ANNUAL REPORT
2014 – 15

KRISHI VIGYAN KENDRA
BURDWAN

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ANNUAL REPORT 2014 (April 2014 to March 2015)

1. GENERAL INFORMATION ABOUT THE KVK

1.1. Name and address of KVK with phone, fax and e-mail

Name: **Krishi Vigyan Kendra, Burdwan**

Address	Telephone		E mail
Bud Bud, Burdwan-713 403. West Bengal	Office - 0343 2513651	Fax - 0343 2513651	kvkburdwan@gmail.com **Web:** www.kvkcrijaf.org.in

1.2. Name and address of host organization with phone, fax and e-mail

Name of Host organization: **ICAR-Central Research Institute for Jute and Allied Fibres**

Address	Telephone		E mail
	Office	Fax	
Barrackpore Kolkata- 700 120. West Bengal	033-25356124	033- 25350415	crijaf-wb@nic.in

1.3. Name of the Programme Coordinator with phone & mobile No

Name	Telephone / Contact		
	Residence	Mobile	Email
Dr. D. Ghorai (I/C)	033-25772766	09433122515	dipankarghoraikvk@gmail.com

1.4. Year of sanction: 2005 vide order No. 5-24 / 2002 – AE – I, dated April 01, 2005

1.5. Staff Position (as on 1st April, 2015)

Sl. No.	Sanctioned post	Name of the incumbent	Designation	Discipline	Pay Scale with present basic	Date of joining	Permanent /Temporary	Category (SC/ST/ OBC/ Others)
1	Programme Coordinator	VACANT						
2	Subject Matter Specialist	Dr. Dipankar Ghorai	I/C PC and SMS	Agriculture	Rs. 15600-39100 GP – 6600, Basic – Rs. 28730	26.04.2006	**Permanent**	GEN
3	Subject Matter Specialist	Mr. Golam Ziauddin	SMS	Fisheries	Rs. 15600-39100 GP – 6600, Basic – Rs. 28730	28.04.2006	**Permanent**	GEN
4	Subject Matter Specialist	Dr. Chandrakanta Jana	SMS	AH&VS	Rs. 15600-39100 GP – 6600, Basic – Rs. 35610	29.04.2006	**Permanent**	GEN
5	Subject Matter Specialist	Dr. Subrata Sarkar	SMS	Horticulture	Rs. 15600-39100 GP – 6600, Basic – Rs. 28730	04.05.2006	**Permanent**	GEN
6	Subject Matter Specialist	Ms. Poli Saikia	SMS	Home Sc.	Rs. 15600-39100 GP – 5400, Basic – Rs. 22280	09.04.2012	**Permanent**	OBC
7	Subject Matter Specialist	Dr. Monica S. Singh	SMS	Agril. Extn.	Rs. 15600-39100 GP – 5400, Basic – Rs. 22280	09.07.2012	**Permanent**	GEN
8	Programme Assistant	Mr. Sandipan Garai	Prog. Assistant	Agriculture	Rs. 9300-34800 GP – 4600, Basic – Rs. 18090	18.04.2006	**Permanent**	OBC
9	Computer Programmer	Sk Golam Rasul	Prog. Assistant (Computer)	Computer	Rs. 9300-34800 GP – 4600, Basic – Rs. 18090	10.04.2006	**Permanent**	GEN
10	Farm Manager	Mr. Soumya Sarathi Kundu	Prog. Assistant (Farm Manager)	Agriculture	Rs. 9300-34800 GP – 4600, Basic – Rs. 17560	06.01.2007	**Permanent**	GEN
11	Accountant / Superintendent	Mr. Baidyanath Mukhopadhyay	Assistant	--	Rs. 9300-34800 GP – 4200, Basic – Rs. 17130	15.03.2006	**Permanent**	GEN
12	Stenographer	Mr. Sushanta Dey	Stenographer Gr - III	--	Rs.5200-20200 GP – 2400, Basic – Rs. 12590	20.03.2006	**Permanent**	GEN
13.	Driver	Mr. Joydeep Pal	Driver – cum - mechanic	--	Rs.5200-20200 GP – 2400, Basic – Rs. 10700	06.07.2006	**Permanent**	GEN
14.	Driver	Mr. Santi Nath Pal	Driver– cum - mechanic	--	Rs.5200-20200 GP – 2400, Basic – Rs. 10700	10.07.2006	**Permanent**	OBC
15.	Supporting staff	Mr. Shyamal Bhanja	Supporting staff	Peon	Rs. 5200-20200 GP – 1800, Basic - Rs. 8900	25.02.2006	**Permanent**	GEN
16.	Supporting staff	Mr. Anup Das	Supporting staff	Cook	Rs. 5200-20200 GP – 1800, Basic - Rs. 8900	01.03.2006	**Permanent**	SC

1.6. Total land with KVK (in ha) : 18 ha

S. No.	Item	Area (ha)
1	Under Buildings	3.5
2.	Under Demonstration Units	2.5
3.	Under Crops	7.0
4.	Orchard/Agro-forestry	2.0
5.	Others (Ponds)	3.0

Total area should be matched with breakup

1.7. Infrastructure Development:

A) Buildings and others

S. No.	Name of building	Not yet started	Completed up to plinth level	Completed up to lintel level	Completed up to roof level	Totally completed	Plinth area (sq.m)	Under use or not*	Source of funding
1.	Administrative Building					√	552	Under use	ICAR
2.	Farmers Hostel					√	306	Under use	ICAR
3.	Staff Quarters (6)					√	400	Under use	ICAR
4.	Piggery unit								
5	Fencing					√	925 m	Under use	ICAR
6	Rain Water harvesting structure					√	7000	Under use	MGNREGA
7	Threshing floor								
8	Farm godown								
9.	Dairy unit								
10.	Poultry unit								
11.	Goatary unit					√	50	Under use	ICAR
12.	Mushroom Lab								
13.	Mushroom production unit								
14.	Greenhouse					√	1008 sqm	Under use	RKVY
15.	Soil test Lab					√	Instrumental support	Under use	ICAR
16	Others								
	Feed preparation Unit					√	Instrumental support	Under use	ATMA
	Integrated farming system					√	6000	Under use	ICAR
	Vermicompost unit					√	60	Under use	ATMA
	Portable carp hatchery					√	30	Operation yet to start	ICAR
	Deep tube well					√	Depth 80 ft.	Under use	ICAR

* If not in use then since when and reason for non-use

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total km. Run (2014-2015)	Present status
TATA SUMO WB 40 C 9883	01.04.1999	---	24371 km	In working condition
Tractor WB 39 3472	01.04.1999	---	154 hrs	In working condition

C) Equipment & AV aids

Name of equipment	Year of purchase	Cost (Rs.)	Present status	Source of fund
a. Lab equipment				
Flame photometer	2006-07	29813.00	In working condition	ICAR
Spectrophotometer	2006-07	46283.00	Out of order	ICAR
Shaker	2006-07	20756.00	In working condition	ICAR
Hot air oven	2006-07	5344.00	In working condition	ICAR
Hot plate	2007-08	14000.00	Out of order	ICAR
Glass distillation unit	2007-08	28000.00	Out of order	ICAR
Conductivity bridge	2007-08	10000.00	In working condition	ICAR
pH meter	2007-08	9563.00	In working condition	ICAR
Electronic balance	2007-08	12375.00	In working condition	ICAR
Grinder	2007-08	19500.00	In working condition	ICAR
Kjeldahl N analyser	2008-09	250474.00	In working condition	ICAR
Atomic absorption spectrophotometer	2012-13	944832.00	In working condition	ICAR
b. Farm machinery				
Tractor	01.04.1999	--	In working condition	ICAR
Power reaper	2011-12	85476.00	In working condition	ICAR
c. AV Aids				
LCD projector	2008-09	109000.00	In working condition	ICAR
Computer with accessories (2 Nos.)	2009 -10	49920.00	In working condition	ICAR
LCD TV	2010-11	13110.00	In working condition	ICAR
Digital Camera	2010-11	14790.00	In working condition	ICAR

D) Farm implements

Name of equipment	Year of purchase	Cost (Rs.)	Present status	Source of fund
CRIJAF Nail weeder	2012-13	3400.00	In working condition	ICAR
Brush cutter	2011-12	22360.00	In working condition	ICAR
Seed drill	2011-12	66500.00	In working condition	ICAR
Rotovator	2011-12	107120.00	In working condition	ICAR
Sprayer	2011-12	7300.00	In working condition	ICAR
Paddy thresher	2011-12	12000.00	In working condition	ICAR
Castrator for goat	2013-14	4000.00	In working condition	ATMA

1.8. A). Details SAC meeting* conducted in the year

Sl.No.	Date	Number of Participants	Salient Recommendations	Action taken
1.	18.06.14	36	• Impact assessment of the activities of KVK should be done. • Profitable technologies on jute should be more promoted • Various rice cultivation technologies, other than SRI should be promoted • Production of organic inputs at site should be strengthened • Biological control for pest and disease management should be done in proper way. • Low cost farm implements as well as low cost technologies suitable for small holder farmers should be promoted. • Jute should be tried as vegetable for nutrition augmentation among rural families. • Fish Fingerling production should be up scaled. • Feasibility of high density planting of fruit crops, like mango, should be figured out. • Use of growth promoter in pig production should be emphasized • STCR based fertilization and SSNM should be promoted. • More no. of entrepreneurs in fields like mushroom production, broiler farming, pig farming etc. should be developed. • Augmentation of family nutrition should be emphasized.	Please refer to Annexure II for action taken report

** Salient recommendation of SAC in bullet form*

Please see Annexure I for a copy of SAC proceedings along with list of participants

2. District level data on agriculture, livestock and farming situation (2014-15)

Sl. no.	Item	Information
1	Major Farming system/enterprise	Rice production system Dairy –poultry production system Poultry Goatery Duckery Fishery Rice – potato-fodder- livestock production system Rice –vegetable-Rice production system Jute-rice production system Fish-duck-banana production system
2	Agro-climatic Zone	**1. New Alluvium** Average annual rainfall 1300-1600 mm, Soil type- sandy loam, clay and clay loam, Soil depth 4-6 ft with medium to good water holding capacity, **Neutral to acidic soil with good fertility.** **2. Old Alluvium** Average annual rainfall 1300-1500 mm,

		Soil type- sandy loam and clay loam Soil depth 4-6 ft with medium to good water holding capacity **Neutral to acidic soil with good fertility** **3. Red and Lateritic** Average annual rainfall 1100-1400 mm, Soil type- sandy loam, coarse in texture Undulating land with low soil depth, sometimes hard layer present in sub surface **Medium to highly acidic soil**
3	Agro ecological situation	**Agro ecological sub region 12.3 under the AES 12.0 (Eastern Plateau)** I Chhotonagpur Plateau and Garhjat hills, hot dry sub humid ecosystem with red & laterite soils and LGP 150-180 days covering the blocks of Durgapur & Asansol. Main crops are, paddy, mustard, vegetables, pulse etc. The area covers 186154 ha II. Moist and sub humid ecosystem with alluvial soil with LGP of 180-200 days covering the blocks of Burdwan (N), Burdwan (S), Kalna & Katwa, Main crops paddy, mustard, **sesame, potato, jute, vegetables etc. The area covers 517532 ha**
4	Soil type	**1.Gangetic alluvial – 206423 ha** Soil order is entisols. Sandy loam to clay loam, fine in texture, slightly acidic to neutral in reaction. Rich in potash and medium to rich in available plant nutrients. **2. Vindhya alluvial – 311000 ha** Soil order is entisol Sandy loam to clay loam, fine to moderate coarse in texture, acidic to neutral in reaction. **3. Red and Lateritic – 186054 ha** Soil orders are mainly alfisol and ultisol. Coarse gritty soil blended with rock fragment, mainly acidic in nature, reddish in color due to high level of iron, low in nitrogen, calcium, phosphate and other plant nutrient.
5	Productivity of major 2-3 crops under cereals, pulses, oilseeds, vegetables, fruits and others	Aman paddy – 32.73 Boro paddy – 26.95 Wheat – 21.99 Pulses – 8.80 Oilseeds – 10.01 Jute & other fibres ** - 18.7 lakh bales Potato – 212.49
6	Mean yearly temperature, rainfall, humidity of the district	Mean yearly temperature: Max – 31, Min – 18 Relative humidity : 76 Total rainfall: 1136 mm
7	Production of major livestock products like milk, egg, meat etc.	Milk : 464080 tonnes, 280 kg/year Egg: 2672.40 lakh egg, 85 no. eggs/year Meat : 4000 MT

2.6 (a) Details of operational area / villages (2014-15)

S.N	Taluk	Block	Village	Major crops & enterprises	Major problem identified	Identified Thrust Areas
1	Durgapur	Kanksa, Andal	Keten , Palashboni, sundrariya Moira	Paddy, potato, mustard, sesame, lentil, vegetable, cattle, poultry, duck, goat, pig fish Kharif paddy, wheat, mustard, brinjal, cattle, buffalo, goat and poultry	***Bio-physical*** **Low productivity of all major crops** • Non-availability of quality seed / planting materials • Marginal soil • Limited water resources for irrigation • Indiscriminate and inappropriate use of chemical fertilizer **Inadequate descriptive/prolific breed of livestock** **Poor feed resources** ***Socio- economic*** **Lack of credit facilities** **Lack of awareness regarding good agronomic /husbandry practices** **Very restricted livelihood option**	• Integration of good agronomic practices • Providing quality seeds/planting materials • Diversification of land use • Soil health management like organic farming etc. • Livestock productivity improvement and health care • Efficient utilization of water bodies • Entrepreneurship development
2	Durgapur	Galsi-I	Jaguli para , Silla, Ramgopalpur, Atpara, Raipur, Goligram Kondaipur Manikbazar-Jharul, Nurkona Nabakhanda	Kharif Paddy, boro paddy, mustard, fodder, cattle, poultry, duck, goat, fish	***Bio-physical*** **Low productivity of all major crops** • Non-availability of quality seed materials • High cost involvement for major crops • Indiscriminate and inappropriate use of chemical fertilizers • Low input of organics & biofertiliser **Lesser extent of crop diversification** **Low productivity of livestock &**	• Providing quality seeds/planting material • Diversification of land use • Entrepreneurship development • Organic farming • Health care • Improvement of women led

3.	Burdwan North	Galsi-II	Garamba, Pursora	Aus paddy, kharif paddy, jute, potato, mustard, vegetable cattle, poultry, Goat, broiler farming, fish	**poultry** **Poor feed resources** ***Socio-economic*** • Lack of credit facilities • Inadequate house hold income generation	vocations • Popularization of balanced feeding practices
4.		Aushgram-I	Dignagar, Woyarishpur	Kharif paddy, Potato, lentil, mustard, til, fodder, cattle, goat, poultry, duck, fish	***Bio-physical*** **Low productivity of all major crops** • Non-availability of quality seed / planting materials • Poor soil health • Limited water resources for irrigation • Indiscriminate and inappropriate use of chemical fertilizer **Inadequate descriptive/prolific breed of livestock** **Poor feed resources** **Inadequate health care** ***Socio- economic*** **Lack of credit facilities** **Lack of awareness regarding good agronomic /husbandry practices** **Very restricted livelihood option**	i. Integration of good agronomic practices ii.Providing quality seeds/planting materials iii.Diversification of land use iv.Restoration of soil health through organic manuring. v.Livestock productivity improvement and health care vi.Efficient utilization of water bodies vii.Entrepreneurship development viii. Promotion of efficient water use technology ix. technology showcasing

5.	Kalna	Kalna	Bhagnapara, Kalna, Durgapur, Nandai	Paddy, jute, onion, fodder, mustard, banana, potato, mango, cattle, sheep, goat, pig, poultry	***Bio-physical*** **Low productivity of all major crops** • Non-availability of quality seed / planting materials • Nutrient Deficient soil • Indiscriminate and inappropriate use of chemical fertilizer/ pesticides **Inadequate descriptive/prolific breed of livestock** **Poor feed resources** **Inadequate health care** ***Socio- economic*** **Lack of credit facilities** **Lack of awareness regarding good agronomic /husbandry practices** **Very restricted livelihood option** **Less of post harvest operation**	Integration of good agronomic practices ii.Production of quality seeds/planting materials in PPP mode iii.Diversification of land use iv.Restoration of soil health through organic manuring. v.Livestock productivity improvement and health care vi.Efficient utilization of water bodies vii.Entrepreneurship development viii. Promotion of efficient water use technology ix. Promotion of Improved post harvest technology

6.		Purbast hali- I	Kuricha	Paddy, jute, onion, fodder, mustard, banana, potato, mango, cattle, sheep, goat, pig, poultry	***Bio-physical*** **Low productivity of all major crops** • Non-availability of quality seed / planting materials • Indiscriminate and inappropriate use of chemical fertilizer/ pesticides • Very low ground water table **Inadequate descriptive/prolific breed of livestock** **Poor feed resources** **Inadequate health care** ***Socio- economic*** • Lack of awareness regarding good agronomic /husbandry practices • Very restricted livelihood option • Less of post harvest operation	Integration of good agronomic practices ii. Production of quality seeds/planting materials in PPP mode iii. Diversification of land use iv. Restoration of soil health through organic manuring. v. Livestock productivity improvement and health care vi. Efficient utilization of water bodies vii. Entrepreneurship development viii. Promotion of efficient water use technology ix. Promotion of Improved post harvest technology of jute and other crops

7		Memari-I & II	Satchachia, Debupur, Khanro,	Paddy, onion, fodder, mustard, banana, potato, mango, cattle, sheep, goat, pig, poultry	***Bio-physical*** **Low productivity of all major crops** • Non-availability of quality seed / planting materials • Nutrient Deficient soil • Indiscriminate and inappropriate use of chemical fertilizer/ pesticides **Inadequate descriptive/prolific breed of livestock** **Poor feed resources** **Inadequate health care** ***Socio- economic*** • Lack of credit facilities • Lack of awareness regarding good agronomic /husbandry practices • Very restricted livelihood option • Less of post harvest operation	Integration of good agronomic practices ii. Production of quality seeds/planting materials in PPP mode iii. Diversification of land use iv. Restoration of soil health through organic manuring. v. Livestock productivity improvement and health care vi. Efficient utilization of water bodies vii. Entrepreneurship development viii. Promotion of efficient water use technology ix. Promotion of Improved post harvest technology

8		Monthes war	Bhelia, Bheti	Paddy, onion, fodder, mustard, banana, potato, mango, cattle, sheep, goat, pig, poultry	***Bio-physical*** **Low productivity of all major crops** • Non-availability of quality seed / planting materials • Nutrient Deficient soil • Indiscriminate and inappropriate use of chemical fertilizer/ pesticides **Inadequate descriptive/prolific breed of livestock** **Poor feed resources** **Inadequate health care** ***Socio- economic*** **Lack of credit facilities** **Lack of awareness regarding good agronomic /husbandry practices** **Very restricted livelihood option** **Less of post harvest operation**	Integration of good agronomic practices ii.Production of quality seeds/planting materials in PPP mode iii.Diversification of land use iv.Restoration of soil health through organic manuring. v.Livestock productivity improvement and health care vi.Efficient utilization of water bodies vii.Entrepreneurship development viii. Promotion of efficient water use technology ix. Promotion of Improved post harvest technology

(b) Details of village adoption programme:

Name of the villages adopted by PC and SMS in 2014-15 for its development and action plan

Name of village	Block	Action taken for development
Kasba	Galsi-I	• Training programmes on different aspects of Horticulture were conducted. • OFT on varietal trial on cauliflower was conducted. • FLD on improved variety of tomato was also conducted.
Bamunia	Memari -II	• PRA data collection • Awareness camp, informal discussion
Barmuria	Galsi- II	• PRA data collection • Training, informal discussion
Kuricha	Purbasthali-I	• Indentifying areas of intervention based on PRA • On farm trial and demonstration on improved production technology of paddy • Culmination of improved jute production technology through OFT, FLD, field day and exposure visit of farmers • Formation of farmers club • Awareness camp on family nutrition
Debipur	Memari-I	• Skill development programme of tribal farmers and farm women • Technology demonstration in the theme of region specific mineral mixture supplementation to deshi cow • Technology assessment through OFT in nutrient management of duck • Animal health camp and awareness camp. • Diagnostic field visit of SMSs • Technology guidance through Farmers, portal

Warishpur	Ausgram II	• Formation of farmers club • Awarness Camp • Diagnostic field visit of SMSs • Technology guidance through Farmers, portal • Training to farmers and Farm women

(c) Sansad Adarsh Gram Yojona

One village, namely Siddhabari, has been adopted by the Hon'lbe MP, Asansol. The village is located in the Salanpur block of the district. The area comes under the red and lateritic zone of the district.

KVK Burdwan after detailed survey of the area, adopted one village with similar agro-climatic, bio-physical and socio-economic condition in the block of Andal. The village is named DAKHINKHANDA. One detailed survey of the village was done involving various stakeholders and one action plan was formulated following the guidelines mentioned in the SAGY. The plan was submitted to concerned authority for further necessary action.

The action plan submitted is annexed herewith (annexure IV)

2.7 Priority thrust areas

S. No	Thrust area
1.	Integration of good agronomic practices for cultivation of field and vegetable crops for vertical agricultural growth
2.	Production of quality seeds/planting materials for major agricultural crops like rice, jute, mustard and vegetable and fruit crops
3.	Diversification of land use through cultivation of vegetables and other horticultural crops
4.	Soil health management through organic farming, balanced and integrated fertilization etc.
5.	Livestock productivity improvement and health care
6.	Efficient utilization of water bodies through composite fish culture and improved management practices
7.	Efficient resource utilization and output maximization through integrated farming system approach
8.	Entrepreneurship development for family income generation
9.	Empowerment of women through post harvest operation
10	Strengthening of animal feed resources through fodder production/ quality fodder seed production
11	Use of ICT in agriculture in area of climate based agro advice, disease diagnosis, SMS service

3. TECHNICAL ACHIEVEMENTS

3. A. Details of target and achievement of mandatory activities by KVK during 2014-15

OFT				FLD			
Number of OFTs		Number of farmers		Number of FLDs		Number of farmers	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
11	10	83	73	294	294	294	294

Training				Extension activities			
Number of Courses		Number of Participants		Number of activities		Number of participants	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
233	117	5635	2935	850	1165	4380	15317

Seed production (q)		Planting material (Nos.)	
Target	Achievement	Target	Achievement
220	220	5000	5000

3.1 Achievements on technologies assessed and refined

OFT-1

1.	Title of On farm Trial	**Assessment of effectiveness of split application of fertilisers on paddy productivity through SRI (*kharif)* under medium upland situation of Burdwan district**
2.	Problem diagnose	Low nutrient use efficiency as a result of single or double split application of fertilisers
3.	Details of technologies selected for assessment/refinement	**Farmers' practice:** (SRI with 100:50:50 N, P and K with N in two splits, P and K as basal) **Technology – 1 (T1)**: SRI + 100: 50: 50 N,P and K (N in two equal splits as basal and at maximum tillering; P as basal and K in two splits at basal and booting) **Technology – 2 (T2)**: SRI + 100:50:50 N,P and K (N in three splits as basal, maximum tillering and booting; entire P as basal and K in two splits as basal and at booting) **Technology – 3 (T3)**: SRI + 100:50:50 N,P and K (N in four splits as basal, maximum tillering, internode elongation and booting; entire P as basal and K in three splits as basal, maximum tillering and at booting)
4.	Source of Technology	CRRI, Cuttuck
5.	Production system and thematic area	Rice based production system; Technology
6.	Performance of the Technology with performance indicators	**Results indicated that T3 and T2 resulted at par productivity which was significantly higher in comparison to T1 by 12% and 26% in comparison to farmers practice**
7.	Final recommendation for micro level situation	Farmers should apply nitrogen in 3-4 splits and potassium in 2 splits in SRI
8.	Constraints identified and feedback for research	Timely availability of labour is the primary constraint.
9.	Process of farmers participation and their reaction	Training and awareness; Farmers were highly satisfied with performance of improved cultivars

Thematic area: Technology
Problem definition: Low nutrient use efficiency as a result of single or double split application of fertilisers
Technology assessed: Split application of fertilisers

Table 1A: Results

Technology option	No. of trials	Yield component			Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		Plant height (cm)	No. of effective tillers/hill	Panicle 1000 grain wt (gm)					
FP	4	92.4	11.9	19.8	57.6	42250	72000	29750	1.70
TO1		102.5	12.8	20.2	59.8	42500	74750	32250	1.76
TO2		106.3	14.7	21.3	66.7	42750	83375	40625	1.95
TO3		105.4	15.2	21.5	67.9	43000	84875	41875	1.97
LSD at 5%		ns	0.61	0.42	1.43				

- Cost of production was taken to be varying only for additional labour
- Selling price of paddy was taken at Rs. 1250/qtl

Results:

The on farm trial indicated that application of nitrogen in 3-4 splits and potassium in 2 splits resulted in significantly higher produce of paddy in comparison to application of nitrogen in two splits and potassium in single split.

OFT-2

1.	Title of On farm Trial	**Evaluation of performance of different varieties of jute under rainfed and medium upland situation of Burdwan district**
2.	Problem diagnose	Inadequate productivity vis-à-vis soil situation and fertility
3.	Details of technologies selected for assessment/refinement	**FP:** JRO 524 **TO 1:** JRO 128 **TO 2 :** JRO 2407 **TO 3 :** CO 58
4.	Source of Technology	CRIJAF, Barrackpore
5.	Production system and thematic area	Jute based production system; varietal trial
6.	Performance of the Technology with performance indicators	**Results indicated that as regards productivity CO 58, JRO 2407 and JRO 128 produced at par fibre yield and significantly more fibre than JRO 524**
7.	Final recommendation for micro level situation	Existing jute cultivar of JRO 524 should be replaced with improved cultivars like CO58, JRO 2407 and JRO 128.
8.	Constraints identified and feedback for research	Seed availability of improved cultivars is scarcely available in the market. Feasibility of jute seed production in West Bengal should be researched.
9.	Process of farmers participation and their reaction	Training and awareness; Farmers are satisfied with performance of improved cultivars

Thematic area: Varietal trial

Problem definition: Inadequate productivity vis-à-vis soil situation and fertility

Technology assessed: Improved variety

Table 2A: Results

Technology option	Yield component		Yield (q/ha)	Cost of cultivation (Rs./ha)*	Gross return (Rs/ha)**	Net return (Rs./ha)	BC ratio
	Pl. height (cm)	Base diameter (mm)					
FP: JRO 524	224	1.61	29.2	52500	62780	10280	1.20
TO 1: JRO 128	242	1.42	38.5	52500	82775	30275	1.58
TO 2 : JRO 2407	251	1.49	37.7	52500	81055	28555	1.54
TO 3 : CO 58	248	1.55	36.4	52500	78260	25760	1.49
LSD at 5%	**6.48**	**ns**	**4.48**				

*Though coast of cultivation varied by ± 10%, it was averaged to be constant
** Selling price also varied between farmers. But for uniformity it was taken @ 2150/qtl.

Results:

The On Farm Trial was conducted at Bhasapur, Galsi-I with three improved technology options (TO), *viz,* newly developed cultivars of JRO 128, JRO 2407 and CO 58 against farmers' practice (FP) of JRO 524. Results indicated that plant height in case of all the three improved cultivars were significantly higher as compared to FPas, although there was non-significant difference in base diameter (BD), and as regards productivity all of the improved cultivars produced significantly more fibre than JRO 524. Farmers were convinced that adoption of newer cultivars alone can improve profitability of jute by some significant degree and they urged upon to having ready availability of seed of these improved cultivars in the local market.

OFT-3

1.	Title of On farm Trial	Evaluation of performance of different varieties of early cauliflower
2.	Problem diagnosed	Poor curd formation leading to reduction in yield during early cauliflower cultivation in the farmer's field due to selection of inappropriate varieties.
3.	Details of technologies selected for assessment/refinement	**FP:** Local variety **TO 1:** Trisha **TO 2 :** Barsati **TO 3 :** Dawn 175
4.	Source of Technology	BCKV
5.	Production system and thematic area	Irrigated vegetable based production system
6.	Performance of the Technology with performance indicators	Result indicated that Trisha as well as Dawn 175 showed better responds in terms of early curd initiation. Trisha was best in curd compactness and yield.
7.	Final recommendation for micro level situation	Trisha should be cultivated as early cauliflower.
8.	Constraints identified and feedback for research	Availability of any variety in a particular area depends on local dealers. More varieties should be tried for selection of better quality of curd.
9.	Process of farmers participation and their reaction	Through training and field level demonstration. Farmers were satisfied with the performance of the technology.

Thematic area:

Problem definition: Poor curd formation leading to reduction in yield during early cauliflower cultivation

Technology assessed: Different varieties like Trisha, Barsati, Dawn 175

Table 3A: Results

Technology option	No. of trials	Yield component			Disease/ insect pest incidence (%)	Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		No. of effective tillers/hill	No. of spikelet per panicle	Test wt. (100 grain wt.)						
FP: Local variety	8					193	56400	102500	46100	1.81
TO 1: Trisha						240	58600	132000	73400	2.25
TO 2 : Barsati						212	58600	115000	56400	1.96
TO 3 : Dawn 175						235	58600	123600	65000	2.10
CD(0.05)						23.6				

Results: Result indicated that Trisha as well as Dawn 175 showed better responds in terms of early curd initiation. Trisha was best in curd compactness and yield.

OFT-4

1.	Title of On farm Trial	Evaluation of different management practices against late blight disease of potato
2.	Problem diagnosed	Severe late blight infestation leading to high protection cost with low yield
3.	Details of technologies selected for assessment/refinement	**FP:** Foliar spray of Mancozeb **TO 1:** Seed tuber treatment with Mancozeb + foliar spray of Metalaxyl & Mancozeb **TO 2:** Seed tuber treatment with Mancozeb + soil application of *Trichoderma viridae* + Foliar spray of Metalaxyl & Mancozeb
4.	Source of Technology	BCKV
5.	Production system and thematic area	Irrigated vegetable based production system
6.	Performance of the Technology with performance indicators	Result indicated that third treatment was most effective in management of late blight incident in potato. Trichoderma is a safe substance that minimize the late blight infestation by reducing the microbial load in soil
7.	Final recommendation for micro level situation	Seed tuber treatment with Mancozeb + soil application of *Trichoderma viridae* + Foliar spray of Metalaxyl & Mancozeb for late blight management
8.	Constraints identified and feedback for research	Availability of Trichoderma in some cases and lack of awareness among the farmers about the use of bio-control agent.
9.	Process of farmers participation and their reaction	Through training and field level demonstration. Farmers were satisfied with the performance of the technology.

Thematic area:

Problem definition: Severe late blight infestation leading to high protection cost with low yield

Technology assessed: Different protection measures including a bio agent like Trichoderma

Table 4A: Results

Technology option	No. of trials	Yield component			Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
			Tuber No./plant	Wt. of tuber/plant (gm)					
FP	7		8.70	576	282.0	61900	89700	27800	1.44
TO 1			9.20	625	300.0	62100	99300	37200	1.59
TO 2			11.60	750	322.0	63900	111800	47900	1.74
CD(0.05)			1.23	33.59	15.8				

Results: It is evident from the above results that application of Trichoderma along with Metalaxyl-Mancozeb was the most effective measure to suppress the disease infestation, more particularly at the early stage of crop growth, which was reflected in terms of higher yield and yield attributing traits.

OFT-5

1.	Title of On farm Trial	**Evaluation of different sources of selenium and vit. E supplementation on production and hatchability of duck egg in Burdwan district**
2.	Problem diagnose	Poor egg production and hatchability in duck is due to deficiency of anti-stress vitamins and minerals in diet.
3.	Details of technologies selected for **assessment**/refinement	**Farmers' practice:** Whole day foraging + kitchen waste **Technology 1 to be assessed:** Farmers' practice + inorganic source of Se and Vit. E * **Technology 2 to be assessed:** Farmers' practice + organic source of Se and Vit. E *
4.	Source of Technology	ICAR-CARI, regional station, Bhunabeswar
5.	Production system and Thematic area	Crop-Livestock and duck based production system under backyard farming; Nutrition management
6.	Performance of the Technology with performance indicators	Supplementation of bio-chelated Se & Vit. E to Khaki Campbell layer ducks improved significantly the production and weight of eggs under semi intensive production system. Hatchability of eggs was also improved in this group.
7.	Final recommendation for micro level situation	Concerning significantly higher egg production, supplementation of biochelated Se & Vit E may be recommended to Khaki Campbell duck under this agro climatic situation.
8.	Constraints identified and feedback for research	Measuring of mixture of such amount is sometime difficult to few farmers. Hatchability was also enhanced after supplementation of bio-chelated vit. E and Se. The intervention may treated as an important climate resilience technology in duck production system under hot- humid climate situation.
9.	Process of farmers participation and their reaction	Through training, health camp and group discussion. Non productive ducks become productive after 6 days of supplementation. Profit margin is supplemented group was more as large sized eggs have more market demand as well as value.

Thematic area: Nutrition Management

Problem definition: Non productiveness, small sized egg with poor hatchability in Khaki Campbell ducks are the main problem among duck raisers of Burdwan district.

Technology assessed: Supplementation of **anti stress mineral and Vitamin** to Khaki Campbell ducks

Table 5A: Egg production and reproductive performance of different technology options with their economics

Technology Assessed	No. of trials	Yield parameters		Hatchability (artificial incubator) (in %)	Cost of rearing (Rs./duck)	Gross return (Rs./duck)	Net Return (Profit) in (Rs./duck)	B:C Ratio (Gross return : cost)
		*Production per unit egg production/ duck/ yr	Wt of egg (g)					
Farmers' practice: Whole day foraging + kitchen waste	**7**	125.86 ±1.64^{c}	48.86±1.16 ^{c}	59	757	875	118	1.15
TO1= FP+ inorganic source of Se & Vit E	**7**	153.45 ±2.37^{b}	58.14 ±1.34^{b}	66	857	1147	290	1.33
TO2= FP + Organic source of Se & Vit E	**7**	**184.71±2.48^{a}**	**61.71 ±0.81^{a}**	69	887	1380	493	**1.55**

a b c values with different superscripts in a row differ significantly ($p<0.05$).

Results: The programme was conducted for 2nd year in duck producing villages with the aim of enhancement of egg production and fertility of male duck. Supplementation of organic source of Se & and Vit E improved egg production in Khaki Campbell duck (184 nos. /yr/duck) under semi intensive management practices in compared to inorganic source of Se & Vit. E (153 nos. /yr/duck). Feeding rate was Selenium = 0.5 ppm and Vit. E = 50 microgram per duck/ day. Hatchability of duck eggs under artificial incubator was increased in supplemented groups.

OFT-6:

1.	Title of On farm Trial	**Evaluation of different non antibiotic growth promoters in small scale broiler production in Burdwan district**
2.	Problem diagnose	Inadequate body weight gain of broiler in small scale operation and antibiotic residue as well as antibiotic resistance organism in meat.
3.	Details of technologies selected for **assessment**/refinement	**Farmers' practice:** Commercial broiler feed and indiscriminate use of antibiotics **Technology 1 to be assessed:** *Probiotics as performance promoter and* commercial broiler feed* **Technology 2 to be assessed:** O*rganic acid as performance promoter* and **c**ommercial broiler feed
4.	Source of Technology	West Bengal University of Animal and Fishery Sciences, Kolkata
5.	Production system and Thematic area	Crop-Livestock and poultry production system under small scale operation Nutrition management
6.	Performance of the Technology with performance indicators	Body weight gain of broiler in probioties supplemented group was significantly higher as compared to organic acid supplemented group in small scale broiler production system. Body weight at 30 days and 38 days (selling age) were taken as performance indicators.
7.	Final recommendation for micro level situation	Concerning significantly higher growth supplementation of probiotics as performance enhancer may be recommended in small scale broiler production system from 1st age of live to 30 days old.
8.	Constraints identified and feedback for research	Addition of probiotics/ aorganic acid in drinking waster is time taking operation. Use of antibiotics is reduced as well as survivality percentage is more as compared to farmer practice.
9.	Process of farmers participation and their reaction	Through training , diagnostic farm visit and group discussion FCR was improved and reduced cost of production due to less use of antibiotics in production system.

*Schedule dose: 4g/ 100 chicks for day-1 to 3, 1g/50 chicks for day-5 to 12, 1g/ 100 chicks from day-22 to 30 days old.

Thematic area: Nutrition Management

Problem definition: Antibiotic residues in meat and poor body weight gain are the main problem in broiler production system of the district.

Technology assessed: Use of non antibiotic performance enhancer in broiler production system

Table 6A: Growth performance of different technology options with their economics

Technology Assessed	No. of trials	Yield parameters		Cost of rearing (Rs./broiler)	Gross return (Rs./broiler)	Net Return (Profit) in (Rs./broiler)	B:C Ratio (Gross return : cost)
		*Production per broiler at 38 days (kg) (at selling age)	Body wt (kg)/ broiler at 30 days				
Farmers' practice: Commercial broiler feed and indiscriminate use of antibiotics	**7**	**1.78** ± 0.02[b]	**1.25** ± 0.13[b]	130	142	12	1.09
TO1= *Probiotics as performance promoter and* commercial broiler feed	**7**	1.98 ± 0.02[a]	1.39 ± 0.12[a]	129	158	29	1.22
TO2= O*rganic acid as performance promoter* **and c**ommercial broiler feed	7	1.84 ± 0.01[b]	1.26 ± 0.06[b]	131	147	16	1.12

a b values with different superscripts in a row differ significantly ($p<0.05$).

Results: The OFT was conducted in this district in the month of October and November to evaluate the performance of different non antibiotic growth promoters in broiler production with the aim of judicious use of antibiotics in small scale production system .A significantly higher body weight of broiler (1.98 kg/broiler at 38 days) was achieved through schedule application of probiotic in drinking water whereas no significant difference in growth was noticed between farmers practice and organic acids supplemented group.

OFT-7

1.	Title of On farm Trial	**Effect of liming doses in fish ponds on fish productivity under pond ecosystem of Burdwan (2nd yr)**
2.	Problem diagnosed	Lack of awareness of fish farmers regarding lime application in fish ponds leading to poor environments for fish ponds.
3.	Details of technologies selected for assessment/refinement	**FP:** Occasional use of lime **TO 1:** liming – pH based single dose. **TO 2:** liming – pH based split dose.
4.	Source of Technology	ICAR-CIFA,BBSR
5.	Production system and thematic area	Extensive fish based production system and composite fish culture management practice
6.	Performance of the Technology with performance indicators	pH based split dose performed better in terms of growth rate and total yield at this farming situation
7.	Final recommendation for micro level situation	Regular checking of soil and water pH is recommended along with application of lime in split doses.
8.	Constraints identified and feedback for research	Lack of Awareness of Timely application of lime in fish ponds.
9.	Process of farmers participation and their reaction	Through training and field level demonstration. Farmers were satisfied with the performance of the technology.

Problem definition: ***low fish*** production of IMC is due to lack of awareness regarding application of lime in fish ponds.

Technology assessed or refined (as the case may be): evaluation of fish production by application of lime by different system.

Fish production by application of lime were evaluated under extensive management practices by fishers of Burdwan district. The trial was conducted with fingerlings of IMC. The trial is very successful in farming condition of Burdwan 8 months fish production data have been presented but results of this trial is very much encouraging to the farmers.

Table 7A. : Effect of different technology options on productivity of fish and economic parameters

Technology Assessed	Production per unit (Avg. fish production in q/ha/yr)	Cost of production (Rs./ha)	Gross return (Rs./ha)	Net Return (Profit) in Rs./ha/yr)	B:C Ratio (Gross return : cost)
FP: Occasional use of lime	7.5	50574	66501	15927	1.41
TO 1: liming – pH based single dose.	10.3	58736	84561	25825	1.82
TO 2: liming – pH based split dose.	12.75	68365	112017	43652	2.07

Table 7B. : Effect of different technology options on fish production.

Technology options	Production per unit (Avg. fish production in q/ha/yr)	Length (cm)	Wt of fish (kg)
FP: Occasional use of lime	7.5^{c}	7.2^{a}	0.35^{c}
TO 1: liming – pH based single dose.	10.3^{b}	9.0^{a}	0.58^{b}
TO 2: liming – pH based split dose.	12.75^{a}	12.5^{b}	0.89^{a}

a b c values with different superscripts in a row differ significantly ($p<0.05$).

Fish is the predominantly major crop of Burdwan . lime application management practices among farmers are grossly unbalanced because of lack of knowledge. Fish farmers do not get adequate yield owing to unscientific management practices.
Ph based lime application in split dose resulted in significantly higher productivity as compared to FP. Therefore the OFT was also aimed at showing the farmers that they can apply lime based on checking pH and in split doses.

OFT-8

1.	Title of On farm Trial	**Effect of regular application of organic fertilizer and supplementary feeding of IMC on fish productivity under pond ecosystem of Burdwan**
2.	Problem diagnosed	Lack of awareness of fish farmers regarding organic fertilizer and supplementary feed application in fish ponds leading to poor growth for fish.
3.	Details of technologies selected for assessment/refinement	**FP:** Occasional use of cow dung and occasional feeding with IMC **TO 1:** Cow dung- basal split dose- 5 t/ha + liming – pH based+ regular feeding of RB: MOC 1:1 @ 3% of total stocked fish biomass **TO 2:** Cow dung- basal split dose- 5 t/ha + liming – pH based+ regular feeding of commercial balanced fish feed @ 3% of total stocked fish biomass
4.	Source of Technology	ICAR-CIFA,BBSR
5.	Production system and thematic area	Extensive fish based production system and composite fish culture management practice
6.	Performance of the Technology with performance indicators	Organic fertilizer in split dose + liming – pH based+ feeding of supplementary fish feed @ 3% of total stocked fish biomass dose performed better in terms of growth rate and total yield at this farming situation
7.	Final recommendation for micro level situation	Need to continue the OFT for 2nd year.
8.	Constraints identified and feedback for research	Timely collection and identifying the causative agent for fish production in fish ponds.
9.	Process of farmers participation and their reaction	Through training and field level demonstration. Farmers were satisfied with the performance of the technology.

Table 8A : Effect of different technology options on productivity of fish and economic parameters

Technology Assessed	**Production per unit** (Avg. fish production in q/ha/yr)	**Cost of production (Rs./ha)**	**Gross return (Rs./ha)**	**Net Return (Profit) in Rs./ha/yr)**	**B:C Ratio (Gross return : cost)**
FP: Occasional use of cow dung and occasional feeding with IMC	10.2	60286	78371	18085	1.29
TO 1: Cow dung- basal split dose- 5 t/ha + liming – pH based+ regular feeding of RB: MOC 1:1 @ 3% of total stocked fish biomass	18.3	70319	129486	59167	1.84
TO 2: Cow dung- basal split dose- 5 t/ha + liming – pH based+ regular feeding of commercial balanced fish feed @ 3% of total stocked fish biomass	22.75	80273	165365	85082	1.94

Table 8B : Effect of different technology options on fish production

Technology options	**Production per unit** (Avg. fish production in q/ha/yr)	**Length (cm)**	**Wt of fish (kg)**
FP: Occasional use of cow dung and occasional feeding with IMC	10.2^{a}	9.2^{c}	0.58^{a}
TO 1: Cow dung- basal split dose- 5 t/ha + liming – pH based+ regular feeding of RB: MOC 1:1 @ 3% of total stocked fish biomass	18.3^{b}	10.9^{b}	0.76^{a}
TO 2: Cow dung- basal split dose- 5 t/ha + liming – pH based+ regular feeding of commercial balanced fish feed @ 3% of total stocked fish biomass	22.75^{c}	13.5^{a}	1.18^{b}

a b c values with different superscripts in a row differ significantly ($p<0.05$).

The OFT was also aimed at showing the farmers that they can apply organic fertilizer, lime and supplementary fish food in split doses. Application of organic fertilizer in split doses will help to produce the natural fish food organism continuously. Ph based lime application in split dose resulted in significantly higher productivity as compared to FP. The above shown production data indicates significant differences between the different treatments These differences in production may be attributed to availability of food both natural as well as supplementary feed.

OFT 9

1.	Title of On farm Trial	Impact of SHG on Livelihood Security of its Member.
2.	Problem diagnose	Livelihood vulnerability and less coping capacity of households in vulnerable situation
3.	Details of technologies selected for assessment/refinement	FP: Before formation of SHG TO1: Male SHG TO2: Female SHG
4.	Source of Technology	-
5.	Production system and thematic area	Livelihood Security
6.	Performance of the Technology with performance indicators	Livelihood vulnerability, Coping capacity, Livelihood capital, Livelihood sources
7	Final recommendation	SHG improves livelihood security of its member
8.	Constraints identified and feedback for research	-
9	Process of farmers participation and their reaction	Through structured interview

Thematic area: Livelihood Security

Problem definition: Livelihood vulnerability and less coping capacity of households in vulnerable situation

Technology assessed:
Farmers' practice: Before formation of SHG
TO1: Male SHG
TO 2: Female SHG

Table 9A: Impact of SHG on Livelihood Security

Sr.No	Indicators	Male SHG Members (N=15)			Female SHG Members (N=15)		
		Mean Weighted Score		Percent of change	Mean Weighted Score		Percent of change
		Pre-SHG (FP)	Post-SHG (T1)		Pre-SHG (FP)	Post-SHG (T2)	
A	Livelihood vulnerability						
i	Human health shocks	20.41	15.07	-26.16	25.67	16.72	-34.86
ii	Crop-livestock shocks	27.72	23.50	-15.22	20.02	13.21	-34.02
iii	Economic shocks	35.95	27.89	-22.42	15.73	10.64	-32.36
iv	Market shocks	21.92	18.70	-14.68	9.11	5.48	-39.85
B	Coping Capacities						
i	Dietetic strategies	14.04	8.27	-41.09	20.28	11.93	-41.17
ii	Occupational strategies	15.30	10.15	-33.66	6.65	4.93	-25.86
iii	Financial strategies	11.31	7.51	-33.59	17.21	10.26	-40.38
C	Human Capital						
i	Training received	1.84	3.70	101.08	0.95	2.31	143.16
ii	Earner-dependent ratio	1.97	2.47	25.38	1.68	3.35	99.40
D	Financial Capital						
i	Employment gain	2.1465	3.18	48.59	2.15	3.73	73.49
ii	Annual income	4.77	7.42	55.55	3.74	5.80	55.08
iii	Saving	2.932	3.91	33.33	2.93	.3.90	33.10
iv	Credit borrowing	3.53912	4.44	25.67	3.12	3.98	27.56
v	Credit repayment	1.92774	2.88	49.81	1.44	2.38	65.28
vi	Annual expenditure	3.3624	5.28	57.03	2.38	3.38	42.02
E	Social Capital	3.62	4.53	25.14	0.98	2.04	108.16
F	Physical Capital	12.92	20.39	57.81	15.91	18.90	18.79
G	Natural Capital	15.98	15.98	0	10.63	10.63	0
H	Livelihood sources	16.81	30 .43	81.02	13.63	19.01	39.47

The study indicates the impact of SHG on livelihood security of its members. It was found that SHG made positive and significant impact on both male SHG members and female SHG members. The livelihood vulnerability of both types of SHG members decreased due to SHG. There was significant reduction in human health shocks, crop-livestock shocks, economic shocks, market shocks and natural disaster shocks of male and female SHG members. However there was high reduction in vulnerability of women than men SHG members. Similarly coping capacities also decreased for both male and female SHG. Formation of SHG also led to improvement in human capital. Financial capital increased more in female SHG. Livelihood sources also increased due to formation of SHG.

OFT 10:

Title of On farm Trial	Evaluation of locally prepared nutritious weaning food on infant's health status
Problem diagnose	The protein-energy malnutrition (PEM) a syndrome that occours during the crucial transitional phase of child's life from breast milk to other types of foods. Nutritional deficiency during this crucial period of childhood leads to growth retardation which might produce adverse effects in later years. By developing low cost weaning foods based on cereal-pulse-nut and sugar/jaggery combinations will provide good quality protein, adequate calories and other protective nutrients.
Details of technologies selected for assessment/refinement	Farmers' practice: Traditional weaning food (Rice flour khichri, mashed banana etc.) Technology – 1 **:** Weaning food based on Puffed rice & roasted bengal gram dal Technology - 2 **:** Weaning food "Assam Mix"
Source of Technology	Deptt. of Food & Nutrition ,College of Home Science, AAU, Jorhat
Performance of the Technology with performance indicators	It was found that weaning food "Assam Mix "performed better than control and weaning food 1.Those infants who were earlier malnourished had significant weight gain by consuming weaning food 2(Assam Mix) on daily basis upto six months.
Constraints identified and feedback for research	Lack of knowledge on development of low cost nutritious food. Locally available resources are to be explored.
Process of farmers participation and their reaction	Training, demonsatartion, awareness programme. Mothers of children are become motivated for continuation of weaning food.

Thematic area:

Problem definition: Protein Energy Malnutrition leads to growth retardation along with deficiency disorder.

Technology assessed: Development of low cost weaning food

Table:

Table 10A: Observations on Parameter of weight gain

Treatments	**Mean of Weight (in Kgs)**		
	Before treatment	**Intermediate (After 3 months)**	**After treatment (After 6 months)**
Farmers practice: (control)	9.01	9.11	9.14
TO1: Weaning food-1	9.11	9.47	9.97
TO2:Weaning Food 2	8.74	10.34	10.95
CD at 5 % level	Non significant	0.65(significant)	0.67 (significant)

Statistical analysis revealed that the increase in weight gain is significant in both weaning food 1 and weaning food 2 except Farmers practices. Weaning Food 2 performed better than control and Weaning Food 1. Two types of supplementary baby food were used i.e. feed 1 is (puffed rice and roasted Bengal gram dal) and other one was (Assam Mix : Rice : Green gram: Ground nut: Sesame). In each treatment 7 children of age group 6 months to 2 years were taken and provided with supplementary feeds for 6 months. Approximately 75 gm. to 150 gm baby food was given per baby per day. Initially, all types of food were given twice a day and after 15 days, food was given thrice a day.

3.2 Achievements of Frontline Demonstrations

A. Details of FLDs conducted during 2014-15

Sl. No.	Crop	Thematic area	Technology Demonstrated with detailed treatments	Area (ha)		No. of farmers/ demonstration		
				Proposed	Actual	SC/ST	Others	Total
1.	Jute	Improved variety	JRO 204 Local Chk. JRO 524	10	10	17	33	50
2.	Jute	Improved variety	CO 58 Local Chk. JRO 524	--	0.4	0	4	4
3.	Jute	Improved retting		--	8	15	47	62
4.	Paddy	Technology demonstration	Modified SRI (var.MTU 7029)	2	2	4	16	20
5.	Mustard	Nutrient management	Sulfur and boron nutrition	2	2	0	25	25
6.	Lentil	Improved variety	WBL 81 Local Chk. B 256	2	2	4	11	15
7.	Tomato	Improve variety	Abhilash	2	3	4	11	15
8.	Banana	Tissue cultured	Tissue cultured plantlets of variety Grand Naine	1	1	1	6	7
9	Brinjal	Improve variety	Bhangar	-	1	1	4	5
10.	Sorghum*	Improved variety	Jumbo	0.6	0.6	1	4	5
11	Rice bean as fodder	Improved agronomic practices	Improved variety and fertilizer application Var. Bidhan-1	0.2	0.2	-	5	5
12.	Oat as fodder	Improved agronomic practices	Improved variety and method of sowing Var. Kent	0.5	0.5	-	5	5

13	Berseem	Package of demonstration	Improved variety, time of sowing, nutrient management , feeding practice	0.5	0.5	1	4	5
14	Diversified vegetable (cucurbits, brinjal, chilli, tomato, okra, bean and GLV)	Supplementation of diversified vegetables to farm families through kitchen garden	Diversified vegetable (cucurbits, brinjal, chilli, tomato, okra, bean and GLV) + manuring+ Fertilizers	0.4	7	1	6	7

*in collaboration with ERS-NDRI (ICAR), Kalyani

Details of farming situation

Crop	Season	Farming situation (RF/Irrigated)	Soil type	Status of soil (Kg/ha)			Previous crop	Sowing date	Harvest date	Seasonal rainfall (mm)	No. of rainy days
				N	P_2O_5	K_2O					
Jute	Pre kharif	Irrigated	Loamy	220	34	210	Potato	April 10 – 13th, 2014	July 28 – 30, 2014		
Jute	Pre kharif	Irrigated	Loamy	250	45	203	Potato	April 4 , 2014	July 23 – 2014		
Jute	Pre kharif	Irrigated	Loamy	234	38	192	Potato	April 12 – May 10th, 2014	Aug. 5 – Sept. 6, 2014		
Paddy	kharif	Irrigated, medium to up land,	Sandy loam to clay loam	235	31	185	Boro Rice	July 29 – 31, 2013	Oct 12 – 15, 2013		
Mustard	Rabi	Irrigated	Clay loam	212	23	187	Paddy	Nov. 5 – 10, 2014	Feb 10 – 12, 2015		
Lentil	Rabi	Irrigated	Clay loam	198	20	177	Paddy	Nov. 20 – 24, 2014	Feb. 28 –Mar 4 2015		

Tomato	Rabi	Irrigated	Loam	230	52	210	Vegetables	Sept. 1-10, 2014	Dec. 20, 2014 – Feb.21,2015		
Banana	Year round	Irrigated	Loam	210	50	190	Vegetables	June 7-14, 2014	Not yet		
Brinjal	Rabi	Irrigated	Loam	230	50	200	Vegetables	Sept. 5-10, 2014	Dec. 10, 2014 – Feb.15,2015		
Sorghum	kharif 2014	Irrigated	Sandy loam	210	50	190	Potato	1.4.14-3.4.14	May-15-20 , June 15-20 & July- 15-20		
Rice bean as fodder	Kharif 2014	Rain fed	Clay loam	210	50	180	Vegetables /jute	16.8.14-20.8-14	Sep.-28-30, Oct. 28-30		
Oat as fodder	Rabi 2014	Irrigated	Sandy loam to clay loam	210	50	190	Kharif paddy	11.11.14-19.11.2014	1.1.15-10.1.15: 2.2.15, 8.3.15		
Berseem	Rabi, 2014	Irrigated	Sandy loam to clay loam	210	50	180	Kharif paddy	11.11.14-19.11.2014	1.1.15-10.1.15: 2.2.15, 8.3.15		

In both the Tables, information of same crop should be provided. For example, if in Table 3.2A crops are mentioned as a,b,c,d etc., in the table for Details of farming situation, the same crop should be mentioned in the identical sequence.

Performance of FLD

Oilseeds:

Frontline demonstrations on oilseed crops

Crop	Thematic Area	Name of the technology demonstrated	No. of Farmers	Area (ha)	Yield (q/ha)		% Increase	*Economics of demonstration (Rs./ha)				*Economics of check (Rs./ha)			
					Demo	Check		Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
Mustard B-9	Nutrient management	Sulfur and boron nutrition	15	2	10.85	9.96	8.9	22300	37975	15675	1.71	21000	34860	13860	1.66
Total			15	2	10.85	9.96	8.9	22300	37975	15675	1.71	21000	34860	13860	1.66

* Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST

Pulses
Frontline demonstration on pulse crops

Crop	Thematic Area	Name of the technology demonstrated	No. of Farmers	Area (ha)	Yield (q/ha)		% Increase	*Economics of demonstration (Rs./ha)				*Economics of check (Rs./ha)			
					Demo	Check		Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
Lentil	Improved variety	WBL 81	15	2	11.2	9.7	15.4	21900	42560	20660	1.94	21900	36860	14960	1.63
	Total		15	2	11.2	9.7	15.4	21900	42560	20660	1.94	21900	36860	14960	1.63

* Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST

Other crops

Crop	Thematic area	Name of the technology demonstrated	No. of Farmer	Area (ha)	Yield (q/ha)		% change in yield	Other parameters		*Economics of demonstration (Rs./ha)				*Economics of check (Rs./ha)			
					Demonstration	Check		Demo	Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
Jute	Improved variety	JRO 204 Local Chk. JRO 524	50	10	29.6	27.3	8	1. PL. ht. 340 cm 2. BD. 1.44 cm	PL. ht. 322 cm BD. 1.42 cm	42750	59200	29875	1.38	41275	54600	20050	1.32
Jute	Improved variety	CO 58 Local Chk. JRO 524	4	0.4	30.4	27.5	11	1. PL. ht. 360 cm 2. BD. 1.46 cm	PL. ht. 325 cm BD. 1.40 cm	42750	60800	48100	1.42	41275	55000	33450	1.33
Jute	Improved retting	CRIJAF SONA retting consortium	62	8	26.8	26.2	2.3	Grade: 4-5	Grade: -3	42500	56280	13780	1.32	42000	48470	6470	1.15
Paddy	Improved production technology	Modified SRI	20	2	65.2	55.8	16.8	1. EBT 17.4 2. 1000 gr wt 22.2	1. EBT 12.1 2. 1000 gr wt 22.1	42400	81500	39100	1.92	43300	69750	26450	1.61
Tomato	Improved variety (F1)	Abhilash	15	3	330	275	20	-	-	70500	164000	93500	2.32	65500	119000	53500	1.81
Banana	Tissue cultured plant	Grand Naine	10	1													
Brinjal	Improve variety	Bhangar	5	1	250	215	16.3	-	-	75000	178000	10300	2.37	75000	152000	77000	2.02
Sorghum	Improved variety	Jumbo	5	0.6	894	795	12.4	Pl. ht-213 cm , DM-20 %	Pl. ht-205 cm , DM-19.5 %	10250	26820	16570	2.62	10500	23850	13350	2.27

Rice bean as fodder	Improved agronomic practices	Improved variety and fertilizer application Var. Bidhan-2	5	0.2	281	204	37.74	Dry matter 18.25 %	Dry matter 18.10 %	8100	19670	11570	2.43	7870	14280	6410	1.81
Oat as fodder	Improved agronomic practices	Improved variety and method of sowing Var. Kent	10	0.5	456	396	15.3	Dry matter 14.79 %	Dry matter 14.47 %	11720	22830	11110	1.95	12190	19800	7610	1.62
Berseem	Package of demonstration	Improved var. (Wardan), proper seed rate (25 kg/a), time of sowing, FYM fertilizer	5	0.5	708	630	12.38	DM-12.3 %	DM-12.1 %	16050	42480	26430	2.65	17800	37800	20000	2.12
	Total		111	17.7													

Livestock

Category	Thematic area	Name of the technology	No. of Farmer	No. of units	Major parameters		% change in major parameter	Other parameter		*Economics of demonstration (Rs.)				*Economics of check (Rs.)			
					Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
Dairy cow (Crossbred)	Nutrition management	Area specific mineral mixture supplementation	20	20	Milk yield-1045kg/ lactation /cow	750kg/ lactation /cow	39.36	LP-204 day	LP-197 day	12977	28233	15256	2.17	12175	20258	8083	1.66
Poultry (RIR)	Breed evaluation	Rural poultry breed adoption	10	10	Egg-99/5 month/bird	Egg-50/5 month/bird	96.1	Wt of egg- 48 g	Wt of egg-40 g	323	695	372	2.15	283	401	118	1.41
Piggery	Breed evaluation	Rearing of prolific breed in low input system	6	6	Body wt at selling (6 month)-48.4 kg	Body wt at selling (6 month)-38.5 kg	25.71	Litter size-11 nos.	Litter size-7 nos.	3465	7260	3795	2.09	3180	5775	2595	1.81
Total			36	36													

LP= lactation period,

* Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.

** BCR= GROSS RETURN/GROSS COST

Fisheries

Category	Thematic area	Name of the technology demonstrated	No. of Farmer	No.of units	Major parameters		% change in major parameter	Other parameter		*Economics of demonstration (Rs.)				*Economics of check (Rs.)			
					Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
Common carps	New species introduction	Monosex culture of tilapia	10	10	4.17 t/ha	2 t/ha	41.7	-	-	87209	180512	62791	2.06	67567	100000	32433	1.48
Catfish	New species introduction	Bhetki fish	10	10	5 t/ha	2 t/ha	50	-	-	102453	207647	105194	2.02	87587	151247	63600	1.72

Ornamental fishes																	
Others (pl.specify)	Package practice	Pangus	10	10	15 q/ha	10 q/ha	50	-	-	65248	102297	37049	1.56	49268	66484	17216	1.35
		Total	30	30													

* Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST

Other enterprises

Category	Name of the technology demonstrated	No. of Farmer	No.of units	Major parameters		% change in major parameter	Other parameter		*Economics of demonstration (Rs.) or Rs./unit				*Economics of check (Rs.) or Rs./unit			
				Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
Oyster mushroom	Enterprise development															
Button mushroom																
Vermicompost																
Sericulture																
Apiculture																
Others (pl.specify)																
	Total															

* Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST

Women empowerment

Category	**Name of technology**	**No. of demonstrations**	Observations							
Farm Women	Diversified vegetables(cucurbits, brinjal, chilli, tomato, okra, bean and GLV (palak, jute etc) with FYM	7	Avg. Cumulative productivity (q/ha)		Gross Return (Rs./ha)		Gross Cost (Rs./ha)		B:C Ratio	
			Demonstration	**Check**	**Demonstration**	**Check**	**Demonstration**	**Check**	**Demonstration**	**Check**
			116.7	96.7	184800	109200	66000	52000	2.8	2.1

Farm implements and machinery

Name of the implement	Crop	Name of the technology demonstrated	No. of Farmer	Area (ha)	Filed observation (output/man hour)		% change in major parameter	Labor reduction (man days)				Cost reduction (Rs./ha or Rs./Unit)			
					Demonstration	Check									

*** Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.**
**** BCR= GROSS RETURN/GROSS COST**

Demonstration details on crop hybrids

Crop	Name of the Hybrid	No. of farmers	Area (ha)	Yield (kg/ha) / major parameter			Economics (Rs./ha)			
Cereals				Demo	Local check	% change	Gross Cost	Gross Return	Net Return	BCR
Bajra										

Maize										
Paddy										
Sorghum										
Wheat										
Others (pl.specify)										
Total										
Oilseeds										
Castor										
Mustard										
Safflower										
Sesame										
Sunflower										
Groundnut										
Soybean										
Others (pl. specify)										
Total										
Pulses										
Greengram										
Blackgram										
Bengalgram										
Redgram										
Others (pl. specify)										
Total										
Vegetable crops										
Bottle gourd										
Capsicum										
Cucumber										
Tomato	Abhilash	15	3	33000	275	20	70500	164000	93500	2.32
Brinjal										
Okra										
Onion										
Potato										

Field bean										
Others (pl.specify)										
Total										
Commercial crops										
Cotton										
Coconut										
Others (pl.specify)										
Total										
Fodder crops										
Napier (Fodder)										
Maize (Fodder)										
Sorghum (Fodder)										
Others (pl.specify)										
Total										

Technical Feedback on the demonstrated technologies

S. No	Crop/Enterprise	Feed Back
	Jute (improved variety)	Seed of improved varieties like JRO 204, CO-58 to made available in local market
	Jute (retting)	CRIJAF SONA should be made available in commercial basis
	Mustard	Sulfur and boron containing fertilizer should be readily available in market
	Paddy	Modified SRI is very much accepted by the ADO, farmers
	Lentil	Improved cultivar of lentil (WBL81) should be available in local market
	Tomato	Improved cultivar of tomato (Abhilash) should be available in local market
	Banana	It showed better growth in comparison to local one
	Brinjal	Improved cultivar of Brinjal (Bhangar) should be available in local market for cultivation in rabi season
	Sorghum*	Hybrid variety of sorghum- sudan (var. JUMBO) is very much accepted by the farmers
	Rice bean as fodder	Bidhan-1 variety is very much suitable for this region
	Oat as fodder	Successfully introduced in between kharif paddy and boro paddy.
	Berseem	Quality seed of Berseem increased yield upto 15.6%
	Dairy cow (Crossbred)	Area specific mineral supplementation improved production as well as reduce calving interval
	Poultry (RIR)	RIR is suitable a suitable breed in rural poultry production
	Piggery	Prolific breed of ghunroo is suitable for rearing in tribal rear with low input system
	Common carps	Proper management practice improved production
	Catfish	Bhetki cultivation is very much profitable but fingerling should available in locally
	Women empowerment	It is very much suitable for house hold nutrition supplementation

Extension and Training activities under FLD

SL. No.	Activity	Date	No. of activities organized	Number of participants	Remarks
1.	Field days				
a	Pig Production	02/04/2014	1	10	
b	Fodder production and its impact in animal nutrition	19/05/2014	1	40	
c	Improved Jute cultivation	27/05/2014, 30/07/2014, 07/08/2014	3	141	
d	Paddy cultivation through modified SRI	02/08/2014	1	14	
e	Maize Sheller	12/08/2014	1	20	
f	Tissue Cultured Banana	13/08/2014	1	25	
g	Mineral supplementation of	28/11/2014	1	31	

	cow				
h	Kitchen garden	12/12/2014	1	30	
i	Brinjal cultivation	06/12/2014	1	25	
2.	Farmers Training	02/04/2014, 19/05/2014, 27/05/2014, 30/07/2014, 07/08/2014, 02/08/2014, 12/08/2014. 13/08/2014, 28/11/2014, 06/12/2014, 12/12/2014	10	336	
3.	Media coverage	30/07/2014, 07/08/2014, 25.01.15	3		
4.	Training for extension functionaries				

3.3 Achievements on Training (Including the sponsored and FLD training programmes):

Farmers and farm women (on campus)

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
I. Crop Production													
Weed Management													
Resource Conservation Technologies													
Cropping Systems													
Crop Diversification													
Integrated Farming													
Water management													
Seed production													
Nursery management													
Integrated Crop Management													
Fodder production													
Production of organic inputs													
Others, (cultivation of crops)	1	12	0	12	7	0	7	1	0	1	20	0	20
II. Horticulture													
a) Vegetable Crops													
Integrated nutrient management													
Water management													
Enterprise development													
Skill development													
Yield increment													
Production of low volume and high value crops													
Off-season vegetables													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Nursery raising													
Export potential vegetables													
Grading and standardization													
Protective cultivation (Green Houses, Shade Net etc.)													
Others, if any (Cultivation of Vegetable)													
Training and Pruning													
b) Fruits													
Layout and Management of Orchards	2	40	1	41	7	0	7	1	0	1	48	1	49
Cultivation of Fruit													
Management of young plants/orchards													
Rejuvenation of old orchards													
Export potential fruits													
Micro irrigation systems of orchards													
Plant propagation techniques	3	31	6	37	23	0	23	0	0	0	54	6	60
Others, if any(INM)													
c) Ornamental Plants													
Nursery Management													
Management of potted plants													
Export potential of ornamental plants													
Propagation techniques of Ornamental Plants													
Others, if any													
d) Plantation crops													
Production and Management technology													
Processing and value addition													
Others, if any													
e) Tuber crops													
Production and Management technology	2	40	1	41	0	0	0	0	0	0	40	1	41
Processing and value addition													
Others, if any													
f) Spices													
Production and Management technology													
Processing and value addition													
Others, if any													
g) Medicinal and Aromatic Plants													
Nursery management													
Production and management technology													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Post harvest technology and value addition													
Others, if any													
III. Soil Health and Fertility Management													
Soil fertility management													
Soil and Water Conservation													
Integrated Nutrient Management													
Production and use of organic inputs													
Management of Problematic soils													
Micro nutrient deficiency in crops													
Nutrient Use Efficiency													
Soil and Water Testing	2	54	0	54	6	0	6	0	0	0	60	0	60
Others, if any													
IV. Livestock Production and Management													
Dairy Management													
Poultry Management													
Piggery Management													
Rabbit Management													
Disease Management													
Feed management													
Production of quality animal products													
Others, if any Goat farming													
V. Home Science/Women empowerment													
Household food security by kitchen gardening and nutrition gardening													
Design and development of low/minimum cost diet	2	0	19	19	0	21	21	0	0	0	0	40	40
Designing and development for high nutrient efficiency diet													
Minimization of nutrient loss in processing	1	0	30	30	0	0	0	0	0	0	0	30	30
Gender mainstreaming through SHGs													
Storage loss minimization techniques													
Enterprise development													
Value addition													
Income generation activities for empowerment of rural Women													
Location specific drudgery reduction technologies													
Rural Crafts													
Capacity building													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Women and child care													
Others, if any													
VI. Agril. Engineering													
Installation and maintenance of micro irrigation systems													
Use of Plastics in farming practices													
Production of small tools and implements													
Repair and maintenance of farm machinery and implements													
Small scale processing and value addition													
Post Harvest Technology													
Others, if any													
VII. Plant Protection													
Integrated Pest Management													
Integrated Disease Management													
Bio-control of pests and diseases													
Production of bio control agents and bio pesticides													
Others, if any													
VIII. Fisheries													
Integrated fish farming													
Carp breeding and hatchery management	3	50	1	51	6	0	6	0	0	0	56	1	57
Carp fry and fingerling rearing	1	17		17	12	0	12	1	0	1	30	0	30
Composite fish culture & fish disease													
Fish feed preparation & its application to fish pond, like nursery, rearing & stocking pond													
Hatchery management and culture of freshwater prawn	1	27	3	30	0	0	0	0	0	0	27	3	30
Breeding and culture of ornamental fishes													
Portable plastic carp hatchery													
Pen culture of fish and prawn													
Shrimp farming													
Edible oyster farming													
Pearl culture													
Fish processing and value addition													
Others, if any													
IX. Production of Inputs at site													
Seed Production													
Planting material production													
Bio-agents production													
Bio-pesticides production													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Bio-fertilizer production													
Vermi-compost production													
Organic manures production													
Production of fry and fingerlings													
Production of Bee-colonies and wax sheets													
Small tools and implements													
Production of livestock feed and fodder													
Production of Fish feed													
Others, if any													
X. Capacity Building and Group Dynamics													
Leadership development													
Group dynamics													
Formation and Management of SHGs													
Mobilization of social capital													
Entrepreneurial development of farmers/youths													
WTO and IPR issues													
Others, if any													
XI Agro-forestry													
Production technologies													
Nursery management													
Integrated Farming Systems													
XII. Others (Pl. Specify)													
TOTAL	**18**	**271**	**61**	**332**	**61**	**21**	**82**	**3**	**0**	**3**	**335**	**82**	**417**

Rural Youth (on campus)

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Mushroom Production													
Bee-keeping													
Integrated farming													
Seed production													
Production of organic inputs													
Integrated Farming													
Planting material production													
Vermi-culture													
Sericulture													
Protected cultivation of vegetable crops													
Commercial fruit production													
Repair and maintenance of farm machinery and implements													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Nursery Management of Horticulture crops													
Training and pruning of orchards													
Value addition													
Production of quality animal products													
Dairying													
Sheep and goat rearing													
Quail farming													
Piggery													
Rabbit farming													
Poultry production	7	113	0	113	0	0	0	7	0	7	120	0	120
Ornamental fisheries													
Enterprise development													
Para vets													
Para extension workers													
Composite fish culture													
Freshwater prawn culture													
Shrimp farming													
Pearl culture													
Cold water fisheries													
Fish harvest and processing technology													
Fry and fingerling rearing													
Small scale processing													
Post Harvest Technology													
Tailoring and Stitching													
Rural Crafts													
TOTAL	**7**	**113**	**0**	**113**	**0**	**0**	**0**	**7**	**0**	**7**	**120**	**0**	**120**

Extension Personnel (on campus)

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Productivity enhancement in field crops													
Value addition													
Integrated Pest Management													
Integrated Nutrient management													
Rejuvenation of old orchards													
Protected cultivation technology	1	15	0	15	3	0	3	2	0	2	20	0	20
Formation and Management of SHGs													
Group Dynamics and farmers organization	1	15	0	15	3	0	3	2	0	2	20	0	20
Information networking among													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
farmers													
Capacity building for ICT application													
Care and maintenance of farm machinery and implements													
WTO and IPR issues													
Management in farm animals	1	15	0	15	3	0	3	2	0	2	20	0	20
Livestock feed and fodder production													
Household food security													
Women and Child care													
Low cost and nutrient efficient diet designing													
Production and use of organic inputs													
Gender mainstreaming through SHGs													
TOTAL	**3**	**45**	**0**	**45**	**9**	**0**	**9**	**6**	**0**	**6**	**60**	**0**	**60**

Farmers and farm women (off campus)

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
I. Crop Production													
Weed Management													
Resource Conservation Technologies	1	39	0	39	0	2	2	0	2	2	39	4	43
Cropping Systems													
Crop Diversification													
Integrated Farming													
Water management													
Seed production	5	94	0	94	35	0	35	4	0	4	133	0	133
Nursery management													
Integrated Crop Management													
Fodder production													
Production of organic inputs													
Others, (cultivation of crops)	3	50	0	50	36	1	37	1	2	3	87	3	90
II. Horticulture													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
a) Vegetable Crops													
Integrated nutrient management													
Water management													
Enterprise development													
Skill development													
Yield increment													
Production of low volume and high value crops													
Off-season vegetables													
Nursery raising													
Export potential vegetables													
Grading and standardization													
Protective cultivation (Green Houses, Shade Net etc.)	2	0	0	0	0	0	0	60	0	60	60	0	60
Others, if any (Cultivation of Vegetable)	1	5	1	6	7	7	14	0	0	0	12	8	20
Training and Pruning													
b) Fruits													
Layout and Management of Orchards	1	19	0	19	3	0	3	0	0	0	22	0	22
Cultivation of Fruit	3	66	5	71	4	0	4	0	0	0	70	5	75
Management of young plants/orchards	1	1	0	1	19	0	19	0	0	0	20	0	20
Rejuvenation of old orchards													
Export potential fruits													
Micro irrigation systems of orchards													
Plant propagation techniques													
Others, if any(INM)													
c) Ornamental Plants													
Nursery Management													
Management of potted plants													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Export potential of ornamental plants													
Propagation techniques of Ornamental Plants													
Others, if any													
d) Plantation crops													
Production and Management technology													
Processing and value addition													
Others, if any													
e) Tuber crops													
Production and Management technology													
Processing and value addition													
Others, if any													
f) Spices													
Production and Management technology													
Processing and value addition													
Others, if any													
g) Medicinal and Aromatic Plants													
Nursery management													
Production and management technology													
Post harvest technology and value addition													
Others, if any													
III. Soil Health and Fertility Management													
Soil fertility management													
Soil and Water Conservation													
Integrated Nutrient Management													
Production and use													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
of organic inputs													
Management of Problematic soils													
Micro nutrient deficiency in crops													
Nutrient Use Efficiency													
Soil and Water Testing	2	0	0	0	0	0	0	80	0	80	80	0	80
Others, if any													
IV. Livestock Production and Management													
Dairy Management	3	86	0	86	3	0	3	0	1	1	89	1	90
Poultry Management	3	28	3	31	2	25	27	0	19	19	30	47	77
Piggery Management													
Rabbit Management													
Disease Management	3	67	4	71	14	3	17	1	6	7	82	13	95
Feed management	2	0	0	0	0	0	0	47	13	60	47	13	60
Production of quality animal products	2	0	0	0	0	0	0	40	0	40	40	0	40
Others, if any Goat farming													
V. Home Science/Women empowerment													
Household food security by kitchen gardening and nutrition gardening													
Design and development of low/minimum cost diet	2	0	12	12	0	27	27	0	2	2	0	41	41
Designing and development for high nutrient efficiency diet	2	0	0	0	0	60	60	0	0	0	0	60	60
Minimization of nutrient loss in processing													
Gender mainstreaming through SHGs													
Storage loss minimization techniques													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Enterprise development													
Value addition	1	0	30	30	0	0	0	0	0	0	0	30	30
Income generation activities for empowerment of rural Women													
Location specific drudgery reduction technologies	2	0	23	23	0	18	18	0	0	0	0	41	41
Rural Crafts													
Capacity building													
Women and child care													
Others, if any													
VI. Agril. Engineering													
Installation and maintenance of micro irrigation systems													
Use of Plastics in farming practices													
Production of small tools and implements													
Repair and maintenance of farm machinery and implements													
Small scale processing and value addition													
Post Harvest Technology													
Others, if any													
VII. Plant Protection													
Integrated Pest Management													
Integrated Disease Management													
Bio-control of pests and diseases													
Production of bio control agents and bio pesticides													
Others, if any													
VIII. Fisheries													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Integrated fish farming													
Carp breeding and hatchery management	1	28	0	28	2	0	2	0	0	0	30	0	30
Carp fry and fingerling rearing	1	30	0	30	0		0			0	30	0	30
Composite fish culture & fish disease	4	118	0	118	2	0	2	0	0	0	120	0	120
Fish feed preparation & its application to fish pond, like nursery, rearing & stocking pond													
Hatchery management and culture of freshwater prawn	1	11	0	11	11	0	11	0	0	0	22	0	22
Breeding and culture of ornamental fishes													
Portable plastic carp hatchery													
Pen culture of fish and prawn													
Shrimp farming													
Edible oyster farming													
Pearl culture													
Fish processing and value addition													
Others, if any													
IX. Production of Inputs at site													
Seed Production	5	98	0	98	14	0	14	7	0	7	119	0	119
Planting material production													
Bio-agents production													
Bio-pesticides production													
Bio-fertilizer production													
Vermi-compost production													
Organic manures production													
Production of fry													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
and fingerlings													
Production of Bee-colonies and wax sheets													
Small tools and implements													
Production of livestock feed and fodder													
Production of Fish feed													
Others, if any													
X. Capacity Building and Group Dynamics													
Leadership development													
Group dynamics													
Formation and Management of SHGs	3	40	41	81	5	0	5	0	0	0	45	41	86
Mobilization of social capital	1	2	1	3	12	5	17	0	0	0	14	6	20
Entrepreneurial development of farmers/youths	2	0	0	0	0	0	0	0	60	60	0	60	60
WTO and IPR issues	2	10	7	17	7	13	20	3	0	3	20	20	40
Others, if any	2	0	40	40	0	14	14	0	0	0	0	54	54
XI Agro-forestry													
Production technologies													
Nursery management													
Integrated Farming Systems													
XII. Others (Pl. Specify)													
TOTAL	**61**	**792**	**167**	**959**	**176**	**175**	**351**	**243**	**105**	**348**	**1211**	**447**	**1658**

RURAL YOUTH (Off Campus)

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Mushroom Production													
Bee-keeping													
Integrated farming													
Seed production													
Production of organic inputs	4	0	0	0	0	0	0	100	0	10	10	0	100

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
										0	0		
Integrated Farming													
Planting material production													
Vermi-culture													
Sericulture													
Protected cultivation of vegetable crops													
Commercial fruit production													
Repair and maintenance of farm machinery and implements													
Nursery Management of Horticulture crops													
Training and pruning of orchards													
Value addition													
Production of quality animal products													
Dairying													
Sheep and goat rearing	20	87	0	87	120	0	120	49	244	293	256	244	500
Quail farming													
Piggery													
Rabbit farming													
Poultry production													
Ornamental fisheries													
Para vets													
Para extension workers													
Composite fish culture	4	0	0	0	0	0	0	80	0	80	80	0	80
Freshwater prawn culture													
Shrimp farming													
Pearl culture													
Cold water fisheries													
Fish harvest and processing technology													
Fry and fingerling rearing													
Small scale processing													
Post Harvest Technology													
Tailoring and Stitching													
Rural Crafts													
Others, if any													
TOTAL	28	87	0	87	120	0	120	229	244	473	436	244	**680**

Extension Personnel (Off Campus)

Thematic Area	No. of Cours	No. of Participants			Grand Total
		Other	SC	ST	

	es	M	F	T	M	F	T	M	F	T	M	F	T
Productivity enhancement in field crops													
Integrated Pest Management													
Integrated Nutrient management													
Rejuvenation of old orchards													
Protected cultivation technology													
Formation and Management of SHGs													
Group Dynamics and farmers organization													
Information networking among farmers													
Capacity building for ICT application													
Care and maintenance of farm machinery and implements													
WTO and IPR issues													
Management in farm animals													
Livestock feed and fodder production													
Household food security													
Women and Child care													
Low cost and nutrient efficient diet designing													
Production and use of organic inputs													
Gender mainstreaming through SHGs													
Crop intensification													
TOTAL													

Consolidated table (ON and OFF Campus)

Farmers & Farm Women

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
I. Crop Production													
Weed Management													
Resource Conservation Technologies	1	39	0	39	0	2	2	0	2	2	39	4	43
Cropping Systems													
Crop Diversification													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Integrated Farming													
Water management													
Seed production	5	94	0	94	35	0	35	4	0	4	133	0	133
Nursery management													
Integrated Crop Management													
Fodder production													
Production of organic inputs													
Others, (cultivation of crops)	4	62	0	62	43	1	44	2	2	4	107	3	110
II. Horticulture													
a) Vegetable Crops													
Integrated nutrient management													
Water management													
Enterprise development													
Skill development													
Yield increment													
Production of low volume and high value crops													
Off-season vegetables													
Nursery raising													
Export potential vegetables													
Grading and standardization													
Protective cultivation (Green Houses, Shade Net etc.)	2	0	0	0	0	0	0	60	0	60	60	0	60
Others, if any (Cultivation of Vegetable)	1	5	1	6	7	7	14	0	0	0	12	8	20
Training and Pruning													
b) Fruits													
Layout and Management of	3	59	1	60	10	0	10	1	0	1	70	1	71

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Orchards													
Cultivation of Fruit	3	66	5	71	4	0	4	0	0	0	70	5	75
Management of young plants/orchards	1	1	0	1	19	0	19	0	0	0	20	0	20
Rejuvenation of old orchards													
Export potential fruits													
Micro irrigation systems of orchards													
Plant propagation techniques	3	31	6	37	23	0	23	0	0	0	54	6	60
Others, if any(INM)													
c) Ornamental Plants													
Nursery Management													
Management of potted plants													
Export potential of ornamental plants													
Propagation techniques of Ornamental Plants													
Others, if any													
d) Plantation crops													
Production and Management technology													
Processing and value addition													
Others, if any													
e) Tuber crops													
Production and Management technology	2	40	1	41	0	0	0	0	0	0	40	1	41
Processing and value addition													
Others, if any													
f) Spices													
Production and Management technology													
Processing and value addition													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Others, if any													
g) Medicinal and Aromatic Plants													
Nursery management													
Production and management technology													
Post harvest technology and value addition													
Others, if any													
III. Soil Health and Fertility Management													
Soil fertility management													
Soil and Water Conservation													
Integrated Nutrient Management													
Production and use of organic inputs													
Management of Problematic soils													
Micro nutrient deficiency in crops													
Nutrient Use Efficiency													
Soil and Water Testing	4	54	0	54	6	0	6	80	0	80	140	0	140
Others, if any													
IV. Livestock Production and Management													
Dairy Management	3	86	0	86	3	0	3	0	1	1	89	1	90
Poultry Management	3	28	3	31	2	25	27	0	19	19	30	47	77
Piggery Management													
Rabbit Management													
Disease Management	3	67	4	71	14	3	17	1	6	7	82	13	95
Feed management	2	0	0	0	0	0	0	47	13	60	47	13	60

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Production of quality animal products	2	0	0	0	0	0	0	40	0	40	40	0	40
Others, if any Goat farming													
V. Home Science/Women empowerment													
Household food security by kitchen gardening and nutrition gardening													
Design and development of low/minimum cost diet	4	0	31	31	0	48	48	0	2	2	0	81	81
Designing and development for high nutrient efficiency diet	2	0	0	0	0	60	60	0	0	0	0	60	60
Minimization of nutrient loss in processing	1	0	30	30	0	0	0	0	0	0	0	30	30
Gender mainstreaming through SHGs													
Storage loss minimization techniques													
Enterprise development	1	0	30	30	0	0	0	0	0	0	0	30	30
Value addition													
Income generation activities for empowerment of rural Women													
Location specific drudgery reduction technologies	2	0	23	23	0	18	18	0	0	0	0	41	41
Rural Crafts													
Capacity building													
Women and child care													
Others, if any													
VI. Agril. Engineering													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Installation and maintenance of micro irrigation systems													
Use of Plastics in farming practices													
Production of small tools and implements													
Repair and maintenance of farm machinery and implements													
Small scale processing and value addition													
Post Harvest Technology													
Others, if any													
VII. Plant Protection													
Integrated Pest Management													
Integrated Disease Management													
Bio-control of pests and diseases													
Production of bio control agents and bio pesticides													
Others, if any													
VIII. Fisheries													
Integrated fish farming													
Carp breeding and hatchery management	4	78	1	79	8	0	8	0	0	0	86	1	87
Carp fry and fingerling rearing	2	47	0	47	12	0	12	1	0	1	60	0	60
Composite fish culture & fish disease	4	118	0	118	2	0	2	0	0	0	120	0	120
Fish feed preparation & its application to fish pond, like nursery, rearing & stocking													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
pond													
Hatchery management and culture of freshwater prawn	2	38	3	41	11	0	11	0	0	0	49	3	52
Breeding and culture of ornamental fishes													
Portable plastic carp hatchery													
Pen culture of fish and prawn													
Shrimp farming													
Edible oyster farming													
Pearl culture													
Fish processing and value addition													
Others, if any													
IX. Production of Inputs at site													
Seed Production	5	98	0	98	14	0	14	7	0	7	119	0	119
Planting material production													
Bio-agents production													
Bio-pesticides production													
Bio-fertilizer production													
Vermi-compost production													
Organic manures production													
Production of fry and fingerlings													
Production of Bee-colonies and wax sheets													
Small tools and implements													
Production of livestock feed and fodder													
Production of Fish feed													
Others, if any													
X. Capacity Building and													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Group Dynamics													
Leadership development													
Group dynamics													
Formation and Management of SHGs	3	40	41	81	5	0	5	0	0	0	45	41	86
Mobilization of social capital	1	2	1	3	12	5	17	0	0	0	14	6	20
Entrepreneurial development of farmers/youths	2	0	0	0	0	0	0	0	60	60	0	60	60
WTO and IPR issues	2	10	7	17	7	13	20	3	0	3	20	20	40
Others, if any	2	0	40	40	0	14	14	0	0	0	0	54	54
XI Agro-forestry													
Production technologies													
Nursery management													
Integrated Farming Systems													
XII. Others (Pl. Specify)													
TOTAL	**79**	**1063**	**228**	**1291**	**237**	**196**	**433**	**246**	**105**	**351**	**1546**	**529**	**2075**

RURAL YOUTH (On and Off Campus)

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Mushroom Production													
Bee-keeping													
Integrated farming													
Seed production													
Production of organic inputs	4	0	0	0	0	0	0	100	0	100	100	0	100
Integrated Farming													
Planting material production													
Vermi-culture													
Sericulture													
Protected cultivation of vegetable crops													
Commercial fruit production													
Repair and													

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
maintenance of farm machinery and implements													
Nursery Management of Horticulture crops													
Training and pruning of orchards													
Value addition													
Production of quality animal products													
Dairying													
Sheep and goat rearing	20	87	0	87	120	0	120	49	244	293	256	244	500
Quail farming													
Piggery													
Rabbit farming													
Poultry production	7	113	0	113	0	0	0	7	0	7	120	0	120
Ornamental fisheries													
Para vets													
Para extension workers													
Composite fish culture	4	0	0	0	0	0	0	80	0	80	80	0	80
Freshwater prawn culture													
Shrimp farming													
Pearl culture													
Cold water fisheries													
Fish harvest and processing technology													
Fry and fingerling rearing													
Small scale processing													
Post Harvest Technology													
Tailoring and Stitching													
Rural Crafts													
Enterprise development													
TOTAL	**35**	**200**	**0**	**200**	**120**	**0**	**120**	**236**	**244**	**480**	**556**	**244**	**800**

Extension Personnel (On and Off Campus)

Thematic Area	No. of Courses	No. of Participants									Grand Total		
		Other			SC			ST					
		M	F	T	M	F	T	M	F	T	M	F	T
Productivity enhancement in field crops													
Value addition													
Integrated Pest Management													
Integrated Nutrient management													
Rejuvenation of old orchards													
Protected cultivation technology	1	15	0	15	3	0	3	2	0	2	20	0	20
Formation and Management of SHGs													
Group Dynamics and farmers organization	1	15	0	15	3	0	3	2	0	2	20	0	20
Information networking among farmers													
Capacity building for ICT application													
Care and maintenance of farm machinery and implements													
WTO and IPR issues													
Management in farm animals	1	15	0	15	3	0	3	2	0	2	20	0	20
Livestock feed and fodder production													
Household food security													
Women and Child care													
Low cost and nutrient efficient diet designing													
Production and use of organic inputs													
Gender mainstreaming through SHGs													
TOTAL	**3**	**45**	**0**	**45**	**9**	**0**	**9**	**6**	**0**	**6**	**60**	**0**	**60**

Please furnish the details of training programmes as Annexure in the proforma given below

Discipline	Clientele	Title of the training programme	Duration in days	Venue (Off / On Campus)	Number of participants			Number of SC/ST		
					Male	Female	Total	Male	Female	Total
Agronomy	PF	Improved production technology of jute	3	Off	87	3	90	37	3	40
	PF	Rice cultivation through SRI	1	Off	39	4	43	0	4	4
	PF	Seed treatment and nursery management of kharif paddy	3	Off	87	0	87	16	0	16
	PF	INM in paddy	1	Off	32	0	32	5	0	5

	PF	Seed treatment and nursery management of boro paddy	5	Off	133	0	133	39	0	39
	PF	Soil health awareness	2	Off	80	0	80	80	0	80
	PF	Improved production technology of jute	1	On	20	0	20	8	0	8
	PF	Need for soil testing and soil test based fertilizer application	2	On	60	0	60	6	0	6
	RY	Production of organic inputs	4	Off	100	0	100	100	0	100
Horticulture	PF	Layout and Management of Orchards	1	Off	22	0	22	3	0	3
	PF	Management of young plants/orchards	1	Off	20	0	20	19	0	19
	PF	Improved cultivation of tissue culture banana	3	Off	70	5	75	4	0	4
	PF	Protective cultivation of vegetables	2	Off	60	0	60	60	0	60
	PF	Improved cultivation of Brinjal	1	Off	12	8	20	7	7	14
	PF	Layout and Management of Orchards	2	On	48	1	49	8	0	8
	PF	Plant propagation techniques of sub-tropical fruit crops	3	On	54	6	60	23	0	23
	PF	Improved production technology of potato	2	On	40	1	41	0	0	0
	EF	Micro irrigation technology in horticulture crops	1	On	20	0	20	5	0	5
Animal Husbandry	PF	Home made cattle feed preparation using local feed resources	3	Off	89	1	90	3	1	4
	PF	Animal shed disinfection	3	Off	82	13	95	15	9	24
	PF	Artificial insemination	2	Off	40	0	40	40	0	40
	PF	Care of chicks and ducklings	3	Off	30	47	77	2	44	46
	PF	Feeding techniques of mineral mixture for dairy cow & goat	2	Off	47	13	60	47	13	60
	RY	Goat Farming: Housing of goat	2	Off	49	21	70	25	20	45
	RY	Management of Goat Farming	3	Off	57	23	80	30	21	51
	RY	Goat Farming: Feed preparation	2	Off	35	22	57	24	26	50
	RY	Goat Farming: Feeding techniques	3	Off	46	25	71	21	24	45

		for goat								
	RY	Goat Farming: Health care	2	Off	31	12	43	31	12	43
	RY	Goat Farming: Shed disinfection	3	Off	38	16	54	38	16	54
	RY	Goat Farming: Meat processing	2	Off	0	50	50	0	50	50
	RY	Goat Farming: Marketing of goat	3	Off	0	75	75	0	75	75
	RY	Broiler farming	7	On	120	0	120	7	0	7
	EF	Artificial insemination	1	On	20	0	20	5	0	5
Fishery	PF	Induced breeding of Indian major carp	1	Off	30	0	30	2	0	2
	PF	Rearing pond preparation and management	1	Off	30	0	30	0	0	0
	PF	Aquatic weeds and algal blooms in fish ponds, their control and utilization	1	Off	30	0	30	1	0	1
	PF	Schedule of fertilization and liming in fish culture ponds.	1	Off	30	0	30	1	0	1
	PF	Disease management & prophylactic measures in composite fish culture pond	1	Off	30	0	30	0	0	0
	PF	Effects of liming in fish ponds	1	Off	30	0	30	0	0	0
	PF	Polyculture of freshwater Prawn with IMC	1	Off	22	0	22	11	0	11
	PF	Preparation and management of nursery pond	1	On	30	0	30	13	0	13
	PF	Induced breeding of Indian major carp	3	On	56	1	57	6	0	6
	PF	Scientific management of IMC Fish Hatchery	1	On	27	3	30	0	0	0
	RY	Composite fish culture	4	Off	80	80	0	80	80	0
Home Science	PF	Women friendly farm tools and equipment for drudgery reduction.	1	Off	0	21	21	0	0	0
	PF	Strategy for reduction of drudgery among farm women	1	Off	0	20	20	0	18	18
	PF	Importance of weaning food.	2	Off	0	60	60	0	60	60

	PF	Nutritive requirement for infants, pregnant and lactating mothers.	2	Off	0	41	41	0	29	29
	PF	Scientific methods of cooking to minimize nutrient loss.	1	On	0	30	30	0	0	0
	PF	Preparation of nutritious diet for vulnerable groups.	2	On	0	40	40	0	21	21
Agril. Extension	PF	Formation and management of self help groups	3	Off	45	41	86	5	0	5
	PF	Entrepreneurial ability and avenues for rural women for women empowerment	2	Off	0	54	54	0	14	14
	PF	Various enterprise choices in agriculture for rural women	2	Off	0	60	60	0	60	60
	PF	Small scale processing and value addition in rice	1	Off	0	30	30	0	0	0
	PF	IPR issues related to Indian agriculture	1	Off	0	20	20	0	13	13
	PF	WTO and GATT – implications for Indian agriculture	1	Off	20	0	20	10	0	10
	PF	Crop insurance and Banking Scheme in Agriculture	1	Off	14	6	20	12	5	17
	EF	Group dynamics in farmers	1	On	20	0	20	5	0	5

(D) Vocational training programmes for Rural Youth

Details of training programmes for Rural Youth

Crop / Enterprise	Identified Thrust Area	Training title *	Duration (days)	No. of Participants			Self employed after training			Number of persons employed else where
				Male	Female	Total	Type of units	Number of units	Number of persons employed	
Broiler	Entrepreneurship development	Broiler farming	7	140	0	140	Individuals			
Goat Farming	Entrepreneurship development	Goat Farming	8	200	0	200	Individuals			
	Entrepreneurship development	Seed Production	5	119	0	119	Individuals			
Goat Farming	Entrepreneurship development	Goat Farming	5	125	0	125	Individuals			

*training title should specify the major technology /skill transferred

(E) Sponsored Training Programmes

Sl. No	Title	Thematic area	Month	Duration (days)	Client	No. of courses	No. of Participants										Sponsoring Agency
							Male			Female			Total				
					PF/RY/EF		Others	SC	ST	Others	SC	ST	Others	SC	ST	Total	
1.	Goat production	Goat rearing	April, 2014	7	RY	7	7		49			119	7	0	168	175	

3.4. A. Extension Activities (including activities of FLD programmes)

Nature of Extension Activity	No. of activities	Farmers			Extension Officials			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Field Day	11	206	90	296	38	2	40	244	92	336
Kisan Mela				0			0	0	0	0
Kisan Ghosthi				0			0	0	0	0
Exhibition	3	3600	800	4400	60	10	70	3660	810	4470
Film Show	25	815	200	1015	30	0	30	845	200	1045
Method Demonstrations	3	79	12	91	7	3	10	86	15	101
Farmers Seminar	6	110	25	135	20	5	25	130	30	160
Workshop				0			0	0	0	0
Group meetings				0			0	0	0	0
Lectures delivered as resource persons	19	675	45	720	0	0	0	675	45	720
Advisory Services	455	587	52	639	0	0	0	587	52	639
Scientific visit to farmers field	152	1045	212	1257	0	0	0	1045	212	1257
Farmers visit to KVK	354	3521	654	4175	0	0	0	3521	654	4175
Diagnostic visits	65	45	20	65	0	0	0	45	20	65
Exposure visits	4	50	10	60	0	0	0	50	10	60
Ex-trainees Sammelan				0			0	0	0	0
Soil health Camp	5	150	0	150	20	0	20	170	0	170
Animal Health Camp	12	575	254	829	0	0	0	575	254	829
Agri mobile clinic	20	600	50	650	0	0	0	600	50	650
Soil test campaigns	4	150	0	150	0	0	0	150	0	150
Farm Science Club Conveners meet	12	125	15	140	15	0	15	140	15	155
Self Help Group Conveners meetings	6	40	110	150	0	0	0	40	110	150
Mahila Mandals Conveners meetings	4	0	45	45	0	0	0	0	45	45
Celebration of important days (Republic Day, Independence Day, World Vet. Day)	5	255	95	350	0	0	0	255	95	350
Any Other (Specify)				0			0	0	0	0
Total	**1165**	**12628**	**2689**	**15317**	**190**	**20**	**210**	**12818**	**2709**	**15527**

B. Other Extension activities

Nature of Extension Activity	No. of activities	Farmers			Extension Officials			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Newspaper coverage	5									
Radio talks	5									
TV talks	4									
Popular articles	1									
Extension Literature	4	400	50	450	00	00	00	400	40	450
	19	400	50	450	00	00	00	400	40	450

3.5 Production and supply of Technological products

Village seed

Crop	Variety	Quantity of seed (q)	Value (Rs)	Provided to number of farmers
Total				

KVK farm

Crop	variety	Quantity of seed (q)	Value (Rs)	Provided to number of farmers
Rice	MTU 7029	220		Not yet sold
Sorghum (as fodder)	MP Chari	0.7	-	Supply for demonstration under NIFTD
Grand Total				

Production of planting materials by the KVKs

Crop	Variety	No. of planting materials	Value (Rs)	Provided to number of farmers
Vegetable seedlings				
Cauliflower	Trisha, Barsati, Dawn 175	10000	-	15
Cabbage				
Tomato	Abhilash	30000	-	30
Brinjal	Bhangar	10000	-	15

Chilli				
Onion				
Others				
Fruits				
Mango				
Guava	Baruipur	44	1100	10
Lime	Kagzi	50	1250	12
Papaya				
Banana				
Others				
Ornamental plants				
Medicinal and Aromatic				
Plantation				
Spices				
Turmeric				
Tuber				
Elephant yams				
Fodder crop saplings				
Forest Species				
Others, pl.specify				
Total				

Production of Bio-Products

Name of product	Quantity	Value (Rs.)	No. of Farmers
	Kg		
Bio Fertilisers			
Bio-pesticide			
Bio-fungicide			
Bio Agents (Vermicompost)	3 tonnes	--	Used in seed production in KVK farm
Others			
Total	3 tonnes		

Production of livestock materials

Particulars of Live stock	Name of the breed	Number	Value (Rs.)	No. of Farmers
Goatery	Black Bengal	4	8920	4
Fisheries	IMC	2000	8000	5
Grand Total			16920	9

3.6. (A) Literature Developed/Published (with full title, author & reference)

Item	Title	Authors name	Number	Circulation
Research paper	Role of Climate Change in Increasing Occurrences Oceanic Hazards as a Potential Threat to Coastal Ecology	Dipankar Ghorai and H. S. Sen	*Natural Hazards* , Vol 73.	
	Validation of ancient liquid organics – *Panchagavya* and *Kunapajala* as plant growth promoters	S. Sarkar, S.S. Kundu and D. Ghorai	Vol. 13 (2), pp. 398-403.	
	Management Practices and perceived constraints in goat rearing in Burdwan District of West Bengal.	**C. Jana**, F.H. Rahman, S. K. Mondal and A.K. Singh	*Indian Res. J. Ext. Edu.***14** (2):107-110	
	Pathological and molecular diagnosis of duck enteritis virus in khaki Campbell ducks in a field outbreak.	**C. Jana,** S. K. Mukhopadhayay, M. K. Bhowmik, P. S. Mondal, S. Biswas and B. Mondal	*Indian J. Vet. Pathol.*, **38**(3):181-185	
Seminar/conference/ symposia papers	Fish seed production in single integrated Two-in-One chamber "Bundh-cum-Hatching Pool of Chandra Hatchery"	Chandra Narayan Bairagya, Golam Ziauddin*, C. K. Jana* and D. Ghorai*	*proceedings of the 102nd Indian Science Congress in part II,* organized by The Indian Science Congress Association at University of Mumbai during 03.01.15 to 07.01.2015. p-92	
	Effects of Bio manipulation with Fishes on Eutrophic Ponds in West Bengal, India	G. Ziauddin, C. Jana, D. Ghorai, and S. Sarkar*	Souvenir and book of abstracts of National conference on Indigenous Innovation and Foreign Technology Transfer in Fertilizer Industry: Needs, Constraints and Desired Simplification, organized by Society for Fertilizer & Environment and Raman Centre for Applied & Interdisciplinary Sciences at ICAR-Central Research Institute for Jute & Allied Fibres, Kolkata on 17.1.2015. p-51-52	
	Field Study on Production of Azolla in different temperature regimes in	C. Jana, D. Ghorai, S. Sarkar, G.	*Souvenir and book of abstracts of National*	

	Burdwan distrct	Ziauddin and Sitangshu Sarkar	*conference on Indigenous Innovation and Foreign Technology Transfer in Fertilizer Industry: Needs, Constraints and Desired Simplification*, organized by Society for Fertilizer & Environment and Raman Centre for Applied & Interdisciplinary Sciences at ICAR-Central Research Institute for Jute & Allied Fibres, Kolkata on 17.1.2015. p-42	
	Constraints perceived by farmers of Burdwan District in adoption of sorghum production as fodder	C. Jana, D. Ghorai, S. Sarkar, M. S. Singh and S. Sarkar (2014)	in *abstracts of National Symposium on Climate Resilient Forage Production and its Utilization*, organized by Range Management Society of India and Bidhan Chandra Krishi Viswavidyalaya at BCKV, Kalyani during 13.11.14 to 14.11.2014. p-74.	
Books	CDAP, Burdwan	Dipankar Ghorai, G. Ziauddin, C. Jana, S. Sarkar, M.S.Singh, P. Saikia, S. Ghatak and J. Chatterjee	2015, pp. 1-231	
	SREP, Burdwan	Dipankar Ghorai, G. Ziauddin, C. Jana, S. Sarkar, A. Ghosh, S. Ghosh, N. Karmakar and J. Chatterjee	2015, pp. 1-300	
Book Chapter				
Bulletins	Improved goat husbandry for tribal community	C. Jana, D. Ghorai & S. Sarkar	(Bulletin no-4/2015), 250 copies	
News letter				
Popular Articles	Cultivation of cowpea as green fodder and its impact in animal Nutrition (in Bengali)	**Jana C**, Kundu S and Sarkar S(2014)	S*arsamachar*, 52(2) p 37-40	
Book Chapter	Ensuring Environmental	H. S. Sen and	2014, pp. 14-19	

	Water Flows in the River Ganga, *Yojana*,	Dipankar Ghorai		
	Significance of Information Communication Technologies (ICTS) in Water Management	B. S. Hansra and Monica Singh	Water Management in Agriculture, Pages 29–36	
Extension Pamphlets/ literature				
Technical reports				
Electronic Publication (CD/DVD etc)		SREP, CDAP		
Genbank publication	Anatid herpesvirus 1 isolate DEV/ Atpara/13 UL31 protein gene	P.S. Mandal,, **C. Jana,** S.K. Mukhopadhayay, S. Pradhan, and Baidya,S. (2014).	Accession no of NCBI: **KJ451497**	
TOTAL				

N.B. Please enclose a copy of each. In case of literature prepared in local language please indicate the title in English

(B) Details of HRD programmes undergone by KVK personnel:

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
1.	Training	Technological advances in production of jute and allied fibre crops	Ms. Poli Saikia, SMS (Home Science)	16.03.15-21.03.15, 6 days	CRIJAF, Barrackpore
2.	Workshop	Workshop on writing success stories	Ms. Poli Saikia, SMS (Home Science)	27.08.14-29.08.14, 3 days	ZPD, Zone-II, KOLKATA
3.	Training	Training on Home Science Knowledge Management	Ms. Poli Saikia, SMS (Home Science)	03.09.14-23.09.14, 21 days	College of Home Science, Prof. Joyshankar Telenga State Agril. University, Hyderabad
4.	Training	Training on commercial farming with integrated approach	Dr. Subrata Sarkar, SMS (Horticulture)	12.03.15-13.03.15, 2 days	Director of Extension, BCKV
5.	Training	Technological advances in production of jute and allied fibre crops	Dr. Subrata Sarkar, SMS (Horticulture)	16.03.15-21.03.15, 6 days	CRIJAF, Barrackpore
6.	Conference	Indian Science Congress, 2015	Dr. Golam Ziauddin, SMS (Fishery Sc.)	03.01.15-07.01.15, 5	Indian Science

				days	Congress Association & Mumbai University
7.	Conference	National Conference on Indigenous Innovation and Foreign Technology Transfer in Fertilizer Industry: Needs, Constraints and Desired Simplification	Dr. Golam Ziauddin, SMS (Fishery Sc.)	17.01.15, 1 day	CRIJAF & Society for Fertilizer and Environment, Kolkata
8	Training	Training at SIPRD, Kalyani on Planning, Implementation, Monitoring and Evaluation of Micro Enterprises	Dr. Monica Suresh Singh, SMS (Agril. Extn.)	21.07.14-25.07.14, 5 days	SIPRD, WEST BENGAL
9	Symposium	International Symposium on Potassium Nutrition and Crop Quality	Dr. Dipankar Ghorai, I/c Programme Coordinator	04.03.14-05.03.14, 2 days	Birsa Agricultural University, Ranchi, Jharkhand, India
10	Symposium	National Symposium on Climate Resilient Forage Production and its utilization	Dr. Chandrakanta Jana, SMS (AH&VS)	13.11.14-14.11.14, 2 days	BCKV , Mohanpur, West Bengal
11	Conference	National Conference on Indigenous Innovation and Foreign Technology Transfer in Fertilizer Industry: Needs, Constraints and Desired Simplification	Dr. Chandrakanta Jana, SMS (AH&VS)	17.01.15, 1 day	CRIJAF & Society for Fertilizer and Environment, Kolkata
12	Training	Training on FMS-MIS	Dr. Dipankar Ghorai, I/c Programme Coordinator	04.07.14-05.08.14, 2 days	CRIJAF, Barrackpore
13	Training	Training on FMS-MIS	Dr. Golam Ziauddin, SMS (Fishery Sc.)	04.07.14-05.08.14, 2 days	CRIJAF, Barrackpore
14	Training	Training on FMS-MIS	Dr. Chandrakanta Jana, SMS (AH&VS)	04.07.14-05.08.14, 2 days	CRIJAF, Barrackpore
15	Training	Training on FMS-MIS	Dr. Subrata Sarkar, SMS (Horticulture)	04.07.14-05.08.14, 2 days	CRIJAF, Barrackpore
16	Training	Training on FMS-MIS	Ms. Poli Saikia, SMS (Home Science)	04.07.14-05.08.14, 2 days	CRIJAF, Barrackpore
17	Training	Training on FMS-MIS	Dr. Monica Suresh Singh, SMS (Agril. Extn.),	04.07.14-05.08.14, 2 days	CRIJAF, Barrackpore
18	Training	Training on FMS-MIS	Sk Golam Rasul, Prog.	04.07.14-	CRIJAF,

			Asstt. (Computer)	05.08.14, 2 days	Barrackpore
19	Training	Training on FMS-MIS	Sandipan Garai, Prog. Asstt.	04.07.14-05.08.14, 2 days	CRIJAF, Barrackpore
20	Training	Training on FMS-MIS	B. N. Mukherjee, Assistant	28.07.14-04.08.14, 6 days	CRIJAF, Barrackpore
21	Training	Training on FMS-MIS	Sushanta Dey, Stenographer Gr-III	28.07.14-04.08.14, 6 days	CRIJAF, Barrackpore

3.7. Success stories/Case studies, if any (two or three pages write-up on each case with suitable action photographs)

Livelihood security of tribal family through broiler and piggery practices

Mr. Debu Hembram 35 yrs old is a farmer-cum-rural youth of Palashboni village of Kanksa block, Burdwan, West Bengal. Initially he started a broiler farm with a rearing capacity of 2000 chicks per batch in the year 2012. By seeing the profitability, along with broiler farming he established a piggery unit using low inputs in the year 2013. Now from both broiler and piggery unit he is earning an amount of Rs, 1,90,000 to 1,95,000 yearly from last 3 years and also a role model for other farmers to adopt this kind of intervention. Mr. Debu Hembram was identified and felicitated by ICAR research complex, eastern regional during their Technology Showcasing programme. Now it is slowly disseminating among the community and his farm was used as model for tribal rural youths for improving livelihood security of their families. It is worth mentioning here that this kind of intervention initiated by KVK, has gained such popularity in the area that neighboring villagers are also being motivated and adopt the technology for their better uplifitment.

Most of the tribal families in this district are resource poor, engaged as agriculture labour on seasonal basis. Using their leisure time, they maintained few livestock and poultry of non descriptive breeds with traditional system of management. Debu Hembram of 35 yrs old belong to tribal family from Palashboni village initially had 2 or 3 local breed of poultry, goat and duck and earned 2000- 3000/-rupees per month which became difficult to run his family. Later he came to KVK Burdwan for technological guidance to establish a broiler farm. After that, he was extensively trained in the area of low cost shed construction, feed management, day to day care and health care as well as selling of produces. He first started a broiler farm with a rearing capacity of 2000 chicks per batch. He followed proper brooding operation, feeding practices, vaccination schedule, shed disinfection and bio security measures. He achieved better growth rate of broiler and reduced mortality rate up to 10% and generate net income of Rs. 72,000/- to Rs.75,000/- per annum.

Realizing the profitability, he diversified his farm activities by establishing a piggery unit using low inputs in the year 2013. After that he was extensively trained by KVK personnel on different aspects of pig

production like low cost shed construction, feeding practices, piglet management, and health care. They made pig shed using bamboo, paddy straw etc. Seven piglets of Ghungroo breed were introduced at the age of 2- 3 month old on August 2013 by the KVK. He also met nutrition demand of the 7 pigs of Ghungroo breed by using locally available cheap feed like hotel waste, hostel refuges, vegetable refuges from *Sabji Mandi* (vegetable market) and mineral mixture. So far, Mr. Hembram received 31 piglets from 3 sows in first furrow in previous month and 2 sows are near to furrow. Adult boars (male pig) are weighing near about 75 kg in 8 month old age. Per year expected income from pig is about Rs.120000.00.With this support; they are able to make expenditure for studying his sister in graduate level and his children in reputed school, apart from maintenance of his family. **(ph: 8348805232).**

Fig.: Diagnostic field visit to pig farm by KVK officials

3.8. Give details of innovative methodology or innovative technology of Transfer of Technology developed and used during the year

3.9 Give details of indigenous technology practiced by the farmers in the KVK operational area which can be considered for technology development (in detail with suitable photographs)

S. No.	Crop / Enterprise	ITK Practiced	Purpose of ITK
1.	Goat	Lanka suti	Diarrhea control

3.10 Indicate the specific training need analysis tools/methodology followed by KVKs

3.11. a. Details of equipment available in Soil and Water Testing Laboratory

Sl. No	Name of the Equipment	Qty.
1.	Flame photometer	One
2.	Spectrophotometer	One
3.	Shaker	One

4.	Hot air oven	One
5.	Hot plate	One
6.	Glass distillation unit	One
7.	Conductivity bridge	One
8.	pH meter	One
9.	Electronic balance	Two
10.	Grinder	One
11.	Kjeldahl N analyser	One
12.	Atomic absorption spectrophotometer	One

3.11.b. Details of samples analyzed so far :

Details	No. of Samples	No. of Farmers	No. of Villages	Amount realized
FLD field samples	76	58	8	--
OFT field samples	28	9	3	
Farmers field samples	480	399	24	
Total	584	466	35	

3.12. Activities of rain water harvesting structure and micro irrigation system

No of training programme	No of demonstrations	No of plant material produced	Visit by the farmers	Visit by the officials
4	3	100	350	7

3.13 Technology week celebration

Type of activities	No. of activities	Number of participants	Related crop/livestock technology
Farmers training	12	450	Different ones
Live demonstration	5	350	Different ones
TV show	1		
Self help group meeting	5	150	
Farmer-Scientist interaction	4	250	

3.14. RAWE programme - is KVK involved?

No of student/ARS trained	No of days stayed
6 nos. of FET trainees	21

3.15. List of VIP visitors (MP/MLA/DM/VC/Zila Sabhadipati/Other Head of Organization/Foreigners)

Date	Name of the person	Purpose of visit
25.04.14	Mr. Partha Mandal, DDM, NABARD, Burdwan	To attend vaccination camp at KVK
26.04.14	Dr. B.C.Das, Pr. Scientist,IVRI, ERS Kolkata	To attend world veterinary day celebration at KVK

03.05.14	Dr. Manas Kumar Bandyopadhay	To attend the valedictory session of a fishery training program me
18.07.14	Dr.U. K. Bandyopadhay	Animal health camp activity
11.11.14	Prof. Purnendu Biswas, Vice Chancellor	To inaugurate kisan mela cum technology demonstration
28.01.15	Mr. Purnendu Bose, Minster In-Charge, Agril., Govt. of West Bengal	To visit KVK stall at Mati Utsab
28.01.15	Mr. Alok Kr. Majhi, Karmadakhya	To visit KVK stall at Mati Utsab
28.01.15	Mr.Subhasish Batabial, Parliamentary Secretary	To visit KVK stall at Mati Utsab
28.01.15	Mr. Becharam Manna, Minister of State, Agriculture, Govt of West Bengal	To visit KVK stall at Mati Utsab
28.01.15	Mr. Mithu Majhi, Karmadakhya	To visit KVK stall at Mati Utsab
09.02.15	Dr. Kevin Gallagher, FAO Representative	To visit KVK stall at Mati Tirtha Krishi Kotha
09.02.15	Mr.Gaur Ch. Mandol, MLA	To visit KVK stall at Mati Tirtha Krishi Kotha

4.0 IMPACT

4.1. Impact of KVK activities (Not to be restricted for reporting period).

KVK took up impact assessment study in two villages where KVK has been working over 5 years, namely Keten in Kanksa block and Jagulipara in Galsi-I block. The detailed study of the two villages are annexed.

4.2 Cases of large scale adoption

(Please furnish detailed information for each case)

Horizontal spread of technologies	
Technology	Horizontal spread
Seed treatment for crops	Farmers in this region were not used to treat seeds of different crops while sowing before KVK intervention. After intervention of KVK, not only the farmers in the adopted village but farmers in the adjoining villages as well are now practicing seed treatment for crops like paddy, jute, pulses, potato etc. The technology has spread to as much as 18 blocks of the district.
Azolla production for livestock feeding and green manuring	i) A low cost azolla production unit was established in KVK farm and maintained (*Azolla microphylla*) throughout the year. ii)A TV programme was conducted which was broadcasted in eTV Annadada programme for several times and after that many officers and progressive farmers made telephonic quarries about the availability of culture. iii)In our adopted villages, 25 production units were set up for multipurpose use specially as livestock and poultry feed. iv)In this year, Block Livestock Development Officer of Galsi-I indented the culture and technical know-how for 50 demonstrations in his block. v) A training programme was conducted on the theme area

	of azolla production and its use as green manure in rice field in collaboration with ICAR-IARI, New Delhi. vi) Recently, Durgapur State Poultry farm, ARD established one large scale production unit with the technical support from our SMS (A.H. & V. S)

4.3 Details of impact analysis of KVK activities carried out during the reporting period

Impacts of the different efforts by the KVK during 2014-15 which are hereunder:

1. Replacement of older varieties of the crops like jute, Mustard etc by Improved varieties of JBO 2003H, JRO 8432, JRO 204 and WBBN1 respectively
2. System of Rice Intensification – better yield, less labour & cost effective - Wide coverage of SRI technology
3. Integrated Farming System – More return from per unit land -Widespread dissemination of Integrated Farming System approach
4. Region specific mineral mixture - Improved milk yield, fat % and reproductive performance and better performance of *Deshi cow* through supplementation of this - Widespread dissemination of this technology
5. Seed replacement rate enhanced and Seed treatment of different crops has been come in practice
6. Use of biofertilizer and biopesticide has been increased
7. Crop diversification i.e. introduction of jute, vegetables in the cropping system
8. Cultivation of off season vegetable – came into practice
9. Soil test based fertilizer application – came into practice
10. Preparation of Jute handicraft – Six of the trainees (Five female and one male) are generating income through handicraft preparation
11. Preparation of Kantha Stitch - Five of the trainees (female) are supplementing family income
12. Vermicompost production – Eight village level production units have been formed
13. Mushroom cultivation – Twenty village level production units have been formed for domestic consumption
14. Self help group – Fifty four (54) SHGs have been formed and actively working in collaboration with KVK and NABARD
15. Seed Village Programme initiated in different blocks of Burdwan which covers around 300 ha area under paddy seed cultivation.

4.4 Details of innovations recorded by the KVK

Thematic area	Hatchery
Name of the Innovation	CHANDRA HATCHERY
Details of Innovator	Chandra Narayan Bairagya Village: Khano Block Memari-I
Back ground of innovation	In view of the enhanced cost of operation and hatchling mortality, the present innovation was made.
Technology details	In stead of two pools as required in the conventional Chinese hatchery, which apart from enhancing cost is a bit difficult to operate, Mr. Bairagya has innovated a one chambered Bundh-cum-Hatching pool with modified water circulatory system.
Practical utility of innovation	The modified hatchery is easy to operate, suitable for small farmers and diminishes hatchling mortality as well.

4.5 Details of entrepreneurship development

Entrepreneurship 1

Entrepreneurship development	
Name of the enterprise	Vermiculture
Name & complete address of the entrepreneur	Chowdhury Amirul Haque, Jagulipara Block: Galsi-I
Intervention of KVK with quantitative data support:	In view of the deteriorating soil quality, application of good quality organic matter is the need of the hour. KVK intervened through hand on training on vermicompost production in the adopted villages. The above mentioned farmer has developed one vermicompost unit in his backyard with a capacity of roundabout 3 tonne. The vermicompost he produces is being used in his farm of about 3 ha. Apart from this he has developed expertise in vermiculture as well. He regularly sell the earthworm to various public ad private bodies, like NABARD; dept. of agriculture, Burdwan; NGOs whereby he earns substantial additional income to run the enterprise profitably.
Time line of the entrepreneurship development	2008: Obtained training from KVK. Got exposure to some profitable vermicompost production agencies. 2009: Constructed one vermicompost unit with subsidized funding from RKVY through KVK. 2012: Apart from regularly using vermicompost produced in his fields, got expertise in vermiculture. 2013: Generates an additional income in the range of 4200 - 8600/month from selling of earthworms. 2014: He is being regularly hired by various private and public bodies as expert in the field. 2015: Apart from regularly using vermicompost produced in his fields, generates an additional income in the range of 5200 - 7600/month from selling of earthworms.
Technical Components of the Enterprise	--
Status of entrepreneur before and after the enterprise	Generates an additional income in the range of 4200 -8600/month from selling of earthworms, apart from the remuneration received as expert to different fora.
Present working condition of enterprise in terms of raw materials availability, labour availability, consumer preference, marketing the product etc. (Economic viability of the enterprise):	The enterprise is extremely viable economically.
Horizontal spread of enterprise	Following his suite, 17 other rural youths in 5 villages under KVK operational area have started vermiculture.

Entrepreneurship 2

Entrepreneurship development	
Name of the enterprise	Kantha stitch
Name & complete address of the entrepreneur	Aminara Bagam Atapara, Galsi – I Burdwan
Intervention of KVK with quantitative data support:	KVK imparted 7 days training on preparing various kantha stitch. Also KVK has tried to explosure various selling channels for marketing her products. KVK also helped her for procuring loan from bank.
Time line of the entrepreneurship development	She got training in September, 2013. After that she motivated 5 more girls to work for her. In December she started to prepare various katha stich products like kurta, saree, purses etc.
Technical Components of the Enterprise	The enterprise is household enterprise where self labour is the critical input.
Status of entrepreneur before and after the enterprise	As the enterprise is in initial stage she gets a net profit of 2-3 thousand rupees every month. Before then her primary source of family income was from farming which her husband it. She herself didn't contribute to family income.
Present working condition of enterprise in terms of raw materials availability, labour availability, consumer preference, marketing the product etc. (Economic viability of the enterprise):	The business is gradually growing. She gets her raw materials from bolpur which is nearby Burdwan and is very famous for Kantha Stitch. She has employed five local girls to work for her. Sanjoy Kantha Stich from Brahamandihi (Bhedia) purchase her finished products. KVK also herped her to sell her product in Mati Utsav-15 and Technology Week-15 by keeping it in KVKs stall
Horizontal spread of enterprise	No horizontal spread till now

4.6 Any other initiative taken by the KVK

MATI Utsav -2015

ICAR-CRIJAF-KVK Burdwan participated in Mati Utsav-2014 which was organized by Govt. of West Bengal at Panagarh from 28th to 3rd January, 2014 with a moto to display agricultural technology and rural handicraft of West Bengal on large scale and for mass awareness of the same. The Utsav was inaugurated by Honarable Chief Minister of West Bengal Smt. Mamata Banerjee. KVK exhibited stall showcasing latest and relevant technologies in agricultural & allied Fields. CRIJAF technologies such as nail weeder, microbial consortium for jute getting etc. were also displayed in the stall which caught the interest of the visitors. The center of attraction for the stall was various crop seed display; outstanding farm produces innovative farm models and jute and katha handicraft display. Various live specimens of plant and animal were also exhibited in the stall. Around 1000 farmers were benefitted from the stall. KVK also distributed many extension literatures to the farmers. Various dignitaries from state government, research institutes and state agricultural university visited the stall and appreciated the efforts of KVK.

Mati Tirtha Krishi Katha-2015

ICAR-CRIJAF-KVK Burdwan participated in Mati Tirtha Krishi Katha-2015 which was organized by Govt. of West Bengal at Burdwan from 9th to 11th February, 2014. The mela was inaugurated by Honarable Chief Minister of West Bengal Smt. Mamata Banerjee. The main objective of the fair was to sensitize farmers regarding the impact of deterioration of soil health and how to restore it as 2015 is declared as International

Year for Soil. KVK exhibited stall showcasing latest and relevant agricultural & allied technologies for the district along with CRIJAF technologies on Jute and Allied Fibres. The stall attracted a large number of crowd. The main attraction of the stall were innovative farm models developed by KVK farmers, seed display of various crops, various pickles prepared by SHG and along with jute and katha handicraft. Various live specimens of plant and animal were also exhibited in the stall. Efforts were made to make farmers aware regarding judicious use of fertilizer, more incorporation of organic fertilizers and use of biopesticide. Also importance of maintaining soil health was emphasized to the visiting farmers.

Awareness camps on contingent planning for deficit rainfall

As per instructions received from ICAR, in view of the deficient rainfall during June –July, 2014, awareness camps were organized in different adopted villages of KVK to make farmers aware of the situation and make contingent plans for cultivation of crops, animal health management and pond management. Total of 6 such awareness camps were conducted in blocks of Galsi-I & II, Purbasthali – I, Memari- I and Ausgram – I.

Awareness camps on 'Clean India Campaign'

As per directives of ICAR, KVKs all over the district have been directed to keep the agricultural environment clean as much as possible. In this direction KVK CRIJAF has conducted series of such awareness camps in adopted villages, apart from keeping office and farm area of the KVK clean, to realize Mahatma Gandhi's dream of a clean India. Farmers were made aware of different activities those can be undertaken, like conversion of agricultural wastes into organic manures, maintaining hygienic cattle and other livestock environment, regular pond management etc.

Workshop on World Food Day 2014

One workshop was conducted on the occasion of World Food Day-2014 by KVK CRIJAF on October 16, 2014 with the theme area of **"Family Farming: Feeding the world, caring for the earth".** The year 2014 was also declared as **International Year of Family Farming** by Food and Agriculture Organization. The pivotal role of family farming in agriculture and how family and small scale farming are inextricably linked with each other to eradicate hunger and preservation of natural resources was emphasized in the programme. Around 50 farmers and farm women from various blocks of the district attended the program. Senior officials from state agriculture department participated in the farmers' scientist interaction organized during the occasion and deliberated on various options of family farming towards this end.

Workshop on World Veterinary Day 2014

World Veterinary Day (WVD), 2014 was observed by KVK CRIJAF on April 26, 2014 sponsored by NABADR. The theme of WVD for this year was "**ANIMAL WELFARE"** to highlight the role of veterinarians in this aspect in line with OIE standards**.** On this occasion, three animal health-cum-awareness camps were organized at Kondaipur, Nurkona and BudBud villages of Galsi-I block. In these camps, 97 ducks, 200 chicks and 200 goats were vaccinated against Duck Plague, *Peste Des Petits Ruminants* (PPR) and Ranikhet disease, respectively on 25.04.14. The camp covered a total of 130 farm families in three villages. In these camps, One workshop was conducted on the theme at KVK as well where Dr. B. C. Das, distinguished scientist from ERS- IVRI, deliberated on global scenario of animal welfare and animal welfare acts of the country.

Workshop on National Nutrition Day 2014

One village level workshop was conducted on the eve of National Nutrition day at Kuricha village of Purbasthali-I block on 30.08.14. This workshop was aimed at addressing the problem of malnutrition or under nutrition among children and farm women of our society as well as to make them aware about the nutritional value of the different pulses, cereals, fruits & vegetables, milk, meat and fish available in the produced locally. The workshop was attended by different Anganwadi centres, Accredited Social Health Activists (ASHA) workers, school children and farm women and farmers from nearby villages. Preparation of a low cost weaning food was demonstrated using locally available food ingredients like wheat, red gram, black gram and leafy vegetables along with Rice based weaning food and other nutritious food using locally available resources.

Technology Week cum District Krishi Mela-2015

ICAR-CRIJAF-KVK Burdwan organized Technology Week cum-District Krishi Mela-2015 from 25th February -1st March, 2015 at KVK campus in collaboration with State Agricultural Department, Burdwan. The technology week was inaugurated by ribbon cutting which was done by Dr. S. Biswas, PS and Incharge CSRSJAF and Mr. Nikhil Karmarkar, ADA (Information) and representative of DDA at 11 am on 25th Feb, 2015. Mr S. Hazra, ADA (Jute), Dr. Debtanu Maiti, ADA Ausgram II, Mr Rajesh Saha, ADA, Galsi I, Mr. Sukanta Mukherji, ADA, Ausgram I were present for the event. The inaguration was followed by lecture on Safe Food Production by Dr. D. Ghorai, Incharge, KVK and farmers scientist interaction on the same. In afternoon one awareness camp on Swine Flu was organized by Dr. C. Jana, SMS (Animal Science) to make everyone aware about preventive and diagnostic measures of swine flu. There were around 20 stalls exhibited by ADA Galsi I, ADA Ausgram I, ADA, Ausgram II, Mahindra Samruddi, Innovative farmers, Farmers club and Female SHG in. Many live demonstrations of System of Rice Intensification (SRI), Vermi compost, Poly house/tunnel, Shade net nursery, Back yard poultry, Duckery, KVKs crop cafeteria, azolla cultivation, integrated farming and goat shed. The main attraction of the technology week was Adarsh Nirmal Gram Model, Tribal village Model, Krishi Bazar Model and Urban cultivation of flowering plants in pipes Model.

On 26th Feb, 2015 two lectures were delivered on Improved Vegetable Cultivation by Dr. S. Sarkar, SMS (Hort) and Mushroom cultivation for tribal security By Dr. S. Biswas, PS and Incharge CSRSJAF. The lectures were followed by farmer's scientist interaction. Two film shows on Khaki Cambell rearing and organic vegetable production was shown to the farmers. On 27th Feb, three lectures on Commercial fish farming by Dr. A. K. Das, PS, CIFRI, Improved fish technology by Dr. G. Ziauddin, SMS (Fishery Science) and Zero tillage by Dr. Debtanu Maiti, ADA, Ausgram II was delivered to farmers. In afternoon all fish farmers had a very interactive session with Dr. A. K. Das and Dr. G. Ziauddin.

On 28th Feb, 2015 Dr. S. Karfa delivered lecture on Integrated farming for profit maximization. After that Prof. G. N. Chattopadhyay, Retired Professor, Viswa Bharati delivered a lecture on Vermicompost and need for organic manure. On 1st March, 2015 Mr. Sandipan Garai, Programme Assistant, KVK delivered a lecture on Integrated Pest management. It was followed by valedictory session and distribution of certificated to all exhibitors of the stall. In all around 1000 farmers were benefitted by the technology week. The event was covered by AIR-Kolkata and regional newspaper.

Kisan mela

One Kisan Mela was organized on 11.11.14 at KVK in joint collaboration of ICAR-CRIJAF, Barrackpore and ICAR-ERS-IVRI, Kolkata to demonstrate various profitable technologies to practicing farmers, farm women and rural youths of the area. Dr. P. Biswas, VC, WBUAFS inaugurated the fair where officials form various ICAR institutes participated. Total of 350 farmers visited different stalls put up in the mela. One orientation programme of school kids was also organized on this occasion participated by nearly 200 school children

Exposure visit

One exposure visit of farmers form Katihar, Bihar was conducted participated by 12 farmers from 20 – 22nd November, 2014. Katihar is known for jute growing in significant area but owing to non-availability of sufficient water for retting and other reasons like steep hike in cost of cultivation, fares in Katihar are moving away from jute. In order to expose them to improved and cost-effective technologies on jute they were taken to CRIJAF on 21.11.14 where they were adequately trained by distinguished scientists of the institute. Theoretical as well as practical classes were arranged at KVK as well to make them abreast with latest developments in agriculture and allied fields.

5.0 LINKAGES

5.1 Functional linkage with different organizations

Sl. No.	Name of organization	Nature of linkage
1.	Deptt. Of Agril., GOWB, Burdwan	CDAP and SREP preparation, Training, RKVY
2.	Deptt. Of Horti., GOWB, Burdwan	RKVY, Training
3.	Deptt. Of A.R.D., GOWB, Burdwan	Training, Vaccination camp, Supply of chicks, ducklings
4.	Deptt. Of Fishery., GOWB, Burdwan	Training
5.	ATMA, Burdwan	SREP preparation, Training, exposure visit
6.	MGNREGS, Burdwan	Convergence programme with KVK, Integrated Farming System (IFS) model
7.	Regional Station for Forage Production & Demonstration, MoAg., GOI, Kalyani	Training.
8.	ICAR-CRRI, Cuttak, Orissa	Exposure visit
9.	BCKV, Mohanpur, Nadia	Technological support, exposure visit & training
10.	ICAR-CIFA, Bhubaneswar, Orissa	Exposure visit
11.	WBUAFS, Kolkata	Training, inputs
12.	Directorate of Research on Women in Agriculture, Odisha	Training
13.	ANGRAU, Hyderabad	Breeder seed collection
14.	CIFE Reg. Centre (ICAR), Saltlake	Training
15.	CIFA Reg. Centre (ICAR), Kalyani	Technology support
16.	OUAT, Bhubaneswar, Orissa	Exposure visit
17.	State Agricultural Management and Extension Training Institute (*SAMETI*), Narendrapur, Kolkata	Training
18.	ERS-IVRI, Kolkata	Training, Animal health camp, Disease reporting, sample diagnosis
19.	ERS NDRI, Kalyani	Exposure visit, Joint FLD, fodder seed collection, infertility camp.
20.	Indian Society of Agribusiness Professionals (ISAP), Asansol	Imparted training, technology support to the society
21.	ATMA, Katihar, Bihar	Exposure visit & Training

22.	Indian Agriculture Research Institute, New Delhi	Collaborative programme on scented rice production, Impact analysis, Institute-post office linkage
23.	ICAR-IGFRI, Jhansi	NIFTD programme, fodder seed collection
24.	ICAR-CIFRI, Barrackpore	Technology support, expert sharing etc.
25.	CIAE, Bhopal	Collection of maize Sheller for FLD on drudgery reduction
26.	ICAR-CARI, Bhubaneswar	Exposure visit, technology sharing
27.	NGOs like Men at Work, Ujjiban, SSSNS, Meghdhoot Welfare Society, Sonar Bangla Farmers' Club, Birbhum Malrampur Krishak Kalyan Sansthan	Training, collaborative programme
28.	NABARD, Burdwan	Sponsored programme

5.2. List special programmes undertaken during 2014-15 by the KVK, which have been financed by ATMA/ Central Govt/ State Govt./NHM/NFDB/Other Agencies **(information of previous years should not be provided)**

a) Programmes for infrastructure development

Name of the programme/scheme	Purpose of programme	Date/ Month of initiation	Funding agency	Amount (Rs.)

(b) Programme for other activities (training, FLD, OFT, Mela, Exhibition etc.)

Name of the programme/scheme	Purpose of programme	Date/ Month of initiation	Funding agency	Amount (Rs.)
Technology week & Krishi Mela	Mass awareness and exposure to technologies in agriculture and allied fields	25th Feb. – 1st March, 2015	DDA, Burdwan	215000.00
CDAP	To prepare Comprehensive District Agricultural Plan for Burdwan district	2014-15	ATMA, Burdwan	100000.00
SREP	To prepare Strategic Research & Extension Plan for Burdwan district	2014-15	ATMA, Burdwan	120000.00
Exposure visit	Farmers awareness of Katihar District on Agriculture & Allied field	Nov. 2014	ATMA, Katihar	40000.00
Innovative programme	To demonstrate new innovation to the farmers	Year round	ATMA, Burdwan	50000.00

6. PERFORMANCE OF INFRASTRUCTURE IN KVK

6.1 Performance of demonstration units (other than instructional farm)

Sl. No.	Name of demo Unit	Year of estt.	Area(Sq.mt)	Details of production			Amount (Rs.)		Remarks
				Variety/breed	Produce	Qty.	Cost of inputs	Gross income	
1.	Greenhouse	2009	1008	Off season Cowpea (var. Kashi Kanchan)	Beans	340kg	2000	6000	
2.	Vermicompost	2011	100	-	compost	20 q	10000	-	Used in KVK farm land for production of seed, seedlings, banana etc.
	Total								

6.2 Performance of instructional farm (Crops)

Name Of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.(q)	Cost of inputs	Gross income	
Paddy	15.07.14	10.11.14	5	MTU7029	Foundation seed	230	4 lakh	7.35 lakhs (expected)	Not yet sold
Fruit	-	-		Baruipur, Kagzi	sapling	100 no.	500	2500	
Vegetables	-	-	0.2	Different	Raw vegetables	21	6000	11000	Different vegetables planted at different times
Banana	25.06.13	10.07.14	0.05	Grand Naine	Fruits	100 bunch	4000	9000	

6.3 Performance of Production Units (bio-agents / bio pesticides/ bio fertilizers etc.,)

Sl. No.	Name of the Product	Qty (Kg)	Amount (Rs.)		Remarks
			Cost of inputs	Gross income	
1.	Vermicompost	3000	6000	--	Used in seed/seedling production programme

6.4 Performance of instructional farm (livestock and fisheries production)

Sl. No	Name of the animal / bird / aquatics	Details of production			Amount (Rs.)		Remarks
		Breed	Type of Produce	Qty.	Cost of inputs	Gross income	
1.	Goat	Black Bengal	Kid	4 Nos.	4000	8920.00	
2.	Fish	Rahu , Katla, Mrigel	fingerling	2000 Nos.	4000	8000.00	

6.5 Utilization of hostel facilities

Accommodation available (No. of beds): 20

Months	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
November, 14	11	33	
Total :	11	33	

(For whole of the year)

6.5 Utilization of staff quarters

Whether staff quarters has been completed: Completed

No. of staff quarters: 06 nos.

Handover of quarter on 31.01.2013 and completion of road and electrical work on 31.03.13

Occupancy details:

Months	Q I	QII	Q III	QIV	Q V	QVI
From April 2013 onwards						

7.FINANCIAL PERFORMANCE

7.1 Details of KVK Bank accounts

Bank account	Name of the bank	Location	Account Number
ICAR UNIT CRIJAF	SBI Barrackpre Rly Stn Branch	1 BT Road, Chiria More, Barrackpore	10391779335

7.2 Utilization of funds under FLD on Oilseed *(Rs. In Lakhs) : Fund Not received*

7.3 Utilization of funds under FLD on Pulses *(Rs. In Lakhs) : Fund Not received*

7.4 Utilization of funds under FLD on Maize *(Rs. In Lakh): Fund Not received*

7.5 Utilization of KVK funds during the year 2014 -15 (Not audited) (Rs. In lac)

S. No.	Particulars	Sanctioned (Revised)	Released	Expenditure
A. Recurring Contingencies				
1	Pay & Allowances	92.00	92.00	100.78
2	Traveling allowances	0.50	0.50	0.50
3	HRD	0.15	0.15	0.13
4.	Contingencies	5.60	5.60	10.07
5.	TSP	2.40	2.40	2.22
TOTAL (A)		100.65	100.65	113.77
B. Non-Recurring Contingencies				
1		--	--	--
2		--	--	--
3		--	--	--
4		--	--	--
TOTAL (B)		--	--	--
C. REVOLVING FUND		--	--	--
GRAND TOTAL (A+B+C)		100.65	100.65	109.23

7.6. Status of revolving fund (Rs. in lakh) for last three years

Year	Opening balance as on 1st April	Income during the year	Expenditure during the year	Net balance in hand as on 1st April of each year (Kind + cash)
2012-13	28660	708772	511572	225860
2013-14	225860	673485	627730	271615
2014-15	271615	773310	891760	153165 + (220 Qt. paddy In kind. Approx. value Rs.8,00,000)

7.6.(i) Number of SHGs formed by KVKs (ii) association of KVKs with SHGs formed by other organizations indicating the area of SHG activities. 76 nos.

7.7 Details of marketing channels created for the SHGs

KVK mobilized the marketing channel for the SHG, especially women SHGs, associated with the production of rural and other handicrafts, by linking them with yearly Krishi melas, rural fairs and town based cooperatives dealing with selling of crafts etc. KVK has also connected SHG doing katha stich with traders from Bolpur.
KVK has created financial opportunity for many of the SHGs formed by linking them with NABARD, rural banks etc.

7.8. Special programme on Food and Nutrition :

The Nutrition day was celebrated on the occasion of National Nutrition Week, 1-7 September, 2014.The awareness programme was held at Kurisa village of Kalna-I block with an initiative to combat the problem of malnutrition or under nutrition among children and women especially in rural areas. Supervisors, Anganwadi workers of ICDS scheme, ASHA (Accredited Social Health Activists) workers, panchayat members, teachers, village women, pregnant and lactating women , adolescents girls and school students were participated. Different programme related to nutrition like video shows, demonstration of rice based weaning food preparation, cheap nutritional recipes using locally available resources etc. were also organized. Teachers and students were encouraged and motivated to grow vegetables in kitchen garden within the home and school premises. Around 300 farm women and farmers were benefited from it.

7.9. Joint activity carried out with line departments and ATMA

Name of activity	Number of activity	Season	With line department	With ATMA	Both
Technology week & Krishi Mela	01	Rabi, 2014	DDA, Burdwan	ATMA, Burdwan	Both
CDAP	01	-	-	ATMA, Burdwan	-
SREP	01	-	-	ATMA, Burdwan	-
Vaccination camp	01	Year round	Animal husbandry dept., Burdwan, West Bengal	-	-
Seed production	01	Kharif 2014	Dept. of Agriculture, West Bengal	-	-
Exposure visit	01	Rabi, 2014	-	ATMA, KAtihar	-
SAC	01	Kharif, 2014	All line dept., west Bengal	-	-
Farmers training	01	Year round	All line dept., west Bengal		

8. Other information

8.1. Prevalent diseases in Livestock/Crops

Name of the disease	Crop/animal	Date of outbreak	Number of death/ % crop loss	Number of animals vaccinated
Late blight	Potato	30.1.15	10	
PPR	Goat	7.7.14	200	800 goats are vaccinated in nearby villages
Duck plague	Duck	15.8.14	100	200 vaccinated
Orf	Goat	15.8.14	200	- Vaccine not available in W.B

8.2. Nehru Yuva Kendra (NYK) Training: Not applicable

8.3. PPV & FR Sensitization training Programme: Not applicable

8.4. SMS PORTAL

Date of start of functioning of SMS portal:								
No. of messages	No. of calls	No. of farmers covered	Types of messages (No.)					
			Crop	Livestock	Weather	Marketing	Awareness	Other
130	3275	202839	18357	5674	170132	1602	5740	1334

8.5 Observation of Swacha Bharat Programme

Date of Observation	Activities undertaken
02.10.14	Cleaning of the premises farmers hostel, animal shed, farm area, green house and fish ponds along with some visiting farmers.
07.10.14	Cleaning of the Admin building
08.10.14	Cleaning of the Surrounding of Adm building & road
09.10.14	Cleaning of the Stores in Adm building & at hostel
10.10.14	Cleaning of the Residential quarters T-III & Surroundings
13.10.14	Cleaning of the Trainees hostel & Surroundings
14.10.14	Cleaning of the Green house & surroundings
15.10.14	Cleaning of the Residential quarters T-I & II & Surroundings
16.10.14	Cleaning of the Sensitization prog. For farmers on cleanliness of house & surroundings
17.10.14	Cleaning of the Soil & Water testing lab
18.10.14	Cleaning of the Library & Trainings Hall
20.10.14	Cleaning of the farm machinery & Appliances
21.10.14	Cleaning of the Citrus fruit orchard
22.10.14	Cleaning of the Paddy field surrounding near hostel

24.10.14	Cleaning of the Banana Field
25.10.14	Cleaning of the Paddy field boundaries
27.10.14	Cleaning of the Power house & Surroundings
28.10.14	Cleaning of the Animal shed & surroundings
29.10.14	Cleaning of the pond and Surroundings
30.10.14	Cleaning of the Lab of Home Science
31.10.14	Cleaning of the Access road of KVK
19.12.14 11.00 A.M. – 11.45. A.M	Cleaning of farm boundaries and farmers' training centre of Bheti village during preparation of SREP of the district.
01.01.15	All the KVK employee formed a Human Chain in front of administrative building . cleanliness of office, farm, houses, aquatic bodies and roads was done.
26.03.15	Cleaning of the kvk adopted village

8.6 Observation of National Science day: --

8. 5.Programme with Seema Suraksha Bal (BSF): Not applicable

8.6 Agriculture Knowledge in rural school:

Name and address of school	Date of visit	Areas covered	Teaching aids used
Bud Bud Hindi School, BudBud, Burdwan, W.B.	11.11.2014	Exposure visit to kisan mela General sensitization of school children on prospect and contribution of agriculture in our livelihood	Presentation, Live crop cafeteria, Live demonstration unit

8.7 Report on Citizens' Client Charter (attending the requests seeking guidance on agricultural technology and technology products)

Sl. No.	Services/ Transaction	Process	Service Standard	No. of such services attended by KVKs and ATICs during the year	No. of such services pending with KVK/ATIC beyond 30 days
1.	Guidance on Agricultural technology and technology products	Personal contact by the Service Sectors with the responsible person of KVK/ATIC	30 days	162669	**NIL**

8.8 Community Radio Station: Not applicable

8.6 No. of Progressive/Innovative/Lead farmer identified (category wise)

Sl. No.	Category	No. of farmers
1	Innovative	8
2	Lead	12
3	Progressive	651
Total		**671**

8.7 Utilization of HRD fund (Rs 0.50 Lakh provided to KVKs)

Training programme/ Seminar/ Symposia/ Workshop etc attended	Duration	Name of the participants	Designation	Organizer of the training Programme	Amount spent for the purpose (Rs.)
Technological advances in production of jute and allied fibre crops	6 days	Ms. Poli Saikia	SMS (Home Science)	CRIJAF, Barrackpore	
Workshop on writing success stories	3 days	Ms. Poli Saikia	SMS (Home Science)	ZPD, Zone-II, KOLKATA	
Training on Home Science Knowledge Management	21 days	Ms. Poli Saikia	SMS (Home Science)	College of Home Science, Prof. Joyshankar Telenga State Agril. University, Hyderabad	
Training on commercial farming with integrated approach	2 days	Dr. Subrata Sarkar	SMS (Horticulture)	Director of Extension, BCKV	
Technological advances in production of jute and allied fibre crops	6 days	Dr. Subrata Sarkar	SMS (Horticulture)	CRIJAF, Barrackpore	
Indian Science Congress, 2015	5 days	Dr. Golam Ziauddin	SMS (Fishery Sc.)	Indian Science Congress Association & Mumbai University	2000.00
National Conference on Indigenous Innovation and Foreign Technology Transfer in Fertilizer Industry: Needs, Constraints and Desired Simplification	1 day	Dr. Golam Ziauddin	SMS (Fishery Sc.)	CRIJAF & Society for Fertilizer and Environment, Kolkata	2000.00
Training at SIPRD, Kalyani on Planning, Implementation, Monitoring and Evaluation of Micro Enterprises	5 days	Dr. Monica Suresh Singh	SMS (Agril. Extn.)	SIPRD, WEST BENGAL	
International Symposium on Potassium Nutrition and Crop Quality	2 days	Dr. Dipankar Ghorai	I/c Programme Coordinator	Birsa Agricultural University, Ranchi, Jharkhand, India	
National Symposium on Climate Resilient Forage Production and its utilization	2 days	Dr. Chandrakanta Jana	SMS (AH&VS)	BCKV , Mohanpur, West Bengal	4000.00
National Conference on Indigenous Innovation and Foreign Technology Transfer in Fertilizer Industry: Needs, Constraints and Desired Simplification	1 day	Dr. Chandrakanta Jana	SMS (AH&VS)	CRIJAF & Society for Fertilizer and Environment, Kolkata	2000.00
Training on FMS-MIS	2	Dr. Dipankar	I/c	CRIJAF, Barrackpore	

	days	Ghorai	Programme Coordinator		
Training on FMS-MIS	2 days	Dr. Golam Ziauddin	SMS (Fishery Sc.)	CRIJAF, Barrackpore	
Training on FMS-MIS	2 days	Dr. Chandrakanta Jana	SMS (AH&VS)	CRIJAF, Barrackpore	
Training on FMS-MIS	2 days	Dr. Subrata Sarkar	SMS (Horticulture)	CRIJAF, Barrackpore	
Training on FMS-MIS	2 days	Ms. Poli Saikia	SMS (Home Science)	CRIJAF, Barrackpore	
Training on FMS-MIS	2 days	Dr. Monica Suresh Singh	SMS (Agril. Extn.)	CRIJAF, Barrackpore	
Training on FMS-MIS	2 days	Sk Golam Rasul	Prog. Asstt. (Computer)	CRIJAF, Barrackpore	
Training on FMS-MIS	2 days	Sandipan Garai	Prog. Asstt.	CRIJAF, Barrackpore	
Training on FMS-MIS	2 days	B. N. Mukherjee	Assistant	CRIJAF, Barrackpore	
Training on FMS-MIS	2 days	Sushanta Dey	Stenographer Gr-III	CRIJAF, Barrackpore	

8.8 Revenue generation:

Sl. No.	Name of Head	Income(Rs.)	Sponsoring agency
1.	Paddy seed	735360.00	
2.	Cowpea	5025.00	
3.	Banana	9000.00	
4.	Fish fingerlings	8000.00	
5.	Goat	8920.00	

8.9 Resource Generation:

Sl. No.	Name of the programme	Purpose of the programme	Sources of fund	Amount (Rs. lakhs)	Infrastructure created
1	Observance of World Veterinary Day	Observance of World Veterinary Day	NABARD, Burdwan	0.095	
2	Preparation of SREP	Preparation of SREP	ATMA, Burdwan	1.2	
3	Preparation of CDAP	Preparation of CDAP	RKVY, Burdwan	1.0	
4	Technology Week-cum-Krishi Mela	Mass awareness of technologies through Technology Week-cum-Krishi Mela	ATMA, Burdwan	2.15	
5	Exposure Visit	Exposing farmers to new technologies	ATMA Katihar	0.40	
6	Innovative activity	To demonstrate new innovation to farmers	ATMA, Burdwan	0.50	**IFS unit**

8.10. Performance of Automatic Weather Station in KVK: **Not applicable**

8.11. IPNI Trial: **Not applicable**

Asset created under TSP:

Vermicompost unit (polyvermi units: 30 nos.
Portable carp hatchery: 01 unit (beneficiary number- 100)
Nail weeder: 8 nos.
Feeder for poultry: 50 nos.
Nutritional garden: 10 nos.

Fund received under TSP in 2014-15: 2.4 lakh

10. PROGRESS REPORT OF NICRA KVK (Technology Demonstration component) 2014-15
(**Applicable for KVKs identified under NICRA)**

Not applicable

11. National Initiative on Fodder Technology Demonstration (NIFTD)
(**Applicable for KVKs identified under NIFTD)**

Name of the fodder crop	Date of sowing	Area (ha)	No. of farmers involved	Demonstration Yield (q/ha)			Check Yield			% increase
				H	L	A	H	L	A	
Sorghum (var. MP Chari)	25.5.14,30.06.14,4.09.14	0.4	3	295	290	292	272	268	270	8.14
Maize(var. African toll)	12.7.14- 13.7.14	0.4	3	550	525	535	490	470	490	11.4
Ricebean (Bidhan-2)	3.9.14-5.9.14	0.4	2	285	280	282.5	215	210	212.5	32.94
Oat (var Kent)	12.11.14- 15.11.14	0.4	4	464	423	446.7	400	395	397.5	12.38
Berseem (var Wardan)	12.11.14	0.1	1	730	-	730	650	-	650	12.3
Boundary plantation with NB hybrid (var. IGFRI-10) Unit- 100 runing mt	07.8.14, 9.8.14	100 mt	2	20 q / 100mt	19 q / 100mt	19.5q / 100mt	17.5 q/ 100mt	16.5q / 100mt	17 q/ 100mt	14.7

(Only varietal demonstration was conducted)

Economic of Demonstration

Name of the fodder crop	Demonstration Cost/Rs/ha			Check Cost (Rs/ha)		
	Gross cost	Gross return	BC ratio	Gross cost	Gross return	BC ratio
Sorghum (MPchari)	8300	10320	1.23	8200	9450	1.15
Maize (African Toll)	9300	18725	2.01	9500	16800	1.77
Ricebean (Bidhan-2)	8100	19775	2.44	7870	14875	1.89
Oat (var Kent)	12120	22337	1.84	12390	19875	1.60
Berseem (var Wardan)	16050	43800	2.73	17800	39000	2.19
NB hybrid (unit Rs/100mt)	550	741	1.35	550	646	1.17

Other activities under NIFTD:

- T.L. seed production of sorghum (var. M. P. Chari) at KVK campus in 0.08 ha area and date of sowing was 15.07.14. seed yield- 60 kg.
- Boundary plantation with Guinea grass has been also done at KVK campus on 12.09.14.
- One awareness camp in context to combat current monsoon situation of the district was conducted at Benegram, Mameri-II.
- Village seed production of Rice bean (Bidhan-1) was conducted at Rakona village in 0.05 ha area and harvested 70 kg seed.
- One TV programme on production & utilization technology of oat and berseem was conducted and it was broadcasted in eTV ANNADATA for several times

12.. Awards/Recognition received by the KVK

Sl. No.	Name of the Award	Year	Conferring Authority	Amount	Purpose
1	Best poster presentation (2nd)	2015	Society for fertilizers and environment	3000	Best poster

Award received by Farmers from the KVK district

Sl. No.	Name of the Award	Name of the Farmer	Year	Conferring Authority	Amount	Purpose
1.	Innovative farmer	Chandra Narayan Bairagya	2014	ICAR	-	Innovation in fish hatchery model
2.	Innovative farmer	Sk. Shoyeb Hossain	2014	ICAR		Innovation in IFS
3.	Innovative farmer	Debu Hembram	2014	ICAR		Pig farming at tribal area
4.	Best Farmer	Sk. Amir Hossain	2014	Dept. Of Agriculture, West Bengal	10000	Innovation in alternate farming
5.	Chasi no. 1	Sk. Janab Ali	2014	Mahindra Sammriddhi	10000	Innovation in SRI
6.	Krisak Ratna	Biswajit Ghosh	2014	Dept of Agri. W.B.	50000	Best Fodder grower and dairy raiser
7.	Krisak Ratna	Sahajan Layek	2014	Dept of Agri. W.B.	50000	IFS model
8.	Krisak Ratna	Amal Ganguly	2014	Dept of Agri. W.B.	50000	

Annexure – I

Proceedings of the Eleventh Scientific Advisory Committee Meeting held on June 18, 2014

The XIth meeting of Scientific Advisory Committee (SAC) for KVK, Burdwan was held at KVK on June 18, 2014. The meeting was conducted under the chairmanship of Dr. P.G. Karmarkar, Director, CRIJAF and was illuminated by the presence of Dr. S. Satpathy, Head, Crop Protection, CRIJAF, Dr. D. K. Kundu, Head, Crop Production, CRIJAF, Dr. S. Sarkar, Incharge Agril Extn, CRIJAF and Headquarter Incharge KVK, Dr. K. S. Das, Senior Scientist, Zonal Project Directorate, Zone II, Mr Supriyo Ghatak, ADA, Plant Protection and representative of Dy. Director Burdwan, very distinguished Principal Scientists of CRIJAF, officials of line departments and banks and farmers' representatives.

Dr. D. Ghorai, Programme Coordinator (I/C) of KVK formally welcomed all the delegates. With the permission of Chair, Dr. Ghorai presented the action taken report on the recommendations given during the previous SAC meeting which was followed by presentation of KVKs Progress Report of 2013-14 and Action Plan for the year 2014-15.

It was then followed by general discussion and recommendation session. Dr D. K. Kundu, Head, Crop Production, CRIJAF urged upon KVK to demonstrate paddy-cum-vegetable cultivation technology developed by CRIJAF for enhanced profitability and supply of vegetables during rainy season using jute fabric soil column. He also stressed on promotion of other paddy cultivation technologies like, aerobic rice, cultivation with drum seeder and zero tillage technology for paddy. The fact that jute as a vegetable is another enterprise that can augment village family nutrition in a significant way was also reminded by him and he called upon KVK to take up demonstrations on the subject. Dr. Kundu also called upon KVK to assess the impacts of KVK activities quantitatively in terms of no. of farmers as well as in terms of area.

Dr S. Satpathy, Head, Crop Protection, CRIJAF was of the opinion that a comprehensive database should be developed for farmers, self help group and others related groups for effective dissemination of technologies throughout the district. He gave emphasis on entrepreneurship development in the fields of horticulture, animal science and fisheries apart from agriculture. He also emphasized that strong linkage should be developed between KVK Burdwan with other KVKs of the region which are performing well. He put due stress on KVK officials visiting various other ICAR institute to gather knowledge on low cost technologies developed by those institute and promote those in the district. He also remarked that crops with export potential and off season vegetable cultivation should be introduced with adequate market linkage. In regards to fruits he said that high density planting of mango should be popularized. He gave additional emphasis of high-tech farming of exotic vegetables such as gherkin, broccoli, Chinese cabbage, etc. Regarding plant protection he said that good agricultural practice should be followed along with biological control of pest and diseases.

Dr. S. Sarkar, Head, Ag. Extension, CRIJAF, advocated that SMS send by KVK should be in Bengali for better understanding of farmers and their utility. He also said to use radio for agricultural use.

Dr. S. Mitra, PS, CRIJAF gave importance on multidisciplinary work in KVK rather than single approach.

Dr. A.R. Saha, PS, CRIJAF opined that soil test crop response (STCR) based as well as site specific nutrient management protocols should be developed for the crops of the district for enhanced profitability and maintaining environmental benignity.

Dr K.S. Das, Senior scientist, ZPD-II emphasized on addressing some grey areas like management of problematic soil, promotion of small tools, women empowerment through rural handicraft, fish fingerling production, clean milk production and organic and biofertilizer production.

Mr.S. Ghatak, District Plant Protection Officer, Burdwan remarked that the technologies developed by CRIJAF and KVK should be provided to the state department on regular and timely basis of agriculture for holistic promotion in the district.

Mr. P. Mondal, Asst. gen. manager, NABARD corroborated his views and suggested that group leaders of SHGs under NABARD should be trained by KVK.

Dr. P.G. Karmarkar, Chairman, in his concluding remarks, urged upon the KVK to identify successful farmer's model for small and marginal farmers in the district and replicate them in areas wherever feasible. He stressed on documenting success stories properly. He also emphasized to use gender perspective in extension. Agriculture graduates, in his views, should be made partners in holistic extension of technologies. In view of the global warming induced climate shift, he emphasized on identification of climate resilient technologies for popularization in the district besides maintaining the preparedness for disaster management should be there for the KVK. He maintained the activities should be prioritized by the KVK and on the basis of that prioritization action plan should be chalked out. Finally, he urged upon KVK to make an impact assessment of the activities.

The meeting was concluded with vote of thanks from Mr. G. Ziauddin, SMS, KVK. Following are the recommendations given by the committee,

- Impact assessment of the activities of KVK should be done.
- Profitable technologies on jute should be more promoted
- Various rice cultivation technologies, other than SRI should be promoted
- Production of organic inputs at site should be strengthened
- Biological control for pest and disease management should be done in proper way.
- Low cost farm implements as well as low cost technologies suitable for small holder farmers should be promoted.
- Fish Fingerling production should be up scaled.
- Feasibility of high density planting of fruit crops, like mango, should be figured out.
- Use of growth promoter in broiler production should be emphasized

- More no. of entrepreneurs in fields like mushroom production, broiler farming, pig farming etc. should be developed.
- Augmentation of family nutrition should be emphasized.

List of participants:

S.N.	Name	Designation	Status
		Members	
1.	Dr. P.G.Karmakar	Director, CRIJAF, Barrackpore	Chairman
2.	Dr. S. Satpathy	Head, Crop. Protection, CRIJAF	Member
3.	Dr. D.K. Kundu	Head, Crop Production, CRIJAF & HQ I/C KVK	Member
4.	Dr. Sitangshu Sarkar	Incharge, Agril.Ext. CRIJAF & Head Quarter Incharge KVK	Member
5.	Mr. Partha Mandal	ADM, NABARD, Burdwan	Member
6.	Dr. K. S. Das	Sr. Scientist, ZPD, Zone II	Member
7.	Dr. Dipankar Ghorai	I/C Prog. Coordinator, KVK Burdwan	Member Secretary
8.	Dr. S. Ghatak	DPPO, Burdwan	Member
9.	Dr. B. Rana	DVO, Burdwan	Member
10.	Sumit Chakraborty	Programme Executive, AIR, Kolkata	Member
11.	Shri Chandranarayan Bairagya	Farmer representative	Member
12.	Sk Jonab Ali	Farmer representative	Member
13.	Debu Hembum	Farmer representative	Member
14.	Nurjahan Khatun	Farm women representative	Member
		Invitees	
15.	Dr. A. B. Mandal	Pr. Scientist, CRIJAF	
16.	Dr. Sabyasachi Mitra	Incharge, AINP on JAF, CRIJAF	Invitee
17.	Dr. S. Biswas	Pr. Scientist and Incharge, CSRSJAF	Invitee
18.	Dr. S. K. Sarkar	Pr. Scientist and Incharge, PME, CRIJAF	Invitee
19.	Dr. J. Mitra	Pr. Scientist, CRIJAF	Invitee
20.	Dr. B. Majumdar	Pr. Scientist, CRIJAF	Invitee
21.	Dr. A. R. Saha	Pr. Scientist, CRIJAF	Invitee
22.	Dr. K. Mandal	Pr. Scientist, CRIJAF	Invitee
23.	Mr. G. Ziauddin	SMS (Fisheries), KVK Burdwan	Invitee
24.	Dr. Subrata Sarkar	SMS (Hort.), KVK Burdwan	Invitee
25.	Dr. C. K. Jana	SMS (AH & VS), KVK Burdwan	Invitee
26.	Ms. Poli Saikia	SMS (Home Sc.), KVK Burdwan	Invitee
27.	Dr. M. S.Singh	SMS (Ag. Extn), KVK Burdwan	Invitee
28.	Mr. Sandipan Garai	Programme Assistant, KVK Burdwan	Invitee
29.	Mr. S. S. Kundu	Farm Manager, KVK Burdwan	Invitee
30.	Sk Amir Md	Progressive Farmer, Atapara	Invitee
31.	Ujwal Paul	Progressive Farmer, Ketan	Invitee
32.	Anand Lohar	Progressive Farmer, Ketan	Invitee
33.	Ziaur Rehman Mandal	Progressive Farmers Warishpur	Invitee
34.	Samar Ghosh	Progressive Farmer, Rasulpur	Invitee
35.	Sarfaraj Ali Sk	Progressive Farmer, Deulpara	Invitee
36.	News Reporters		

Annexure – II

Action taken report:

Recommendation	**Action taken**
Impact assessment of the activities of KVK should be done	Impact assessment of the activities of KVK was done in two villages, Jagulipara in Galsi-I and Keten I Kanksa block
Profitable technologies on jute should be more promoted	CRIJAF SONA, one microbial consortium for jute retting was demonstrated in the principal jute growing blocks of the district, KAlna and Purbasthali
Various rice cultivation technologies, other than SRI should be promoted	Rice cultivation using Drum Seeder was demonstrated to 10 farmers in two blocks of the district
Production of organic inputs at site should be strengthened	One demonstration unit on vermicompost production is being developed as a component of integrated farming system.
Biological control for pest and disease management should be done in proper way	Proper application method of *Trichoderma viridae* for management of late bloght disease of potato was demonstrated to farmers
Low cost farm implements as well as low cost technologies suitable for small holder farmers should be promoted	CRIJAF NAIL WEEDER was demonstrated and distributed to tribal farmers. IFS for small and marginal farmers was developed and demonstrated to 5 farmers
Fish Fingerling production should be up scaled	The innovative single chamber carp hatchery was established at two locations for production of fingerling
Feasibility of high density planting of fruit crops, like mango, should be figured out	Areas in the red and lateritic areas were explored for possibilities of high density planting of mango and papaya
Use of growth promoter in broiler production should be emphasized	Use of probiotics and organic acids as performance enhancer was evaluated
More no. of entrepreneurs in fields like mushroom production, broiler farming, pig farming etc. should be developed	Two nos. of entrepreneurs were developed in the fieds of vermiculture and pig farming
Augmentation of family nutrition should be emphasized	Training, demonstation and awareness camps were conducted throughout the year for emphasizing the need and ways of family nutrition.

ANNEXURE-III

Impact assessment of KVK activities in Jagulipara village

Table IA: Distribution of respondents on basis of sex

Category	No	%
Male	21	84.00
Female	4	16.00
	25	100.00

Table IIA : Distribution of respondents on basis of Age

Category	No	%
31 and below	3	12.00
32-50	17	68.00
51 and above	5	30.00
	25	100.00

Table IIIA : Distribution of respondents on basis of education

Category	No	%
Illiterate	0	0.00
Primary	16	64.00
Secondary	7	28.00
Higher secondary	1	4.00
Degree	1	4.00
	25	100.00

Table IVA : Distribution of respondents on basis of family size

Category	No	%
3 and below	4	16.00
4-6	15	60.00
7 and above	6	24.00
	25	100.00

Table VA : Distribution of respondents on basis of land holding

Category	No	%
Landless	3	12.00
Marginal (<1ha)	13	52.00
Small (1-2 ha)	4	16.00
Semi- medium (2-4 ha)	5	20.00
Medium (4-10 ha)	0	0.00
Large (>10 ha)	0	0.00
	25	100.00

Table VIA: Distribution of respondents on basis of following attributes

Type of house owned	Kaccha House		Pacca House		Total	
	No	%	No	%	No	%
	9		16			100.00
Particulars	Yes		No		Total	
	No	%	No	%	No	%
Availability of Pond	12	48.00	13	52.00	25	100.00
Availability of horticultural garden	15	60.00	10	40.00	25	100.00
Availability of Cattle	18	72.00	7	28.00	25	100.00
Availability of Paddy Thresher	17	68.00	8	32.00	25	100.00
Availability of Pump set	17	68.00	8	32.00	25	100.00
Availability of Bicycle	21	84.00	4	16.00	25	100.00
Availability of of Motor bike	14	56.00	11	44.00	25	100.00
Availability of radio set	3	12.00	22	88.00	25	100.00
Availability of TV	23	92.00	2	8.00	25	100.00
Availability of mobile	25	100.00	0	0.00	25	100.00
Availability of Sprayers	20	80.00	5	20.00	25	100.00

Table VIIA: Distribution of respondents on basis of Frequency of meeting with KVK

Category	No	%
Daily	0	0.00
Weekly	7	28.00
Monthly	18	72.00
Quarterly	0	0.00
Once in season	0	0.00
	25	100.00

Table VIIIA: Sources of information

Source	Attribute (%)				
	Reliability	Regularity	Quality	Relevance	Timeliness
KVK	100	100	100	100	100
Neighbour/Friends	92	56	54	72	100
Relative	92	48	56	60	56
ADO/ ADA	96	92	92	84	92
TV	72	44	68	52	28

Table IXA: Cropping pattern

Crop	Before KVK			After KVK		
	Area (ha)	Area under improved varieties	Yield/ ha	Area (ha)	Area under improved varieties	Yield/ ha
Paddy	360	-	45-50q	360	50	60-70 q
Mustard	27	-	8-9 q	30	15	11q
Onion				15	15	60q
Tomato				7	7	230q
Brinjal				3	3	226q
Tissue Cultured Banana	1	-	400q	1.5	1.5	760q
Fodder				2	2	213q

Table XA: Impact of FLD

Demonstrated technology	Crop	Productivity			No of Beneficiary	% change			% of adoption	Impact at farm (%)	
		CP	Demo	% change		Knowledge	Skill	Attitude		Yield	Income
Production technology of variety B – 9	Mustard	10.2 (q/ha)	11.3 (q/ha)	11	30	78	69	61	48	11	12
IPM	Mustard	10.25	13.75	34.20	5	39	26	19	23	34.20	24.51
Package demonstration of MTU-7029	Paddy	40.85	44.26	8	7	87	85	85	100	8	11
SRI	Paddy	53.6	71.6	34	15	48	23	24	34	34	18.97
Late blight disease management	Potato	250	280	12	10	65	62	58	43	7	11.81
Fodder Production	Ricebean (Bidhan 1)	187.4	232	23.7	5	78	72	34	16	23.7	15.4
Component demonstration	Brinjal	213.7	226.5	6	8	44	38	31	13	8	12
Pheromone Trap	Brinjal	231	246	6.7	6	56	32	19	4	6	13
Package demonstration G-9	Banana	414	782	88.9	5	23	18	18	28	88.9	20.3
Thrips management	Chilli	76.5	96	25.5	2	56	48	40	32	25.5	18.0
Livestock											
Mineral Mix	Cattle	291.7	410.9	40.8	10	87	85	88	38	37.5	7
Khaki Cambell	Duck	180	210	16.6	5	84	78	77	27	12	8
Fish	Jayanti rohu	9.20	9.77	6	5				19	5	10
Fish	*Pangus*	3.1	4.0	29	7	68	65	63	23	7	9
Fish	Tilapia	5.0	5.95	19	10	45	35	35	11	10	7

Table XIA: Impact of training

Sl. No	Subject of training	Crop	% change due to training				Yield (q/ha)			% change in income			No of beneficiary
			Knowledge	Skill	Attitude	Adoption	Before training	After training	% change	Before training Net [profit	After training	% change	
1	Weed Management	Rice	78	65	47	13	50	58	16	31450	35380	12.49	40
2	Water management	Rice	48	42	26	5	50	61	22	31450	37369	18.82	40
3	Seed production	Rice	59	43	53	7	50	60	20	31450	36740	16.82	60
4	Nursery management	Rice	83	79	77	28	50	57	14	31450	33853	7.64	60
5	Integrated Crop Management	Rice	36	24	19	7	50	54	8	31450	33149	5.40	40
6	Seed Treatment	Rice	100	100	100	100	50	55	10	31450	35480	11.35	90
7	SRI	Rice	87	53	39	30	50	75	50	31450	49000	55.80	90
8	Production technology of vegetables	Vegetables	67	54	48	16	213	234	10	47750	58946	23.45	40
9	Layout and Management of Orchards	Banana	39	38	23	3	414	782	88.9	90500	184000	103.00	20
10	Plant propagation techniques		19	15	13	1	-	-	-	-	-	-	20
11	Production of organic inputs	Vermicompost, Vermiwash	36	34	27	3	-	-	-	-	20000	100.00	20

12	Fodder production	Ricebean	21	17	16	2	194	240	23.71	3895	6100	56.00	30
13	Nursery raising for vegetables	Onion, brinjal, Tomato	17	14	13	4	218	249	14.22	38900	57800	48.58	20
14	Dairy Management	Cow	83	79	74	68	293	432.5	47.6	510	2189	329.21	60
15	Poultry Management	Hen	85	82	78	72				20000	60000	200.00	45
16	Disease Management	Animal	87	78	73	70	Mortality decreased by 31%						100
17	Household food security by kitchen gardening and nutrition gardening		34	27	21	7	140	210	50	56100	93500	66.67	20
18	Formation of SHG		68	59	57	36	7 SHG formed						60
19	Composite Fish culture	IMC	55	48	35	63	30	45	50	3900000	585000	50%	90
20	Disease management and prophylacting measures of IMC	IMC	47	45	39	57	22	26.4	20	242000	343200	41.81	60
21	Integrated Farming		5 integrated faring model has been developed by KVK in the village									120000	40

Table XIIA: Impacts of extension activities

Sl. No.	Technology	% change in area under new crops		% change in area under new varieties		Yield (q/ha)		Income	
		Before	After	Before	After	Before	After	Before	After
1	Integrated farming		4						120000
2	SRI					4.0	7.2	26000	49000
3	TCB			0.5	1.5	414	782	90500	184000
4	Vermicompost	No of earthworm/year					1.5 lakh		120000
Livestock									
1	Backyard Poultry	No of birds				50	1000		60000
2	RIR breed	No of birds				0	1050		
		No of egg/bird				90	210	540	1260
3	Introduction of Kakhi Cambell	No of ducks				30	800		
		No of egg/duck				90	180	540	1080
4	Mineral Mixture	Milk yield per cow				284.35	402.83	4549	6445
5	Cross breeding	No of cross breed cow				10	350	3500	6800
6	Mass vaccination	Mortality rate decreased by 31%							
7	Use of fish fingerling as fish seed	Area of ponds (ha.)		6.67	18.67	31.5	52.5	409500	525000

What are the activities carried out by KVK in your village?

a. Demonstration
b. Training
c. Vaccination
d. Soil Testing
e. Formation of seed village
f. Exposure Visit
g. Distribution of seeds and critical input

Changes in village due to KVK intervention

a. Increase in use of new variety:

The use of rice variety Swarna Sub1, PAC-831 hybrid, Gothra BidanI has increased during last 5 year.

More area has been brought into cultivation of mustard variety B-54, T-9, WBBBN-1

Cultivation of tissue cultured banana

b. Crop diversification

Earlier only rice was grown in the village. With KVKs intervention more area is brought under cultivation of vegetables, tissue cultured banana, fodder cultivation and production of paddy seed

c. Knowledge about improved techniques of crop production

System of Rice intensification, Zero Tillage, Soil Testing, Vermi composting, Integrated Farming, IPM, INM, Backyard poultry, Nutritional garden

d. Knowledge about improved dairy techniques

Using of mineral mixture to increase milk yield

Using homemade feed to increase milk yield

Cultivation of different fodder crops

Vaccination

e. Increase in employment opportunities due to entrepreneurial training

Two women entrepreneur have been developed in field of Katha Stitch

One farmer has started vermicompost enterprise

20 farmers have started fish seed business

f. Community initiatives

Formation of one farmers club

Formation of seven Self Help Group

Suggestion to improve KVKs approach

a. Availability of certified seed from KVK
b. Frequent diagnostic visit to farm
c. Disease management of Crops and animals
d. Distribution of new varieties
e. Distribution of critical input
f. Technology guidance

Impact assessment of KVK activities in Ketan village

Table IB: Distribution of respondents on basis of sex

Category	No	%
Male	25	100.00
Female	0	0.00
	25	100.00

Table IIB : Distribution of respondents on basis of Age

Category	No	%
23 and below	5	20.00
24-52	15	60.00
53 and above	5	20.00
	25	100.00

Table IIIB : Distribution of respondents on basis of education

Category	No	%
Illiterate	1	4.00
Primary	8	32.00
Secondary	14	56.00
Higher secondary	0	0
Degree	2	8.00
	25	100.00

Table IVB : Distribution of respondents on basis of family size

Category	No	%
2 and below	0	0.00
3-7	19	76.00
98 and above	6	24.00
	25	100.00

Table VB : Distribution of respondents on basis of category

Category	No	%
SC	8	32.00
ST	1	4.00
Others	16	64.00
2	25	100.00

Table VIB : Distribution of respondents on basis of land holding

Category	No	%
Landless	1	4.00
Marginal (<1ha)	17	68.00
Small (1-2 ha)	6	24.00
Semi- medium (2-4 ha)	1	4.00
Medium (4-10 ha)	0	0
Large (>10 ha)	0	0
	25	100.00

Table VIIB: Distribution of respondents on basis of following attributes

Type of house owned	Kaccha House		Pacca House		Total	
	No	%	No	%	No	%
	12		13		25	100.00
Particulars	Yes		No		Total	
	No	%	No	%	No	%
Availability of Pond	11	44.00	14	56.00	25	100.00
Availability of horticultural garden	5	20.00	20	80.00	25	100.00
Availability of Cattle	10	40.00	15	60.00	25	100.00
Availability of tractor	2	8.00	23	92.00	25	100.00
Availability of Paddy Thresher	19	76.00	6	24.00	25	100.00
Availability of Pump set	16	64.00	9	36.00	25	100.00
Availability of Bicycle	23	92.00	2	8.00	25	100.00
Availability of of Motor bike	7	28.00	18	72.00	25	100.00
Availability of radio set	11	44.00	14	56.00	25	100.00
Availability of TV	17	68.00	8	32.00	25	100.00
Availability of mobile	15	60.00	10	40.00	25	100.00
Availability of Sprayers	21	84.00	4	16.00	25	100.00

Table VIIIB: Distribution of respondents on basis of Frequency of meeting with KVK

Category	No	%
Daily	0	0.00
Weekly	2	8.00
Monthly	23	92.00
Quarterly	0	0.00
Once in season	0	0.00
	25	100.00

Table IXB: Sources of information

Source	Attribute				
	Reliability	Regularity	Quality	Relevance	Timeliness
KVK	100.00	100.00	100.00	100.00	100.00
Neighbour	56.00	40.00	48.00	48.00	76.00
Friend	56.00	28.00	28.00	28.00	28.00
ADO/ ADA	92.00	88.00	88.00	88.00	88.00
TV	64.00	40.00	36.00	36.00	24.00

Table XB: Cropping pattern

Crop	Before KVK			After KVK		
	Area (ha)	Area under improved varieties	Yield/ ha (q)	Area (ha)	Area under improved varieties	Yield/ ha (q)
Kharif						
Paddy	214	-	35	214	28	60-65
Vegetables	24	-	180	26	21	200
Rice bean				0.5	0.5	210
		-				
Rabi-						
Wheat	9	-	17	11		19.6
Mustard	27	-	7-8	25	25	10-11
Lentil	5	-	9.2	9	6	11.5
Potato				27	19	270
Vegetables	34	-	200	39	36	240
Summer						
Vegetable	10	-	175	10	10	190

Table XIB: Impact of FLD

Demonstrated technology	Crop	Productivity q/ha			No of Beneficiary	% change			% of adoption	Impact at farm (%)	
		CP	Demo	% change		Knowledge	Skill	Attitude		Yield	Income
Production technology of variety B – 9	Mustard	8.2	11.0	34.14	30	64	58	53	42	34.14	12
IPM	Mustard	10.25	13.75	34.20	5	32	24	22	21	34.20	24.51
Package demonstration of MTU-7029	Paddy	37.65	44.26	17.4	7	87	85	85	83	17.4	11
SRI	Paddy	52.6	71.6	34	15	43	21	20	18	34	18.97
Package technology on Lentil	Lentil	9.5	11.2	17.89	18	63	59	52	22	17.89	15.53
Late blight disease management	Potato	250	285	14	10	68	65	61	58	14	11.81
Fodder Production	Ricebean (Bidhan 1)	187.4	232	23.7	5	63	58	45	11	23.7	15.4
Component demonstration	Brinjal	213.7	226.5	6	8	54	43	39	38	8	12
Pheromone Trap	Brinjal	231	246	6.7	6	48	37	26	6	6	13
Livestock											
Mineral Mix	Cattle	291.7	410.9	40.8	10	76	74	75	42	37.5	7
Khaki Cambell	Duck	180	210	16.6	5	84	78	77	27	12	8
Fish	Jayanti rohu	9.10	9.77	6	05	64	61	57	19	6	10
Fish	*Pangus*	3.1	4.0	29	07	68	65	63	23	29	9
Fish	Tilapia	5.0	5.95	19	10	45	35	35	11	19	7

Table XIIB: Impact of training

Sl. No	Subject of training	Crop	% change due to training				Yield (q/ha)			% change in income			No of beneficiary
			Knowledge	Skill	Attitude	Adoption	Before training	After training	% change	Before training Net profit	After training	% change	
	Weed Management	Rice	81	67	48	15	45	50	11.11	23560	28140	19.43	40
	Water management	Rice	58	42	34	6	45	55	22.22	23560	32370	37.39	45
	Seed production	Rice	67	54	53	9	45	54	20	23560	31800	34.97	60
	Nursery management	Rice	87	83	82	34	45	49	8.89	23560	27680	17.48	60
	Integrated Crop Management	Rice	36	24	19	7	45	50	11.11	23560	29000	23.08	40
	Seed Treatment	Rice	100	100	100	1000	45	52	15.55	23560	29980	27.24	
	SRI	Rice	68	59	56	54	45	75	66.66	23560	40530	72.03	90
	Production technology of vegetables	Vegetables	67	54	48	16	213	234	10	47750	58946	23.45	40
	Plant propagation techniques		19	15	13	1	-	-	-	-	-	-	20
	Production of organic inputs	Vermicompost, Vermiwash	36	34	27	3	-	-	-	-	20000	100.00	20
	Fodder production	Ricebean	21	17	16	2	194	240	23.71	3895	6100	56.00	30
	Nursery raising for vegetables	Onion, brinjal, Tomato	17	14	13	4	218	249	14.22	38900	57800	48.58	20
	Dairy Management	Cow	83	79	74	68	293	432.5	47.6	510	2189	329.21	60
	Poultry	Hen	85	82	78	72				20000	60000	200.00	45

	Management												
	Disease Management	Animal	87	78	73	70	-	-	-	-	-		100
	Gender mainstreaming through SHGs		58	57	52	49							30
	Household food security by kitchen gardening and nutrition gardening		34	27	21	7	140	210	50	56100	93500	66.67	20
	Composite Fish culture	IMC	55	48	35	63	30	45	50	3900000	585000	50.00	90
	Disease management and prophylacting measures of IMC	IMC	47	45	39	57	22	26.4	20	242000	343200	41.81	60

Table XIIIB: Impacts of extension activities

Sl. No.	Technology	% change in area under new crops		% change in area under new varieties		Yield (q/ha)		Income	
		Before	After	Before	After	Before	After	Before	After
1	SRI					4.0	7.2	26000	49000
2	Mushroom					600gm/ bed	900gm /bed	-	12000
Livestock									
1	Backyard Poultry	No of birds				65	1500	-	62000
2	RIR	No of birds					800		
		No of egg/bird				90	210	540	1260
3	Kaki Cambell	No of duck					600		
		No of eggs/duck				90	180	540	1080
4	Mineral Mixture	Milk yield per cow				250	400	4549	6445
5	Cross breeding	No of cross breed cow				7	180	2000	6000
6	Mass vaccination	Mortality rate decreased by 29%							
7	Use of fish fingerling as fish seed	Area of ponds (ha.)		4.48	12.37	29.5	47.5	383500	617500

What are the activities carried out by KVK in your village?

h. On Farm Testing
i. Demonstration
j. Training
k. Vaccination
l. Soil Testing
m. Formation of seed village
n. Exposure Visit
o. Distribution of seeds and critical input

Changes in village due to KVK intervention

g. Increase in use of new variety:

The use of rice variety Swarna Sub1, PAC-831 hybrid has increased during last 5 year.

More area has been brought into cultivation of mustard variety T-9, WBBBN-1

More area has been brought under cultivation of brinjal Bhangar variety

Area under Abhilash variety of tomato has increased.

WBL 81 variety of lentil was introduced

h. Crop diversification

Earlier only rice and bit vegetable was grown along with marginal mustard and wheat was grown in the village. With KVKs intervention more area is brought under cultivation of off season vegetables, fodder cultivation and production of paddy seed

i. Knowledge about improved techniques of crop production

System of Rice intensification, Zero Tillage, Soil Testing, Vermi composting, Integrated Farming, IPM, INM, Backyard poultry, Nutritional garden, Oyster mushroom production

j. Knowledge about improved dairy techniques

Using of mineral mixture to increase milk yield

Using homemade feed to increase milk yield

Cultivation of different fodder crops

Vaccination

Suggestion to improve KVKs approach

g. Frequent diagnostic visit to farm
h. Disease management of Crops and animals
i. Distribution of seeds of new varieties
j. Distribution of critical input
k. Conducting exposure visit

ANNEXURE- IV

1. A brief about Asansol Parliamentary Constituency

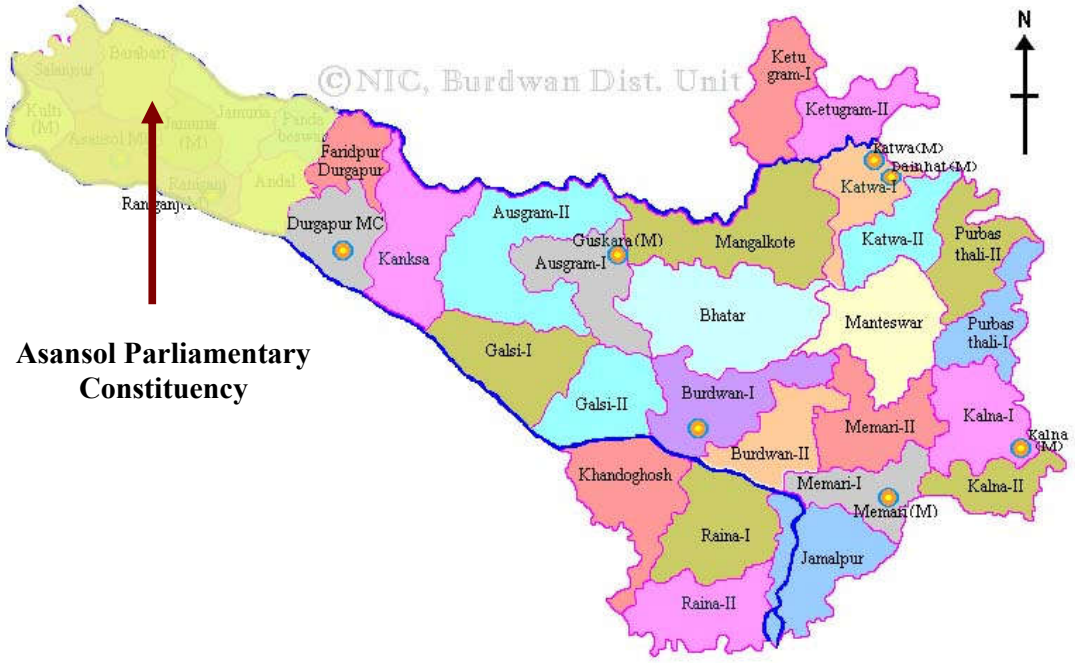
The Asansol Parliamentary constituency has a total of nine (9) agricultural and ten (10) administrative blocks/units as below.

Agricultural blocks:

Asansol, Hirapur, Barabani, Jamuria-I, Jamuria-II, Kulti, Salanpur, Andal and Ranigunj.

Administrative units/blocks:
Salanpur, Barabani, Ranigunj, Jamuria, Andal, Pandabeswar, Kulti (M), Ranigunj (M), JAmuria (M) an Asansol (M.C.).

The total area of the constituency is 1014.56 sq. km and a population over 20 lakh with a population density around 2358 per sq. km. Below is the map of the constituency.



Pic.1. Position of the constituency in the district

The area is characterized by presence of industry. The various five year plans created the new industrial areas in this region adding to the urban centres of the region, such as Asonsol, Kulti, Burnpur and Raniganj. The traditional industrial base of the region chiefly supported by coal, iron and steel has undergone a rapid diversification and new industrial ventures which include mainly heady engineering, fertilizers and coal-based chemicals, are now making a dominant of the water resources of the Damodar and a sustained programme of hydro-electric and coal-based thermal power generation modernization by providing the infrastructure for the region's growth. Ajay and Damodar are the two major rivers of the region; Ajoy forming the northern boundary and Damondar forming the southern boundary.

2. Operating environment

2.1. Demographic features

Out of the total population 28.75% are workers and rest (71.25%) are non-worker. Of the working population, Cultivators are 5.24%, agricultural labour are 6.15 %, household Industry workers to the tune of 1.75% and rest (86.85 %) are other type of workers, basically working in the mines. The percentage of scheduled community is 20% 0f total population (23% SC and 7% ST).

2.2. Soil

There are three (3) different agro-climatic regions in the district of Burdwan; Old alluvium, new alluvium, and red and lateritic. The entire constituency, actually, comes under the red and lateritic region which has distinctly different physiographic, soil and climatic condition. The area resembles a promontory jutting out from the hill ranges of Chotonagpur plateau and consists of barren, rocky and rolling country with a laterite soil rising into rocky hillocks, the highest being 227 m. The soil type and nutrient status of the area is as below,

Soil type:

Name of the Block	Predominant Type	% of total area	Other soil texture	% of total
Asansol	Lateritic	55	Sandy Loam	45
Barabani	Lateritic	80	Sandy Loam	20
Hirapur	Lateritic	55	Sandy Loam	45
Jamuria-I	Lateritic	70	Sandy Loam	30
Jamuria-II	Lateritic	70	Sandy Loam	30
Kulti	Lateritic	80	Sandy Loam	20
Salanpur	Lateritic	75	Sandy Loam	25
Andal	Lateritic	65	Sandy Loam	35
Raniganj	Lateritic	60	Sandy Loam	40

(Source: Annual report 2013-14, Department of Agriculture, Burdwan , Govt. of W.B)

Nutrient status:

Name of the Block	Organic Carbon	Average P_2O_5	Average K_2O	pH.
Asansol	VL	L	L	A
Barabani	VL	L	L	A
Hirapur	VL	L	L	A
Jamuria-I	VL	L	L	A
Jamuria-II	VL	L	L	A
Kulti	VL	L	L	A
Salanpur	VL	L	L	A
Andal	VL	L	L	A
Raniganj	VL	L	L	A

N = Normal, M = Medium, L =Low, VL = Very Low, Soil Reaction (pH): A = Acidic, N = Normal

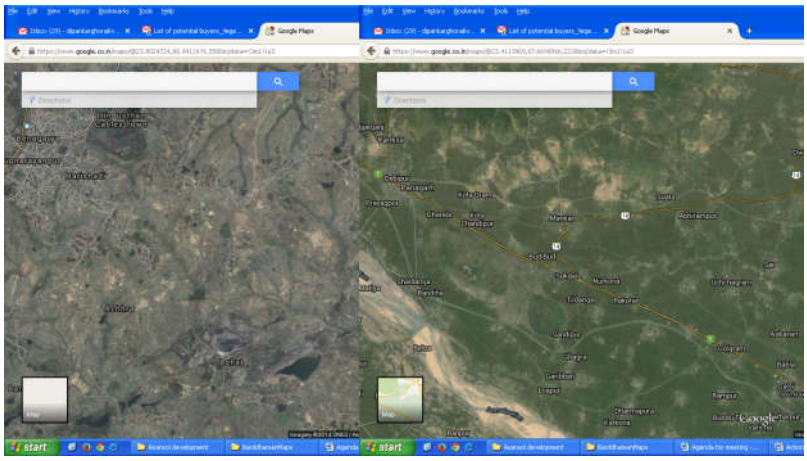
(Source: Annual report 2013-14, Department of Agriculture, Burdwan , Govt. of W.B)

2.3. Climate

Climate of the district is normally moderate whereas in the western part Lateratic Zone it is somewhat extreme. In the lateritic zone temperature is very high in the summer days and low in winter. The temperature ranges from 28°C to 45°C during summer and 4°C to 26°C during winter. Rainfall in the area apart from being less is erratic as well as compared to the Eastern (Alluvial) Zone. The normal annual rainfall in the district is 1450-1500 mm whereas in this zone it is 1100 -1175 mm. Relative Humidity of the zone is also different from the other parts of district.

2.4. Physiography

The overall physiography of the region is undulating with highest elevation being 227 m MSL. There is a distinct difference in the crop cover (Pic. 2, Google map) in the crop coverage of the area in comparison to the cropped area of the district.



Pic.2. Physiography of the constituency in the district

2.5. Ground Water

As per information received from the Water Resource Investigation Department it is understood that the surface water taping is only 11 percent. The blocks of surface water taping includes Barabani, Salanpur Raniganj, Jamuria, Andal and Pandebeswar in the lateritic region and Faridpur- Durgapur, Kanksa, Ausgram I & II, in old alluviul region. The problem of rainwater harvesting is prominent in this district – non-availability of land is one of the major constraints in harvesting rain water. In the lateritic zone community land can be developed and utilized for rain water harvesting structure. The subdivision of Asansol and Durgapur are unfit for lifting groundwater.

3. Crop suitability assessment

The principal crop grown in the region is *kharif* rice under rainfed condition. Other field crops like wheat, lentil, mustard and potato are also grown in few pockets, but area under such crops are negligible. Productivity of crops is below the district average.

Area, production and productivity of crops in different blocks of the constituency

Name of Block	Aman paddy			Wheat			Lentil		
	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield
Salanpur	1433	3.174	2215	-	-	-	-	-	-
Barabani	8446	23.754	2812	-	-	-	-	-	-
Raniganj	-	-	-	-	-	-	-	-	-
Jamuria	3	0.008	2648	-	-	-	-	-	-
Andal	109	0.156	1433	5	0.011	2133	2	0.001	295
Pandabeswar	467	0.855	1831	23	0.050	2179	-	-	-

Name of Block	Mustard			Potato		
	Area	Prod.	Yield	Area	Prod.	Yield
Salanpur	-	-	-	-	-	-
Barabani	-	-	-	-	-	-
Raniganj	-	-	-	-	-	-
Jamuria	-	-	-	-	-	-
Andal	18	0.017	921	26	1.104	42448
Pandabeswar	26	0.021	814	..	..	..

(Source: District Statistical Handbook 2010, Burdwan)
(Area in ha, production in '000 tonnes, productivity in ka/ha)

Area, production and productivity of these crops in the district are as below,

Crop	Area (ha)	Production (000'tonnes)	Productivity (kg/ ha)
Aman paddy	409000	1165	2848
Wheat	1900	4.50	2392
Lentil	2400	1.6	635
Mustard	25400	21.4	851
Potato	55500	1388	25282

(Source: District Statistical Handbook 2010, Burdwan)

The chief hindrance behind the low cropping intensity is the lack of irrigation water. Water table goes way to below during winter season than is feasible for lift irrigation of groundwater for cultivation.

But soil in a significant amount of area in the region being sandy loam in nature, any type of crop growing can be feasible provided irrigation water is provided. Low water requiring crops, like pulses, bio-diesel crops as well as seed production of vegetable crops seems to be suitable for the area.

4. Constraints and opportunities (SWOT)

Strength:

- Good demand for agri-produces at Durgapur and Asansol.
- Excellent communication facility.
- Favourable weather condition for seed production
- More or less satisfactory of road network
- No /or minimum disease pest infestation

Weakness:

- Poor water holding capacity of soil.
- Agricultural fields are scattered, major portion of land is under ECL/DVC/Aerocity etc.
- Irrigation facility is very poor (only 15% of cultivable land).That irrigated area is not assured.
- Shortage of Agricultural labours and skilled labours.
- Extent of farm mechanization is poor.
- Declining soil fertility status due to non-availability of organic matter.
- Under-developed allied activities.
- Undulating Land.
- Soil is highly acidic in nature.
- Agriculture chiefly dependant on rainfall

Opportunity:

- Scope of enhancing irrigation coverage.

- Crop diversification and growing pulse and oilseed crops.
- Good prospect of food processing industry
- Scope of creation of water-harvesting structures to harvest rain-water together with soil and water conservation activities
- Scope for quality seed production.
- Scope for development of allied activities i.e horticulture, fisheries, Animal husbandry etc.
- Scope for development of Agri-polyclinic under P.P.P mode

Threat:

- Declining area under agriculture due to land acquisition by ECL, Aerocity, DVC, Small industry etc.
- Heavy metal toxicity
- Soil erosion and Land degradation
- Conversion of Agricultural land for other purposes like, industrialization & urbanization

5. Suggested interventions for agricultural development in the constituency

Soil and water conservation

- Soil conservation measures with community participation and plantation activities
- Participatory water management and promoting water users group
- Rain water harvesting and conservation and in situ moisture conservation
- Harnessing ground water exploitation and promoting rain water harvesting

Tasar cultivation

Tasar culture can provide an alternate livelihood opportunity for women, disadvantaged and landless people of the district especially in the lateritic zones.

- Increase in the area under sericulture feed plantation with Arjun for Tasar culture in the lateritic zones in collaboration with horticulture/ forest department
- Increase in the capacity of seed farms
- Improvement in credit and market linkages for Tassar and mulberry cooperatives
- Promotion of Tasar cocoon cultivation in the lateritic zone by the farers and collection of cocoon for further marketing to the weavers
- Purchase of refrigerated cocoon collection vans for household cocoon collection which will increase the productivity and also the income for the poor farmers in the lateritic zone.
- Effective tie up of farmer's cooperatives with weaver's cooperatives. This linkage will help them in the promotion of the product and also value for money will be considered.

Agro-forestry /Social Forestry

Forestry plays a vital role for the rural communities particularly in Durgapur division. Recognising this potential and importance of forest on the livelihoods of rural people the following broad strategies are suggested for the district for forest development and environmental protection:

- Effective implementation of compensatory plantation activities with local participation and micro-planning
- Effective implementation of regular forest management/silvicultural activities with community involvement.
- Improvement of ecotourism facilities and identification of new sites of tourist attraction
- Minimization of diversion of forest land with local support
- Ensuring solid waste management and hospital waste management
- Improved forest extent and condition
- Biodiversity conservation strategy
- Plantation programmes in the non-cultivable areas like mines

Yield enhancement of major commodities: Yield of major crops and livestock in the area is much lower in comparison to other regions of the district. Cultivable area in the region can be increased through providing assured irrigation and more no of agricultural labours. Concerted drives should be there to strengthen adaptive research and technology assessment, refinement and transfer capabilities of the research workers so that the existing wide technology gaps are bridged. For this, an appropriate network of extension services would be created to stimulate and encourage both top-down and bottom-up flows of information between farmers, extension workers and research scientists to promote the generation, adoption and evaluation of location specific farm technologies.

Water management for sustainable food production: Agriculture is the biggest user of water, accounting for about 80 percent of the water withdrawals. There are pressures for diverting water from agriculture to other sectors like industry and urbanisation, which cannot be ignored. Recognising the fact that the water use efficiency of most of the projects is not more than 35-40%, participatory irrigation management and scientific on-farm water management to enhance the water use efficiency by another 10% should be ensured, which will indirectly bring another 10% area under irrigation with the existing infrastructure. Participatory Irrigation Management (PIM) by water user associations would help to maintain field channels, expand irrigated area, distribute water equitably and provide the tail-enders their just share of water.

Diversification of Agriculture: Agricultural diversification has to be a major element in the strategy for accelerating agricultural growth. Ideally, there should be a shift of land from cereals to non-cereals like pulses and oilseeds (in the process increasing both farm income and employment) combined with an increase in productivity in cereals to ensure that the per capita availability of cereals does not decline. Diversification also means a shift from crop agriculture to animal husbandry/dairy and fisheries. The shift from cereals to horticulture crops requires a supportive policy framework, notably, a much greater focus on marketing arrangements, including encouragement to private sector involvement in marketing and encouragement of downstream food processing and research linked to market requirements for diversifying into horticulture.

Besides developing technologies for promoting intensification, there will be greater attention to the development of technologies that will facilitate agricultural diversification particularly towards intensive production of fruits, vegetables and other high value crops that are expected to increase income growth and generate effective demand for food. Diversification towards these high value and labour intensive commodities can provide adequate income and employment to the farmers of dry lateritic zone. Agricultural diversification may pose special challenges in marketing because the high-value produce of diversified agriculture is much more perishable than the food grains.

Empowering the small and marginal farmers/farm women: The off-farm and non-farm employment opportunities can play an important role for empowering small farmers. Greater emphasis needs to be placed on non-farm employment and appropriate budgetary allocations and rural credit through banking systems for promotion of appropriate rural enterprises. Specific human resource and skill development programmes to train them will make them better decision-makers and highly productive. Knowledge and skill development of rural people both in agriculture and non-agriculture sectors is essential for achieving economic and social goals. A careful balance will therefore needed to be maintained between the agricultural and non-agricultural employment and farm and non-farm economy, as the two sectors are closely interrelated. For poor farm-households whose major endowment is its labour force, economic growth with equity will give increased entitlement by offering favourable markets for its products and more employment opportunities.

Animal husbandry and Fishery: The livestock and fisheries sectors also hold immense possibility in this region but thus far remain much underdeveloped. Emphasis have to be given to these sector to provide full time or part time employment to a substantial number of working population, the majority of whom are women and landless farmers. Poultry development in the region is much neglected which should be stressed upon much more since there is a huge market for the same being thickly populated The broad vision for livestock promotion in the district would be:

- Promotion of appropriate crossbreds while conserving indigenous breeds of livestock
- Formation of CIGs for production and marketing of milk, egg and poultry
- Integrated Farming system approach to include livestock as an important component
- Development of backyard poultry
- Self-employment through livestock promotion under PMRY and Agriculture Policy.
- Promote sustainable use of inland capture and culture fishery resources so as to enhance the

contribution of the fisheries sector to food and livelihood security of the people of in the region.

6. Action Points

The programme will be implemented on 1: 10500 or larger scale (cadastral level) by using high resolution remote sensing data (LIS IV merged with P6 / CARTOSAT) at micro watershed level.

a) Agriculture:

i. Irrigation facility enhancement through creation of water harvesting structures
ii. To bring more area under short duration less water requiring second (*rabi*) crops like oilseed and pulses and also through paira cropping
iii. Efficient usage of mine lift water through making drainage channels.
iv. Judicious use of water through micro irrigation
v. Management of soil acidity through choice of acid tolerant crops / varieties, incorporation of lime/basic slag / rock phosphates
vi. Open scrub land / para-waste land for plantation crop like ber, amla, mango, guava, sapota, orange, perennial fodder crops like napier, para grass or fodder tree like subabul or through adoption of lac culture
vii. Agroforestry in degraded lands in mine periphery
viii. Suitable Integrated Farming System (IFS) Models incorporating climate suited crops and allied enterprises.

b) **Animal husbandry and dairying**

i. Inclusion of pig and poultry in IFS
ii. Improvement of livestock productivity through fortification of approaches like regular deworming and vaccination for scientific health management of livestock
iii. Rearing of ornamental bird / broiler rabbit for entrepreneurship development

c) **Women Empowerment**

i. Economic empowerment of farm women through entrepreneurship development by formation of SHGs on backyard poultry, rural crafts such as jute and kantha stitching, ornamental bird farming, mushroom cultivation and value addition of agricultural produces such as tomato, lemon, mango, guava, etc.
ii. Nutritional security for farm families through nutritional garden
iii. Skill development of farm women in improved agricultural practices.