ACTION PLAN
FOR THE YEAR

2015 - 2016
(APRIL 2015 TO MARCH 2016)

KRISHI VIGYAN KENDRA
(GRAMOTTHAN VIDYAPEETH)
SANGARIA (HANUMANGARH)

CONTENTS

KRISHI VIGYAN KENDRA (G.V.) SANGARIA (RAJ.)

ACTION PLAN 2015-16

1. INTRODUCTION

Krishi Vigyan Kendra, Gramotthan Vidyapeeth, Sangaria, District Hanumangarh actually started in 1998. It is located about 26 kms away from district headquarter on Bhagatpura road in North-West direction and tri-junction of Rajasthan, Punjab and Haryana.

2. Under the Mandate of KVK i.e. *Technology assessment, refinement and demonstration of technology/products* following activities will be included:

* On farm testing to identify the location specificity of agricultural technologies under various farming systems.
* Frontline demonstrations to establish its production potentials on the farmers' fields.
* Training of farmers to update their knowledge and skills in modern agricultural technologies and training of extension personnel to orient them in the frontier areas of technology development.
* To work as resource and knowledge centre of agricultural technology for supporting initiatives of public, private and voluntary sector for improving the agricultural economy of the district.

3. MAJOR THRUST AREAS ON THE BASIS OF DISTRICT PROFILE DATA AND VILLAGE SURVEY /PRA

To identify the thrust areas due consideration has been given to the agricultural situation and need of the local area.

Thrust areas for the year 2015-16 are summarized as under.

i. To increase the productivity of major field crops and encouraging farmers for sustainable agriculture through natural farming system using organic manures, water management through advance irrigation system and moisture conservation technology.

ii. Encouraging farmers for seed production to obtain good quality seed.

iii. To popularize Integrated Pest Management especially stress on seed treatment, use of bio-pesticides and motivate the farmers for income generation through bee- keeping and mushroom cultivation.

iv. To extend the area under fruit orchards and techniques in nursery raising and its proper management.

v. Introducing employment generation activities for farm women like fruit and vegetable preservation, tailoring, embroidery, soft toys making etc.

vi. Encouraging farm women for use of drudgery reduction equipments.

vii. Formation of self help groups for women empowerments.

viii. To motivate the farmers for fish farming and fish seed production.

ix. To motivate the farmers, youths and farm women for modern dairy, poultry and piggery farming for self employment and income generation.

4. QUARTER-WISE SUMMARY OF ACTION PLAN

4.A. TRAINING PROGRAMME

S. No.	Subject / Quarter	On Campus																Total On Campus				Off Campus				G. T.
		PF				FW				RY				EF												
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	
1.	Crop Prod.	1	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	2	-	1	1	2	2	3	12
2.	Plant protection	-	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-	1	1	2	2	2	10
3.	Horticulture	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	3	2	2	2	11
4.	Animal Sc.	1	1	1	-	-	-	-	-	-	1	-	1	-	-	-	-	1	2	1	1	1	1	1	1	09
5.	Home Science	-	-	-	-	-	1	-	-	2	-	1	1	-	-	1	-	2	1	2	1	2	2	3	3	16
6.	Fisheries Sc.	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	1	-	1	-	-	1	-	1	04
7.	Ext. Edu.	1	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	1	-	1	2	2	2	2	3	13
	TOTAL	3	4	2	2	-	1	-	-	3	1	2	3	1	1	2	1	7	7	6	6	10	12	12	15	75

4.A.a. *SUMMARY OF TRAINING PROGRAMME*

S.No.	Subject	On campus				Total On Campus	Off Campus	Grand Total
		PF	FW	RY	EF			
1.	Crop Production	3	-	-	1	4	8	12
2.	Plant Protection	2	-	-	1	3	7	10
3.	Horticulture	2	-	-	-	2	9	11
4.	Animal Science	3	-	2	-	5	4	09
5.	Home Science	-	1	4	1	6	10	16
6.	Fisheries Science	-	-	2	-	2	2	04
7.	Ext. Edu.	1	-	1	2	4	9	13
	TOTAL	11	1	9	05	26	49	75

PF-Practicing Farmers FW-Farm Women RY-Rural Youth EF-Extension Functionary

4. B. DEMONSTRATIONS

S.No.	Type of Demon.	Crop	Variety	Farming Situation	No. of Demon.	Area (ha.)
1.	**FRONT LINE DEMONSTRATION (PULSES)**					
	KHARIF					
(i)	Pulses	Moong	IPM-02-3 & MH-2-15	Irrigated	20	08
	RABI					
(i)	Pulses	Gram	GNG-1581 & GNG-1958	Irrigated	20	08
2.	**FRONT LINE DEMONSTRATION OTHER THAN OILSEEDS & PULSES**					
	KHARIF					
(i)	Production technology	Cotton	Bt cotton	Irrigated	40	20
(ii)	Varietal	Cluster bean	HG-2-20	Irrigated	20	10
(iii)	Fodder Production technology	Jowar	Jambo	Irrigated	10	01
	RABI					
(i)	Varietal	Wheat	HD 2967, WH-1105	Irrigated	20	10
(ii)	Fodder Production technology	Oat	JOS-822	Irrigated	10	01
(iii)	Biological control	Chickpea	Trichoderma	Irrigated	10	05
(iv)	Varietal	Onion	Agrifound red	Irrigated	20	10
(v)	Balance feeding in fish pond	Aquaculture	Cattla, Rohu, Mrigal	--	20	10
ZAID						
(i)	Varietal	Chilli	Kranti	Irrigated	20	1
(ii)	Varietal	Okra	Bhindi No. 1	Irrigated	20	2
(iii)	Low tunnel technology	Chilli	--	Irrigated	5	0.25
OTHERS						
(i)	Popularization of fish culture in water storage tank	Fisheries	Cattla, Rohu, Mrigal	--	10	10
(ii)	Popularization of revolving milking stool	H.Sc.	--	--	5	5
(iii)	Popularization of stencil cutter for embroidery work	H.Sc.	--	--	10	10
(iv)	Effect of feeding Azola Fern on milk yield of Animals	A. Sc.	--	--	10	10
(v)	Popularization of urea molasses block feeding	A. Sc.	--	--	10	10

(vi)	Popularization of improved manger	A. Sc.	--	--	10	10

4. C. ON FARM TESTING

S.No.	Subject	Quarter				Total
		I	II	III	IV	
1.	Crop Production	--	1	1	-	2
2.	Plant Protection	--	-	1	1	2
3.	Horticulture	--	1	1	-	2
4.	Agriculture Extension	1	--	-	--	1
5.	Animal Science	1	--	1	--	2
6.	Home Science	-	1	1	-	2
7.	Fisheries Science	--	--	--	--	--
	TOTAL	2	3	5	1	11

4. D. FIELD AND EXTENSION ACTIVITIES

S.No.	Programme	Number				Total
		I	II	III	IV	
1.	Field day	2	3	3	2	10
2.	Farmers day	-	-	1	-	01
3.	Farmers Fair	-	-	--	1	1
4.	Agriculture Exhibition	1	-	1	-	2
5.	Diagnostic Service					
	i. Farmers visit to KVK	100	100	125	125	450
	ii. Scientists visit to farmers field	15	15	15	15	60
6.	Lecture to be delivered in other prog.	As and when called different agencies				
7.	Night Training Camp	1	1	1	1	4
8.	Campaign : Non Conventional energy Sources					
	a. Solar energy system	-	-	1	-	1
	b. Bio gas plants	-	1	-	-	1
9.	Publication					
	a. Research paper to be published	-	1	-	1	2
	b. Pamphlets/Folders	2	2	2	2	8
	c. Popular Articles	10	10	8	10	36
10.	Communication media					
	a. SMS Service	10000 farmers (10 SMS)				
	b. Radio Talk	As per AIR allotment				
	c. TV/Film Show	As per Doordarshan allotment				
	d. News paper coverage	As per requirement				
	e. Keshaw Kheti Patrika	1	1	1	1	4
11.	Scientist Farmer Interaction	1	1	1	1	4
12.	Farm Science club	-	1	-	1	2
13.	Mahila Mandal	-	-	--	--	--
14.	World Food Day	1	-	-	-	1
15.	Women in Agriculture Day	1	-	-	-	1
16.	International Women Day	-	1	-	1	2
17.	World Environment Day	-	-	1	-	1
18.	Van Mahotsav	-	1	-	1	2
19.	Ex-trainees meeting	-	1	-	1	2
20.	Fish farmers day	-	-	-	1	1
21.	Self Help Group Formation	1	1	1	1	4
22.	Soil & Water Sample Testing	2000				
23.	Kisan gosthi	1	1	1	1	4
24.	Exposure visit (ATMA)	-	-	1	1	2
25.	Advisory services (Tel., Voice & Text SMS etc.)	100	100	100	100	400

5. DETAIL ACTION PLAN

5. A. TRAINING PROGRAMME (2015-16)

On campus training (For practicing farmers, farmwomen & rural youth)

Subject	Thematic Area	Title of training	Date	Duration (days)	No. of Parti.	Type of Parti.
I Quarter (April to June)						
Crop Product.	Integrated crop management	Cultivation practices of Cotton crop	May 15	4	25	Farmers
Home Sc.	Income generating activities for empowerment of rural women Rural craft	Income generating activities for rural youth Tie and Die	May 15 June 15	4 4	25 25	Rural youth Rural Youth
Fisheries Sci.	Composite fish culture	Fish culture in water storage tank	May 15	4	25	Rural youth
Animal Sc.	Livestock production & Management	Goat farming	June 15	4	25	Farmers
Ext. Edu.	Entrepreneurial development of farmer/youth	Entrepreneurial opportunities in mushroom/ Dhingri growing	June 15	4	25	Farmers
II Quarter (July to September)						
Crop Product.	Integrated crop management	Scientific cultivation of rabi oilseeds & pulses	Sept. 15	4	25	Farmers
Horticulture	Production of low volume and High value crops	Scientific cultivation of Kharif vegetable	Aug 15	4	25	Farmers
Plant Protection	Integrated Pest management	Integrated pest management in Kharif Crops	July 15	4	25	Farmers
Animal Sc.	Livestock production & Management Livestock production & Management	Modern dairy farming Paravet cum AI	July 15 Sept. 15	4 45	25 25	Farmers Rural Youth
Home Sc.	Income generating activities for empowerment of rural women	Income generating activities for women	Aug. 15	4	25	F.women
III Quarter (October to December)						
Horticulture	Protective cultivation	Protective cultivation of Vegetables	Nov. 15	4	25	Farmers
Animal Sc.	Livestock production & Management	Swine Production	Oct. 15	4	25	Farmers
Home Sc.	Value addition	Mixed pickles preparation from seasonal vegetables	Dec. 15	4	25	Rural youth
Fisheries Sc.	Composite fish culture	Importance of balanced feeding in Aquaculture	Oct. 15	4	25	Rural youth
IV Quarter (January to March 2015)						

Crop Production	Soil fertility	Use of organic manures to improve soil fertility	Jan. 16	4	25	Farmers
Plant Protection	Bio Agent Production	Bio agent production for pest management	Jan 16	5	25	Farmers
Animal Sc.	Livestock production & Management	Poultry production	Feb. 16	4	25	Rural Youth
Home Sc.	Gender mainstreaming through SHGs	Formation of S H G	Feb. 16	4	25	Rural Youth
Ext. Edu.	Entrepreneurial development of farmer/youth	Importance of record keeping in agriculture and dairy farming	Feb 16	4	25	Rural Youth

Off campus training (For practicing farmers, farmwomen & rural youth)

Subject	Thematic Area	Title of training	Date	No. of Parti.	Type of Parti.
I Quarter					
Crop production	Fodder Production	Scientific cultivation of fodder crops	May 15	40	Farmers
Plant Protection	Integrated Pest Management	Pest Management in Kharif Crops	May 15	40	Farmers
Horticulture	Lay out and Management of Orchard Production of low volume and high value crops Management of young plant orchards	Improved Production technology of chilli Layout, digging & filling of pits for new orchard Fruit dropping management	May 15 June 15 June 15	40 40 40	Farmers Farmers Farmers
Home Sc.	Gender mainstreaming through SHGs Storage loss minimization	Formation of S H G Safe grain storage	May 15 June 15	40 40	F.women F.women
Animal Sc.	Livestock production & Management	Summer management of dairy animals	June 15	40	Rural youth
Ext. Edu.	Information networking among farmers Formation and management of SHG's	Information and communication technology in Agriculture Role and capacity building of Farmer's club	May 15 June 15	40 40	Farmers Farmers
II Quarter					
Crop Product.	Weed management Soil fertility	Weed management in Kharif crop Production of organic manure by different type of compost methods	July 15 Aug. 15	40 40	Farmers Farmers
Horticulture	Rejuvenation of old orchard Nursery raising	Rejuvenation of old orchard Nursery management	July 15 Sept. 15	40 40	Farmers Farmers
Plant Protection	Bio control of Pest and disease Integrated Disease Management	Knowledge about Natural enemies of Kharif crops Integrated disease management in kharif crops	July 15 Aug. 15	40 40	Farmers Farmers

Animal Sc.	Livestock production & Management	Cleaning and Sanitation of dairy farm	Aug. 15	40	Rural Youth
Fisheries Sc.	Composite fish culture	Fish culture for self employment	Sept. 15	40	Farmers
Home Sc.	Location specific drudgery reduction technologies House hold food security by kitchen gardening and nutrition gardening	Knowledge about time energy and money saving equipments Kitchen gardening	Aug. 15 Sept. 15	40 40	F. Women F. Women
Ext. Edu.	Information networking among farmers Entrepreneurial development of farmer/youth	Benefits of Agriculture Schemes for farming community Marketing strategies for Kharif crops	July 15 Sept. 15	40 40	Farmers Farmers
III Quarter					
Crop Prod.	Soil and water testing Water management	Soil and water sampling techniques & its testing Precise water management in field crops	Oct. 15 Nov. 15	40 40	Farmers Farmers
Horticulture	Production and Management technology Production and Management technology	Potato and Onion Cultivation Improved Production technology of Rabi vegetables	Oct. 15 Dec. 15	40 40	Farmers Farmers
Plant Prot.	Integrated Pest Management Integrated Pest Management	Seed treatment for disease and pest management in major Rabi crops Integrated Pest management in Rabi crops	Oct. 15 Dec. 15	40 40	Farmers Farmers
Animal Sc.	Livestock production & Management	Role of Vaccination in Animal health	Nov. 15	40	Farmers
Home Sc.	Women and child care Value addition Income generating activities for empowerment of rural women	Child care practices Fruit and vegetable preservation Role of women in Dairy Farming	Oct. 15 Nov. 15 Dec. 15	40 40 40	Rural Youth Rural Youth Farmwomen
Ext. Edu.	Formation and management of of SHGs Information networking among farmers	Formation and management of Farmer club Dimensions of sustainable agriculture	Nov. 15 Dec. 15	40 40	Farmers Farmers
IV Quarter					
Crop Product.	Weed management Production of organic manure Production of organic manure	Weed management in Rabi crops. Production of organic manure Organic farming for sustainable agriculture	Jan. 16 Feb 16 Mar. 16	40 40 40	Farmers Farmers Farmers
Horticulture	Management of young plant/orchards	Cultural practices in orchard	Jan. 16	40	Farmers

	Management of young plant/orchards	Care and management of new plantation	Mar. 16	40	Farmers
Plant Prot.	Bio control of Pest and disease Integrated Disease Management	Integrated disease management in fruit crops Knowledge about Natural enemies of Rabi crops	Jan. 16 Feb. 16	40 40	Farmers Farmers
Animal Sc.	Livestock production & Management	Disease management of dairy animals	Jan. 16	40	Rural Youth
Home Sc.	Women and child care Income generating activities for empowerment of rural women Women and child care	Nutrition Education Role of women in Agriculture Health hygiene and sanitation awareness among rural women	Jan.16 Feb.16 Mar.16	40 40 40	F.women F.women Rural youth
Fisheries Sci.	Composite fish culture	Culture and management techniques of fish for higher production	Feb 16	40	Rural Youth
Ext. Edu.	Information networking among farmers Information networking among farmers Entrepreneurial development of farmer/youth	Different rural development programme Role of electronic media in rural development Marketing strategies for Rabi crops	Jan 16 Feb 16 Mar. 16	40 40 40	Farmers Farmers Farmers

Training for Extension personnel

Subject	Thematic Area	Title of training	Date	No. of days	Type of Parti.
I Quarter					
Plant Protection	Integrated Pest Management	Pest & disease management in kharif crops	June 15	4	Agri. supervisor
II Quarter					
Crop Production	Productivity enhancement in field crops	Application of advanced techniques in cultivation of field crops	July 15	4	Extension workers
III Quarter					
Home Sc.	Women and child care	Nutrition Education for women and child	Nov. 15	4	Anganwadi workers
Ext. Edu.	Small scale processing	Certification of Agricultural products through AGMARK rules and procedures	Dec. 15	4	Extension workers
IV Quarter					
Ext. Edu.	Capacity building for ICT application	Role of ICT in rural upliftment	Jan. 16	4	Extension workers

Vocational Training

Subject	Thematic Area	Title of training	Date	No. of days	No. of Parti.
I Quarter					
Home Sc.	Income generating activities for empowerment of rural women	Tailoring and stitching	June 15	15	30
Ext. Edu.	Para Extension workers	Public private partnership in Agriculture	June 15	4	30
II Quarter					
Plant protection	Mushroom production	Mushroom Production Techniques	Sept. 15	4	30
III Quarter					
Plant protection	Beekeeping	Aphis melifera (Italian) Beekeeping	Nov. 15	6	30
IV Quarter					
Ext. Edu.	Entrepreneurial development of farmer/youth	Basic knowledge of Computer	Jan.16	15	30

Sponsored Training Programme (ATMA, RKVY, RMOL, NABARD etc)

Title of training	Duration	No. of part.	Type of parti.	Sponsoring Agency
District level farmers training -10	2-5 days	30	PF / Youth	ATMA, Hanumangarh

6. i. FRONT LINE DEMONSTRATION

Title of Demo.	Objective	Variety	Farming situation	Area (ha)	No. of Farmer	Existing technology	Specific technology intervention	Critical inputs
PULSES								
Moong	Technology demonstration for harnessing pulse productivity	IPM-02-3, MH-2-15	Irrigated	04 04	10 10	Use of old variety, no use of fertilizer & no seed treatment	Use of improved seed, use of ferti. & bio-ferti. & seed treatment	Seed, fertilizers and Plant Protection inputs
Gram	Technology demonstration for harnessing pulse productivity	GNG-1581 GNG-1958	Irrigated	04 04	10 10	Use old variety, not using ferti. & culture not using PP measures	Improved variety, use of seed treatment, use of balance ferti. & PP measures and seed treatment	Seed, fertili., rhizo. culture, bavastine, Plant protection inputs

6. ii. FRONT LINE DEMONSTRATION OTHER THAN OILSEED & PULSES

S.No.	Type of Demonstration	Crop	Farming situation	No. of Demonstration	Area (ha.)
KHARIF					
1.	Production technology	Cotton	Irrigated	40	20
2.	Varietal	Clusterbean	Irrigated	20	10
3.	Fodder Production Technology	Jowar	Irrigated	10	1
RABI					
1.	Varietal	Wheat	Irrigated	20	10
2.	Varietal	Mustard	Irrigated	20	5
3.	Fodder Production Technology	Oat	Irrigated	10	1
4.	Biological Control (Trichoderma Soil treatment)	Chickpea	Irrigated	10	5
5	Varietal	Onion	Irrigated	20	10
ZAID					
1.	Varietal	Chilli	Irrigated	20	1
2.	Varietal	Okra	Irrigated	20	2
3.	Low tunnel technology	Chilli	Irrigated	5	0.25

OTHERS					
1.	Popularization of fish culture in water storage tank	Fisheries	--	10	10
2.	Popularization of revolving milking stool	H.Sc.	--	5	5
3.	Popularization of stencil cutter for embroidery work	H.Sc.	--	10	10
4.	Effect of feeding Azola Fern on milk yield of Animals	A. Sc.	--	10	10
5.	Popularization of urea molasses block feeding	A. Sc.	--	10	10
6.	Popularization of improved manger	A. Sc.	--	10	10

7. ON FARM TESTING

(i) Object - Evaluation of seed rate for Cluster bean cv. HG 2-20.
(Continued 2nd year)

Season - *Kharif 2015-16*

Replication - 6

Cluster beans or guar bean botanically called as *Cyamopsis tetragonolobus* is an annual legume. This bean is a important source of guar gum. Guar can be eaten as a green bean, but is more important as the source of guar gum. Guar beans have a large endosperm that contains galactomannan gum, a substance which forms a gel in water. This is commonly known as guar gum and is used in food (Ice cream and as a stabilizer in cheese and cold-meat processing), paper and textile industries.

In Hanumangarh district, It is cultivated over an area of about 291344 hectares with a production of 216723 tonnes of bean and productivity 744 kg./ha (2010-11). The productivity of cluster bean in the district is low. There are many factors limiting production and productivity of cluster bean e.g. agro-climatic factors, lack of high yielding varieties, improper agronomic management, heavy infestation of weeds, severe crop damage due to attack of disease and insects etc. Out of these inadequate seed rate (a part of improper agronomic management) is an important factor which responsible for decrease production and productivity of cluster bean.

Farmers are in a habit of using lower seed rate e.g. 10 kg seed per hectare, whereas the recommended seed rate for the crop is 16-20 kg per hectare, but this seed rate so higher. The seeding density affects the plant growth due to its direct relation with plant population. The higher plant population increases competition among plants for nutrients, light and space, while lower population density causes inefficient use of natural resources and inputs Therefore, there is a need to assess the seed rate of cluster bean in present scenario.

Problem diagnose/identified

1. Higher seed rate

Technological intervention

1. Proper seed rate.

Treatments

1. Seed rate 10 kg per hectare. (Farmer practice)
2. Seed rate 18 kg per hectare. (Recommended practice)
3. Seed rate 14 kg per hectare. (Refinement)

Replication: 6
Plot size 0.25 ha. (0.75 ha area for each location)
Critical inputs Seed of Cluster bean, PP inputs

(ii) Object - Effect of VAM for stress mitigation in wheat crop. ***(New)***
Season - Rabi ***2015-16***
Replication - 6

Wheat is main cereal crop of Hanumangarh district in Rabi season, cultivated over an area of about 2.34 lac hectare with a production of 7.98 lac metric tons of grain and productivity 3410 kilograms per hectare (2012-13). Wheat field is generally suffered from water and nutrient stress at different stages. Water and nutrient stress often reduce plant growth and crop yields. During water stress, soil water is more strongly retained and solute transfer to plants is less efficient and may not meet nutrient demands of the plants. The response of plants to water stress depends on several factors such as developmental stage, severity and duration of stress and cultivar genetics. Common plant symptoms after water deficit are stunted growth, limited CO_2 diffusion to chloroplasts by stomatal closure, reduced photosynthesis rate, and accelerated leaf senescence. Moreover, in wheat, a severe water stress during the late growth stages (anthesis-post anthesis) cause chlorophyll loss, cell solute leakage, flag leaf yellowing and accelerated ear and grain maturation. Water stress also causes severe alterations in cell membrane properties including selective permeability (leakage of cell solutes), fluidity and microviscosity.

Vesicular arbuscular mycorrhizal fungi (VAMF) can establish beneficial symbiotic association with many plant species, enhancing nutrient transfer and offering bioprotection activity against pathogens and drought stress. Vesicular Arbuscular mycorrhizal fungi symbiosis contributes to enhance growth and vigor of plants, and can alter plant water relations, particularly during water stress periods. Therefore, there is a need to assess the VAMF for stress mitigation in wheat crop in present scenario.

Problem diagnose/identified

1. More irrigation water required.
2. Loss of nutrients by leaching

Technological intervention

1. More crop each drop.
2. Increase nutrients as well as water use efficiency.

Treatments

1. Use of VAM @ 10 kg per hectare with 3 irrigations.
2. Use of VAM @ 10 kg per hectare with 4 irrigations.
3. No use of VAM with 6 irrigations. (Control)

Replication: 6
Plot size 0.25 ha. (0.75 ha area for each location)

Critical inputs: Seed of Seed, VAM

(iii) Object - Termite (*Odontotermes obesses* R.) management in Checkpea crop. (New)
Distt. - Hanumangarh (Raj.)

Checkpea is an important pulses crop of Hanumangarh district in Rabi. Checkpea crop cultivated in about 70150 hac. area and with production 502791 qtls with productivity of 7.17 qtis/ha. Out of many pest & diseases, the termites (*Odontotermes obesus* Ramb.) have traditionally been the most serious pest of the Checkpea crop particularly on lands having inadequate soil moisture, causing damage from planting fill harvest. The conventional recommendation for their control has been the pre sowing application of insecticide as dust to the soil and seed treatment. But the most effective treatment consists of application of metarizia before sowing to the soil. This new approach has made termite control not only more effective but safer for environmental point of view.

Intervening Points
1. How & when damage the crop.
2. How much loss.
3. How you manage.

Technological Intervention.
Management of termite.

TREATMENT

T_1 Seed treatment with Chloropyriphos 20EC (Farmer practice)
T_2 Seed treatment with Imidachloprid 17.8 SL
T_3 Use of Imidachloprid 17.8 SL in standing crop with Irrigation water

No. of Replication 5

Area 0.5 ha.

Critical inputs Chemicals.

(iv) Object - White fly management in Kinno Orchard. ***(Continued 2nd year)***

Location - 6

Tehsil - Sangaria

Distt. - Hanumangarh (Raj.)

In Hanumangarh district, Kinno is the major fruit crop, grown in about 2000 ha. Area. Kinno is attacked by number of insect pests through out its growth period starting from nursery to maturity of fruits. More than 200 species have been reported on Kinno in India of these only a few are of major importance including white fly, citrus psyla, leaf minor, bark eating catterpiller, fruit sucking moth and leaf eating catterpiller (lemon butterfly) in this area.

Thirty species of white flies have been reported on Kinno throughout the world and in India as many as 15 species have been reported of the only two are of major importance namely ***Aleurocanthus woglunne*** Ashbey and ***Dialeurodes citri*** Ashmed. Both produce heavy amounts of honey dew which attracts the sooty mould infestation and the whole tree appears black hamper's the photosynthesis rate of the plant deshaping may cause severe loss of nitrogen content of the tree which ultimately affect the flowering and fruit dropping of the plant.

TECHNOLOGY INTERVENTION:

1. Control of white fly in kinno orchards.

TREATMENT:

T_1-Flonicamid 50WG@ 0.50 gm/Lit.-Bifenthrin 10EC @ 2.00 ml/lit.–Acephate 75% SP@ 2.00 gm/lit.

T_2-T_2-Buprofezin 25 EC @ 2 ml/lit.-Phosphamidon 40 SL @ 2 ml/lit.- Dimethoate 30 EC @ 2ml/lit.

T_3.Trizophos 40EC @ 2.5 ml/lit.-Imidachloprid 17.8 SL @ 0.33 ml/lit.-Thiomethoxam 25 WG @ 0.50 gm/lit.

REPLICATIONS : 5

Plot Size : 10 Plants each treatment.

OBSERVATION:

1. Spray Schedule will be adopted at ETL.
2. Observation of pest at 3 & 5 days after spray.
3. Yield of Plant

(v) Object - Evaluate spacing for cauliflower planting *(New)*
Location - Sangaria, Bhagatpura & Naiwala
Distt. - Hanumangarh (Raj.)

Cauliflower (*Brassica oleracea var. botrytis* L) is one the most popular winter vegetable grown throughout the country. It is grown for its white tender curd. Which is used as raw or cooked as vegetable. Among cole crops, cauliflower following cabbage is important with regard to area and production in the world. Recommended spacing for cauliflower planting is 45x45 cm but the farmers normally apply closed spacing 20x30 cm. But for maximum yield and highest net return spacing can be evaluate.

TECHNOLOGY INTERVENTION:

1. Wider spacing

TREATMENT:

1. T_1 20x30 cm spacing
2. T_2 45x45 cm spacing
3. T_3 45x30 cm spacing

REPLICATIONS : 5
Plot Size : 0.125 ha.

OBSERVATION:

1. Yield
2. Size of curd
3. Cumpacting of curd

(vi) **Object - Evaluation of Chilli varieties.** ***(Continued 2nd year)***
Location - Sangaria, Naiwala, Kulchander & Dingarh
Tehsil - Sangaria
Distt. - Hanumangarh (Raj.)

Chilli, which is also known as hot pepper (*Capsicum annum var. longum L.*) is an important vegetable as well as spice crop grown extensively in tropical and subtropical area of in India. All released verities of chilli either by Govt. department or private sector companies may not be cultivated successfully in every pot of the country. So the varieties should be evaluated for the specific area.

TECHNOLOGY INTERVENTION:

1. Varietal

TREATMENT:

1. Kranti (341)
2. Solsiar
3. CCH 6300
4 Punjab Sunhery
5 Golden hot

REPLICATIONS : 5
Plot Size : 0.2 ha.

OBSERVATION:

1 Yield
2. Size of fruit
3. Incidence of disease

(vii) **Object – Locally prepared nutritious weaning food for infants.**
Location - Sangaria
Distt. - Hanumangarh

Breast feeding should be continued for as long as possible, preferable until the child is 0.5 to 2 years old. However, after 4 to 6 months many mothers do not have enough milk for this to constitute the sole source of food for the baby. By this age the mother probably has only 200-300 ml of breast milk left. So, the bulk of the energy (1000 calories) has to be supplied by supplementary food. Spices can be added after taking out the baby's share of the food.

Under this ten trial (Infants) were selected among the farmer family. In rural area mortality rate is high compare to urban areas. These selected infants were supplied weaning food based on rice, moong dal, groundnut, Juggery mixed. All the ingredients contents high nutrition value and it supplied a nutritional requirement of infants.

Problem diagnose

Malnutrition among infants.

Causes –

1) Lack of knowledge about nutritional diet.
2) Social and economical factors.
3) Illiterate and ignorant.

Observation – Body Height and weight
Knowledge test of mother

Replications: 10

Treatment –

T_1 - Daily diet (Local practice)

T_2 - Daily diet + Poshak a supplementary food (Wheat+Soyabeen+Gram+Sugar) 75 gm/day

T_3- Daily diet+Rice(45 gm/day)+Moongdal (15 gm/day)+Groundnut (10gm/day)+juggery (25gm/day)

(viii) **Object - Supplementation diet (protein and iron) for pregnant women**
(Continued 2nd year)
Location - Sangaria
Distt. - Hanumangarh

This period of pregnancy in case of women is terms of physical growth, hormonal changes. Food requirements especially of body building, energy giving, and food stuffs such as protein, calcium and iron are increased. The increased need as protein is condition by the support in growth, which occurs at puberty. Iron combines with protein for the development of hemoglobin, the red coloring matter of the blood. The amount of protein and iron needed is greater for pregnant women, also need additional supplies of iron in the diet. Acidity favors iron in absorption by dissolving the iron present. The high cereal diet, which is characterized by high fiber.

This OFT aims to expose the region and help the pregnant women to combat protein and iron deficiency problem with the help of low cost diet.

Causes:-

1. Lack of knowledge about nutritional diet.
2. Social and physical factors.
3. Food ability
4. Illiterate and ignorant
5. Economical factors

Replications: 10

Treatments:-

T_1- Local farm women practices

T_2- Use of 85 % wheat flour + 15 % soya flour (chapatti) + Iron tablet

T_3- Use of 80 % wheat flour + 20% soya flour (chapatti) + 75 gram per day jiggery + Iron tablet

Parameters:-

1. Body weight
2. Body appearance
3. Hemoglobin test
4. General health knowledge test

(ix) Objective: Use of by-pass fat with mineral mixture to increase fat% in milk (New) .

Location: Sangaria
Tehsil: Sangaria
District: Hanumangarh

Animal owners of these villages are adopting mixed farming. They keep large number of animals, however, the milk production of these animals is quite low and anoestrous problem is more. Through group discussion and frequent contact with farmers it was found that these farmers used to feed the animals in traditional manner and have less knowledge of using mineral mixture, and by-pass fat which causes reduction in milk yield, as well as low fat% in high producing dairy animals.

Reason of Low Milk Production and low fat%

1. Malnutrition problem.
2. Imbalanced use of feed and fodder.
3. No use of mineral in feeding.
4. No use of by-pass fat in high producing dairy animals.
5. Lack of knowledge about management of animals.

Possible Solutions

1. Use of mineral mixture in feed.
2. Use of by-pass fat after calving to increase fat% in high producing dairy animals.

Treatments

T_1-Normal feeding(Control).
T_2-Mineral mixture @50 gm/animal/day.
T_3-Mineral mixture @50 gm/animal/day with by-pass fat @100 gm/animal/day.

Replications: **10**
Duration: **2 Months**

Observations to be recorded daily milk yield and milk fat%.

(x) Object: Evaluation of performance of different cow breeds in Hanumangarh(New).
Location: Sangaria
Tehsil: Sangaria
District: Hanumangarh

Animal owners of these villages are adopting undefined cattle, Sahiwal cow and Holstein friesian cow. They keep large number of animals, however, the milk production of these animals is quite low as compared to good sahiwal and Holstein Friesian cow. Through group discussion and frequent contact with farmers it was found that these farmers used to inseminate in traditional manner and have less knowledge of breed improvement and conservation of good Indian breeds.

Reason of Low Milk Production and Anoestrous Problem

1. Un-defined breeds.
2. Low milk producing animals.
3. Lack of knowledge of breed management.

Possible Solutions

1. Use of A.I. in undefined cattle.
2. Use of A.I. to save Indian milch breeds.
3. Proper identification of animals.

Treatments

T_1-Undefined cattle.
T_2-Sahiwal cow.
T_3-Holstein friesian cow.

Replications: 6
Duration : 6 months

Observations to be recorded: Recording data on daily milk yield and milk fat%.

(x) Object: Evaluation of performance of crop– livestock– fish integrated farming on improving crop based production system ***(New)***

Problem definition: Inefficient performance of existing crop based production system is due to non efficient utilization of natural resources

Technology assessed or refined (as the case may be): Resource utilization and generation of income from several enterprises. The main objective of integrated farming was utilization of all possible resource available to the farmer for maximization of income from different source and at the same time proper utilization of bund area.

Treatments

T_1- Farmers' practice: Crop production + Livestock production

T_2- Crop production + Livestock production + fish farming in water storage tank

T_3- Crop production + Livestock production + fish farming in water storage tank + poultry farming

Replications: 6

Duration : 1 year

Observations to be recorded: Yield and economics of different integrated farming systems.

8. PROPOSED PLAN OF WORK FOR INSTRUCTIONAL FARM UNDER CROP PRODUCTION / HORTICULTURE

S.No.	Name of unit	Season	Crop	Variety	Area (ha)/Nos.
1	**Field Crop**				
A.	Crop Production	Rabi	Wheat	HD-2967, WH-1105, Raj-4037	3.0
			Mustard	Laxmi (RH-8812) & RGN-298	2.0
			Barley	RD 2035	1.0
		Kharif	Bt. Cotton	Bio-6488, Bio-6588	3.75
B.	Seed Production	Rabi	Wheat	HD-2967, WH-1105	3.0
			Mustard	RH-8812, RGN-298	1.0
			Gram	GNG-1581, GNG-1958	1.0
		Kharif	Guar	HG 2-20	2.0
C.	Green Manure	Kharif	Dencha	Local variety	1.0
D.	Fallow	Kharif	--	--	2.5
3	Horticultural crop				
A	Fruit Plant		Kinno	Kinno	2.5
B.	Nursery	Nursery	Kinno	Kinno	20000 plants
			Malta		5000 plants
			Rose	Desi rose	5000plants
			Vegetable saplings		1,00,000 plants
C.	Agro forestry /Plantation	Perennial	Shisham etc.		1000 plants
4	Spawn Production	Mushroom			100 Kg.
5.	Others				
1	Fisheries training & Demo. Unit (0.3 ha.)			Cattla, Rohu, Mrigal	5000 Seed
2	Vermi compost unit (1)				10 tone unit
3	Bee Boxes 6Nos.				20 kg.

9. INFRASTRUCTURAL DEVELOPMENT

1. Farmers Hostel
2. Tractor (Replacement)
3. Mini Bus
4. Farm Road
5. Thresher
6. Harrow
7. Tractor for Orchards
8. Renovation of Staff quarter
9. Generator Set
10. Fish breeding unit
11. Solar energy system
12. Integrated farming system

10. ANY OTHER ACTIVITIES

10. A. SCIENTIFIC ADVISORY COMMITTEE MEETING

		Proposed date
1.	1st meeting	Oct., 2015
2.	2nd meeting	Feb., 2016

10. B. NAME OF THE INSTITUTIONS/ AGENCIES/ DEPARTMENT FOR FUNCTIONAL LINKAGE WITH KVK

S.No.	Name of the organization	Name of Linkage
1.	Department of Agriculture	Identification of training needs & conducting of training programmes, Joint implementation of programme for increasing productivity of crops/enterprises, joint diagnostic survey.
2.	Department of Horticulture	Identification of training needs & conducting of training programmes, Joint implementation of programme for increasing productivity of crops/enterprises, joint diagnostic survey.
3.	Department of Animal Husbandry	Identification of training needs & conducting of training programmes, Joint implementation of programme for increasing productivity of crops/enterprises, joint diagnostic survey.
4.	Department of fisheries	Identification of training needs & conducting of training programmes, Joint implementation of programme for increasing productivity of crops/enterprises, joint diagnostic survey.
5.	Department of Women & Child development	Identification of training needs & conducting of training programmes, Joint implementation of programme for increasing productivity of crops/enterprises, joint diagnostic survey.
6.	CIFE, Mumbai	Identification of training needs & conducting of training programmes, Joint implementation of programme for increasing productivity of crops/enterprises, joint diagnostic survey.
7.	Rajasthan State Seed Corporation	Providing Seeds and Agricultural inputs.
8.	Rajasthan State Seed Certifying Agency	Monitoring and inspection facilities.
9.	IFFCO and KRIBHCO	Providing Seeds and Agricultural inputs and trainings.
10.	Punjab National Bank, Sangaria	Financial Management
11.	KVSS Sangaria (Coop. Society)	Purchase of Agricultural inputs.
12.	SKRAU, Bikaner	Identification of training needs & conducting of training programmes, joint diagnostic survey, identification of target groups for implementing the KVK activities such as training, and production of breeder seed.
13.	CCHAU, Hisar	Identification of training needs & conducting of training programmes, joint diagnostic survey, identification of target groups for implementing the KVK activities such as training.
14.	PAU, Ludhiyana	Identification of training needs & conducting of training programmes, joint diagnostic survey, identification of target groups for implementing the KVK activities such as training.
15.	MPUAT, Udaipur	Identification of training needs & conducting of training programmes, joint diagnostic survey, identification of target groups for implementing the KVK activities such as training.
16.	ARS and ARSS	Identification of training needs & conducting of training programmes, joint diagnostic survey, identification of target groups for implementing the KVK activities such as training,
17.	NABARD	Identification of training needs & conducting of training programmes, Joint implementation of programme for increasing productivity of crops/enterprises, Contribution received for infrastructural development.
18.	ATC	Help in training and Demonstration
19.	DIC	Identification of training needs & conducting of training programmes, Joint implementation of programme for increasing productivity of crops/enterprises.
20.	Forest Department	Providing sapling of plants.
21.	AIR, Suratgarh	Coverage
22.	Door Darshan & Etv. Rajasthan	Coverage
23.	Gangmul Dairy	Involvement in training programme.
24.	CIPMC, Sri Ganganagar	Sponsoring the IPM training programme.
25.	RMoL	Sponsoring the RMoL training programmes.

26.	MPEDA Cochin	To promote ornamental fish farming
27.	CAPART Jaipur	To uplift farming community through NGO
28.	Zila Prisad	Involvement in MGNREGA and SGSY
29.	NIPHM, Hyderabad	Research & Training programme for Scientist
30.	FAI, New Delhi	To promote research programme
31.	KVIC, Bikaner	To Promote non conventing energy Sources
32.	RAJUVAS, Bikaner	Training needs and Dignostic survey on Animals
33.	EEI, Anand	Provide Training