवार TUESDAY 29 सितम्बर 2015

न्यूज फ्लैश

कपास खेत दिवस मनाया

हिसार भूमि

पौध वितरण अभियान शुरू

24 जुलाई

हिसार केसरी

किसानों को दी कपास फसल की बीमारियों के निदान की जानकारी

आदमपुर की आवाज

आदमपुर की साप्ताहिक हलचल

सलाह कपास की फसल का निरीक्षण करते बोले कृषि अफसर

नरमे के भरपूर झाड़ के लिए पानी जरूरी

दैनिक सवेरा Wed, 09 September 2015
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दैनिक भास्कर हिसार, शुक्रवार 24 जुलाई, 2015

पीले रंग के बोर्ड पर ग्रीस लगा कपास की फसल का सफेद मक्खी से बचाव करें

भोडिया बिश्नोईयान में किसान प्रशिक्षण शिविर

शिविर में किसानों को फसलों में होने वाले रोगों की जानकारी देते डॉ. पवन।

भास्कर न्यूज | मंडी आदमपुर, सिरसा

गांव भोडिया बिश्नोईयान में गुरुवार को न्यू स्टेट प्लान योजना के तहत एक दिवसीय किसान प्रशिक्षण शिविर लगाया गया। शिविर में किसानों को कपास फसल में होने वाले रोगों के निदान के उपायों के बारे में बताया गया। कृषि विकास अधिकारी डॉ. बलवान सिंह ने किसानों को कपास फसल में लगने वाले विभिन्न प्रकार के हानिकारक कीटों के निदान की जानकारी दी। कृषि विज्ञान केंद्र सदलपुर के शस्य वैज्ञानिक डॉ. पवन कुमार ने कपास की फसल में की जाने वाली शस्य क्रियाओं के बारे में जानकारी दी।

सुधाचंद पूनिया के खेत पर सफेद मक्खी पर रोकथाम के लिए बनाए गए पीले रंग के बोर्ड पर ग्रीस लगाकर कपास की फसल में घूमते हुए सफेद मक्खी का नियंत्रण दिखाया। इस मौके पर खंड कृषि अधिकारी डॉ. हरदीप, कृषि विकास अधिकारी डॉ. उमा देवी, डॉ. अरुण, डॉ. राजेंद्र, डॉ. जनकराज व डॉ. निहाल सिंह यादव, कृष्ण पूनिया, जगदीश, रमेश, बनीराम, सुभाष मौजूद रहे।

बरसाती मौसम में बीमारी फैलने का खतरा विशेषज्ञों की लें सलाह : डॉ. बेनीवाल

कृषि विभाग की स्टेट प्लान स्कीम के तहत अंडोहा में गुरुवार को लगे किसान जागरूक प्रशिक्षण शिविर का शुभारंभ खंड कृषि अधिकारी बलवंत सिंह बेनीवाल, ने किया। इस दौरान अध्यक्षता एडीओ डॉ. रमेश जनागल ने की। इस दौरान कपास, नरमा में लगने वाले चूरड़ा, चूसक कीटों, हरा तेला व सफेद मक्खी से की रोकथाम के बारे में किसानों का जागरूक किया गया। डॉ. बेनीवाल ने कहा कि बारिश का मौसम शुरू हो चुका है। अब फसलों में बीमारियां फैलने का खतरा बना रहेगा। किसान विभाग के विशेषज्ञों से सलाह लेकर कीटनाशकों का छिड़काव करें।

सफेद मक्खी के शिशु चपमक दोनों ही पत्तियों की निचली सतह पर बैठकर रस चूसते हैं और शहद जैसा चिपचिपा पदार्थ भी छोड़ते हैं। जिससे फफूंदी उत्पन्न होकर पत्ते का रंग काला कर देती है। उन्होंने चूसक कीटों की रोकथाम के उपाय में बताया कि पहला स्प्रे नीम की दवाई का करें। उन्होंने कहा कि चूसक कीटों व सफेद मक्खी के आक्रमण से फसलों के बचाव के लिए 300 पीपीएम नीमेसिडिन एक लीटर प्रति एकड़ 150-200 लीटर पानी में घोल बनाकर इसके साथ 350 मिली लीटर रोगोर को मिलाकर भी स्प्रे कर सकते हैं। कृषि विज्ञान केंद्र सदलपुर से विशेषज्ञ डॉ. जरेंद्र कुमार ने कहा कि ग्वार की फसल में उखेड़ा, जड़गलन, जीवाणु अंगमारी व झुलसा रोग आदि बीमारियां लग जाती है तो किसान को फसल से हाथ धोना भी पड़ सकता है। उखेड़ा एवं जड़गलन बीमारी को रोकने के लिए 6 लीटर पानी में 6 ग्राम स्टेप्टोसाइक्लिन घोल लें और इसमें 5 किलो बीज अच्छा भीं भिगोएं और फिर अच्छी तरह से सुखा कर बीज की बिजाई करें। इस मौके पर कृषि अधिकारी डॉ. शमशेर सिंह धूरा, डॉ. जरेंद्र सोढ़ी, डॉ. सोमप्रकाश, डॉ. शिशपाल आदि मौजूद रहे।

पीएयू प्रमाणित बीज ही बोएं: बुट्टर

किसानों को बताए सफेद मक्खी की रोकथाम के उपाय

भास्कर संवाददाता | बठिंडा

अंत किल्ली निहाल सिंह से नरमे की फसल पर सफेद मक्खी की रोकथाम को लेकर किसानों को जागरूक करते आहिर।

पंजाब एग्रीकल्चर यूनिवर्सिटी कृषि विज्ञान केंद्र बठिंडा की ओर से गांव किल्ली निहाल सिंह में नरमे की फसल पर सफेद मक्खी की रोकथाम और किसानों को जागरूक करने के लिए खेत दिवस मनाया गया। इस दौरान आस पास के इलाकों से 150 किसानों ने भाग लिया। इस मौके डॉ. गुरमीत सिंह बुट्टर एडिशनल डायरेक्टर, प्रसार शिक्षा, पीएयू लुधियाना चतौर मुख्य मेहमान शामिल हुए।

डॉ. बुट्टर ने कहा कि पछेती बिजाई वाले नरमे पर सफेद मक्खी का ज्यादा हमला हुआ है। उन्होंने कहा गेहूं की कटाई लेट होने से नरमे की बिजाई पिछड़ गई है। उन्होंने किसानों से आह्वान किया कि वे गुजरात से नरमे का बीज लाकर ना बीजें बल्कि पंजाब खेतीबाड़ी यूनिवर्सिटी द्वारा प्रमाणित किस्म का बीज ही बोएं।

डॉ. जगदीश ग्रोवर सहयोगी निर्देशक कृषि विज्ञान केंद्र ने केंद्र की विभिन्न गतिविधियों संबंधी किसानों को जानकारी दी। इस मौके पर डॉ. जे एस धीमान एडिशनल डायरेक्टर, खोज, पीएयू, विजय कुमार प्रो पीएयू, डॉ. अवेज सिंह सहायक प्रो प्रसार शिक्षा तथा डॉ. गुरमीत सिंह ढिल्लों ने किसानों को नरमे की फसल की बुआई, सिंचाई, देखभाल, खाद व कीटनाशकों का इस्तेमाल करने संबंधी जानकारी दी। पीएयू से आए डॉ. महेश कुमार नारंग ने नरमे की फसल पर किटनाशक करने के सही तरीके बारे जानकारी दी। इस दौरान एयर एसिस्टेड तथा इलेक्ट्रोस्टेटिक स्प्रेयर पंप की प्रदर्शनी भी लगाई गई।

ਰੋਜ਼ਾਨਾ ਸਪੋਕਸਮੈਨ
ਸ਼ਨਿਚਰਵਾਰ
15 ਅਗੱਸਤ, 2015

ਕਿਸਾਨ ਸੰਮੇਲਨ ਕੈਂਪ ਲਾਇਆ

ਬਠਿੰਡਾ, 14 ਅਗੱਸਤ (ਜਸਪਾਲ ਸਿੰਘ ਸਿੱਧੂ): ਪੰਜਾਬ ਐਗਰੀਕਲਚਰਲ ਯੂਨੀਵਰਸਿਟੀ ਲੁਧਿਆਣਾ ਦੁਆਰਾ ਚਲਾਏ ਜਾ ਰਹੇ ਤਿੰਨੇ ਵਿਭਿੰਨ ਕੇਂਦਰ ਬਠਿੰਡਾ ਵਲੋਂ ਸਾਉਣੀ ਦੀਆਂ ਫ਼ਸਲਾਂ ਸਬੰਧੀ ਖੇਤ ਸਿਖਲਾਈ ਕੈਂਪ ਲਗਾਏ ਗਏ। ਜਿਸ ਅਧੀਨ ਸੋਹੀਆਂ ਕਲਾਂ ਵਿਖੇ ਲਗਾਏ ਗਏ ਕੈਂਪ ਦੌਰਾਨ ਕਿਸਾਨਾਂ ਨੂੰ ਖੇਤੀ ਦੇ ਸਹਾਇਕ ਧੰਦਿਆਂ ਸਬੰਧੀ ਵਡਮੁਲੀ ਜਾਣਕਾਰੀ ਦਿਤੀ।

ਸਿਖਲਾਈ ਦੇ ਮੁੱਖ ਅਫ਼ਸਰਾਨ ਡਾ. ਹਰਦੀਪ ਸਿੰਘ ਢੁੱਟ, ਐਗਰੋਮੈਟਰੋਲੋਜਿਸਟ ਡਾਇਰੈਕਟਰ ਪਸਾਰ ਸਿੱਖਿਆ ਪੀ.ਏ.ਯੂ. ਲੁਧਿਆਣਾ ਵਿਸ਼ੇਸ਼ ਤੌਰ 'ਤੇ ਪਹੁੰਚੇ। ਜਿਨ੍ਹਾਂ ਨੇ ਕਿਸਾਨਾਂ ਨੂੰ ਨਵੀਆਂ ਤਕਨੀਕਾਂ ਅਪਣਾ ਕੇ ਅਪਣੀ ਖੇਤੀ ਵਿਚ ਮੁਨਾਫ਼ਾ ਕਮਾਉਣ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਦਿਤੀ। ਉਨ੍ਹਾਂ ਕਿਹਾ ਕਿ ਕਿਸਾਨਾਂ ਨੂੰ ਖੇਤੀਬਾੜੀ ਯੂਨੀਵਰਸਿਟੀ ਨਾਲ ਜੁੜਨਾ ਚਾਹੀਦਾ ਹੈ। ਡਾ. ਜਗਦੀਸ਼ ਚਰੋਕਰ ਡਿਪਟੀ ਡਾਇਰੈਕਟਰ ਰਿਸਰਚ ਕੇ.ਵੀ.ਕੇ. ਬਠਿੰਡਾ ਨੇ ਖੇਤੀ ਮਸ਼ੀਨਰੀ ਦੀ ਸਾਂਭ-ਸੰਭਾਲ ਅਤੇ ਇਸ ਤਰ੍ਹਾਂ ਦੇ ਕੈਂਪਾਂ ਵਿਚ ਵੱਧ ਤੋਂ ਵੱਧ ਪਹੁੰਚ ਕੇ ਖੇਤੀ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਲੈਣ ਦੀ ਚਾਹੀਦੀ ਹੈ। ਡਾ. ਅਸ਼ੋਕਦੀਪ ਸਿੰਘ ਧਾਲੀਵਾਲ ਨੇ ਪਸ਼ੂ ਪਾਲਣ ਸਬੰਧੀ

ਕਿਸਾਨ ਸਿਖਲਾਈ ਕੈਂਪ ਦੀਆਂ ਤਸਵੀਰਾਂ।

ਕਿਸਾਨਾਂ ਨੂੰ ਮੁਰਗੀ ਪਾਲਣ, ਭੇਡਾਂ, ਬੱਕਰੀ, ਸੂਰ ਪਾਲਣ, ਮੱਝੀ ਪਾਲਣ ਜਿਹੇ ਸਹਾਇਕ ਧੰਦੇ ਅਪਣਾ ਕੇ ਅਪਣੇ-ਆਪ ਨੂੰ ਮਜ਼ਬੂਤ ਬਣਨਾ ਚਾਹੀਦਾ ਹੈ। ਡਾ. ਬੁਰਜੀਤ ਸਿੰਘ ਢਿੱਲੋਂ ਨੇ ਫੋਕੇ ਦੀ ਸਿੱਧੀ ਬਿਜਾਈ ਅਤੇ ਪੜਾਲੀ ਦੀ ਸਾਂਭ-ਸੰਭਾਲ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਸਾਂਝੀ ਕੀਤੀ।

ਡਾ. ਗੁਰਮੇਲ ਸਿੰਘ ਨੇ ਫੋਕੇ ਦੀਆਂ ਬੀਮਾਰੀਆਂ ਅਤੇ ਨਰਮੇ ਦੇ ਚਿੱਟੇ-ਮੱਖੀਆਂ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਅਤੇ ਮੈਡਮ ਜਸਵਿੰਦਰ ਕੌਰ ਨੇ ਗ੍ਰਹਿ ਵਿਗਿਆਨ ਸਬੰਧੀ ਸਿਖਲਾਈ ਫੋਕਸ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਸਾਂਝੀ ਕੀਤੀ। ਅਖੀਰ ਵਿਚ ਅਗਾਂਹ ਵਧੂ ਕਿਸਾਨ ਸਤਨਾਮ ਸਿੰਘ ਨੇ ਆਏ ਮਹਿਮਾਨਾਂ ਦਾ ਧਨਵਾਦ ਕੀਤਾ।

ਪਿੰਡਾਂ ਵਿਚ ਨਰਮੇ ਦੀ ਫ਼ਸਲ ਨੂੰ ਚਿੱਟੀ ਮੱਖੀ ਦੇ ਹਮਲੇ ਤੋਂ ਬਚਾਉਣ ਸਬੰਧੀ ਜਾਗਰੂਕਤਾ ਕੈਂਪ ਨੂੰ ਸੰਬੋਧਨ ਕਰਦੇ ਹੋਏ ਖੇਤੀਬਾੜੀ ਅਫ਼ਸਰ। ਅਮਰਜੀਤ ਫ਼ਰਵਾਹਵਾ

ਚਿੱਟੀ ਮੱਖੀ ਦੇ ਬਚਾਓ ਹਿੱਤ ਜਾਗਰੂਕਤਾ ਕੈਂਪ ਲਗਾਏ

ਫ਼ਰੀਦਕੋਟ, 8 ਸਤੰਬਰ (ਜਸਵੰਤ ਸਿੰਘ ਪੁਰਬਾ-ਦੁੱਖ ਖੇਤੀਬਾੜੀ ਅਫ਼ਸਰ ਡਾ. ਬਲਵਿੰਦਰ ਸਿੰਘ ਬਰਾੜ ਦੇ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ ਹੇਠ ਬਲਾਕ ਖੇਤੀਬਾੜੀ ਅਫ਼ਸਰ ਫ਼ਰੀਦਕੋਟ ਡਾ. ਹਰਿੰਦਰ ਸਿੰਘ ਧਾਲੀਵਾਲ ਦੀ ਅਗਵਾਈ ਹੇਠ ਡਾ. ਰਾਜ ਸਿੰਘ ਨੇ ਡੀ.ਓ (ਫੋਕੀ ਮੋਕੀ), ਡਾ. ਸੁਖਿਜਦ ਸਿੰਘ ਸਿੱਧੂ ਨੇ ਡੀ.ਓ (ਤੇਲ ਬੀਜ), ਡਾ. ਜਸਕਰਨ ਸਿੰਘ ਅਤੇ ਡਾ. ਪ੍ਰਦੀਪ ਕਲਿਆਣ ਗਰੇਵਾਲ ਨੇ ਤੀਜਾ ਵਰਾ ਦੇ ਬਲਾਕ ਫ਼ਰੀਦਕੋਟ ਦੇ ਪਿੰਡ ਚੰਦ ਸਿੰਘ ਵਾਲਾ, ਸਿਰਾ ਦੋ, ਢਾਬ ਚੰਦ ਸਿੰਘ ਵਾਲਾ, ਘਣਿਆ, ਭਾਣਾ, ਦੋਲੀ ਖੋਸੇ, ਦਾਨਾ ਖੇਲਾ, ਚੰਦ ਬੁਜੀਆ, ਚੰਦ ਸਿੰਘ ਵਾਲਾ ਅਤੇ ਚੰਦਸੇਖਾਨਾ ਆਦਿ ਪਿੰਡਾਂ ਵਿਚ ਨਰਮੇ ਦੀ ਫ਼ਸਲ ਨੂੰ ਚਿੱਟੀ ਮੱਖੀ ਦੇ ਹਮਲੇ ਤੋਂ ਬਚਾਉਣ ਸਬੰਧੀ ਜਾਗਰੂਕਤਾ ਕੈਂਪ ਲਗਾਏ। ਇਹ ਕੈਂਪ ਵੱਖ-ਵੱਖ ਦੌਰਾਂ ਵਿਚ ਖੇਤੀਬਾੜੀ ਮਾਹਿਰਾਂ ਵੱਲੋਂ ਕਿਸਾਨਾਂ ਨੂੰ ਚਿੱਟੀ ਮੱਖੀ ਦੀ ਰੋਕਥਾਮ ਬਾਰੇ ਪੰਜਾਬ ਖੇਤੀਬਾੜੀ ਯੂਨੀਵਰਸਿਟੀ ਵੱਲੋਂ ਸਿਫ਼ਾਰਸ਼ ਕੀਤਨਾਸ਼ਕ ਦਵਾਈਆਂ ਓਸ਼ੋਨੇਟ 200 ਮਿਲੀ ਪ੍ਰਤੀ ਏਕੜ, ਪੋਲੋ 200 ਗ੍ਰਾਮ ਪ੍ਰਤੀ ਏਕੜ, ਏਸੀਫੇਟ 800 ਮਿਲੀ ਪ੍ਰਤੀ ਏਕੜ, ਟਾਲਸਟਾਰ 600 ਮਿਲੀ ਪ੍ਰਤੀ ਏਕੜ ਦੇ ਹਿਸਾਬ ਨਾਲ ਸਪਰੇ ਕਰਨ ਦੀ ਸਿਫ਼ਾਰਸ਼ ਕੀਤੀ। ਚਿੱਟੀ ਮੱਖੀ ਬਾਰੇ ਨਰਮੇ ਦੇ ਕਾਲੇ ਤੇਲ ਚੌਹਿਆ ਉਪਰ ਕਾਲੀ ਉੱਲੀ ਦੀ ਰੋਕਥਾਮ ਵਾਸਤੇ ਪੰਜਾਬ ਐਗਰੀਕਲਚਰਲ ਯੂਨੀਵਰਸਿਟੀ ਵੱਲੋਂ ਸਿਫ਼ਾਰਸ਼ ਕੀਤੀ ਦਵਾਈ ਸੈਂਡੋਫਿਟ 1 ਮਿਲੀ ਪ੍ਰਤੀ ਲੀਟਰ ਪਾਣੀ ਦੇ ਹਿਸਾਬ ਨਾਲ ਸਪਰੇ ਕਰਨ ਦੀ ਸਲਾਹ ਦਿਤੀ ਗਈ। ਇਸ ਤੋਂ ਇਲਾਵਾ ਇਨ੍ਹਾਂ ਕੈਂਪਾਂ ਵਿਚ ਪੋਹਾ ਵਿਚ ਵੀ ਸਰਾਏ ਜਾ ਰਹੇ ਸਾਉਣੀ ਦੀ ਮੁੱਖ ਫ਼ਸਲ ਵੱਲੋਂ ਹੁਣ ਤਕ ਕੀਤੇ ਜਾਣ ਵਾਲੇ ਕੰਮਾਂ ਬਾਰੇ ਵੀ ਜਾਣਕਾਰੀ ਦਿਤੀ ਗਈ। ਇਨ੍ਹਾਂ ਕੈਂਪਾਂ ਦਾ ਪ੍ਰਬੰਧ ਹਰਿਵੰਦਰਪਾਲ ਸਿੰਘ, ਬੇਅੰਤ ਸਿੰਘ, ਬਲਕੌਰ ਸਿੰਘ ਅਤੇ ਜਸਵੰਤ ਸਿੰਘ ਖੇਤੀਬਾੜੀ ਉਪ ਨਿਰੀਖਕ ਫ਼ਰੀਦਕੋਟ ਵੱਲੋਂ ਕੀਤਾ ਗਿਆ।

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