Action Plan
2013-14

KRISHI VIGYAN KENDRA BURDWAN

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Action Plan 2013-14

1. Name of the KVK : **BURDWAN KRISHI VIGYAN KENDRA**
2. Name of host organization : Central Research Institute for Jute & Allied Fibres (ICAR)
3. **Training programmes to be organized** (April 2013 to March 2014)

(a) Farmers and Farm women

Thematic Area	Title	No of Courses	Duration	On / Off campus	No of participants/trainee days					
					SC	ST	Others	M	F	Total *
I Crop Production										
Post harvest technology	Post-harvest operations of jute	1	3	Off	30	15	45	50	10	90
Cultural practice	Weed management of jute	1	3	Off	30	15	45	50	10	90
Resource Conservation Technologies	Rice cultivation through SRI	1	3	Off	30	15	45	80	10	90
Integrated Crop Management	Improved production technology of Jute	1	2	Off	20	10	30	60	0	60
Production of organic inputs	NADEP compost production	1	2	Off	20	20	20	60	0	60
Others, if any (Seed treatment)	Seed treatment and nursery management of *kharif* paddy	1	2	Off	15	10	35	60	0	60
II Horticulture										
Nursery raising	Nursery management in vegetable crops	1	3	On	15	0	30	30	15	45
Protective cultivation (Green Houses, Shade Net etc.)	Production technology of cole crops in greenhouse	2	2	On	10	0	20	24	06	30
Others, if any (Production technology of vegetables)	Improved production technology of major vegetable crops	1	10	On	30	0	70	75	25	100
Layout and Management of Orchards	Layout and Management of Orchards	1	3	Off	27	09	09	30	15	45
Cultivation of Fruit	Improved cultivation of tissue culture banana	1	1	Off	10	0	20	30	0	30
Plant propagation techniques	Plant propagation techniques of sub-tropical fruit crops	1	7	On	21	0	49	56	14	70
Production and Management technology	Improved production technology of potato	1	1	On	10	0	20	24	06	30
III Soil Health and Fertility Management										
Soil fertility management	Improved fertilizer management in oilseeds and pulses	1	2	Off	12	08	40	60	0	60
	Integrated nutrient management for	1	3	Off	30	15	45	50	10	90

	enhancement of paddy productivity and better soil health									
	Improved fertilizer management in Mustard	1	3	Off	30	15	45	50	10	90
	Use of biofertiliser in kharif rice	1	3	Off	30	15	45	50	10	90
Soil and Water Testing	Need for soil testing and soil test based fertilizer application	1	3	Off	30	15	45	50	10	90
IV Livestock Production and Management										
Dairy Management	Home made cattle feed preparation using local feed resources	1	3	On	30	10	50	60	30	90
Poultry Management	Care of chicks and ducklings	2	4	Off	40	0	40	40	40	80
Disease Management	Animal shed disinfection	1	3	Off	30	0	60	30	60	90
Pig management	Rearing of pig in low inputs system	1	3	Off	30	30	0	30	30	60
Feed management	Feeding techniques of mineral mixture for dairy cow & goat	1	3	Off	30	0	60	30	60	90
Livestock feed and fodder production	Cultivation techniques of rice bean	1	3	On	15	0	45	45	15	60
	Cultivation techniques of oat as fodder	1	3	Off	30	0	60	84	6	90
Post Harvest Technology	Techniques of paneer preparation	1	3	Off	30	0	60	30	60	90
V Plant Protection										
Integrated Pest Management	Integrated Pest Management (IPM) in *aman* rice	1	3	On	15	0	60	60	15	75
Integrated Pest Management	Integrated Pest Management (IPM) in *boro* rice	1	3	Off	15	0	60	60	15	75
Others, if any (Pest management)	Pest Management in Potato	1	3	Off	15	0	60	60	15	75
	Pest Management in Mustard	1	3	Off	15	0	60	60	15	75
	Pest Management in Tomato	1	3	Off	15	0	60	60	15	75
	Pest Management in Cucurbits	1	3	Off	15	0	60	60	15	75
VI Fisheries										
Integrated fish farming	Integrated duck-cum-fish farming in back yard pond	1	2	On	16	4	40	40	20	60
Carp fry and fingerling rearing	Rearing pond preparation and management	1	1	Off	7	1	22	20	10	30
	Preparation and management of nursery pond	1	1	Off	10	0	20	20	10	30
Composite fish culture	Aquatic weeds and algal blooms in fish ponds, their control and utilization	1	1	Off	10	1	19	20	10	30
	Schedule of fertilization and liming in fish culture ponds.	1	1	On	9	2	19	20	10	30
	Disease management &	1	1	On	8	1	21	20	10	30

	prophylactic measures in composite fish culture pond									
	Effects of liming in fish ponds	1	1	On	7	3	20	24	06	30
Hatchery management and culture of freshwater prawn	Monoculture of freshwater Prawn	1	1	Off	11	1	18	24	06	30
VII Home Science										
Therapeutic Nutrition	To make aware the farm women about therapeutic diet during critical condition of health	1	3	Off	30	30	15	0	75	75
Women Legal Rights	To sensitized the farm women about their legal right and issues	1	3	On	15	15	45	0	75	75
Women and child care	To make aware the farm women about the food that combat micronutrient deficiency.	1	3	On	30	30	15	0	75	75
Women and child care	Management of Protein Energy Malnutrition of children.	1	2	Off	30	30	15	0	75	75
VIII Agricultural extension										
Water management	To make the farmers aware about efficient methods of water management	1	3	On	15	15	45	70	5	75
Gender sensitization	Entrepreneurship ability and avenues for rural women for women empowerment	1	3	Off	9	6	60	0	75	75
Formation and management of SHGs	Formation and management of self help groups	1	3	Off	12	9	54	15	60	75
WTO and IPR issues	WTO and GATT – implications for Indian agriculture	1	3	On	18	9	33	42	18	60
Total		**50**	**131**	**0**	**962**	**359**	**1854**	**1913**	**1082**	**3175**

(b) Rural youths

Thematic Area	Title	No of courses	Duration	On/ Off campus	No of participants/trainee days					
					SC	ST	Others	M	F	Total *
I Crop Production										
Seed production	Paddy seed production technology	1	3	On	24	15	51	84	06	90
Production of organic inputs	Vermicompost production at farmers level	1	3	On	24	15	51	84	06	90
Mushroom Production	Improved Production	2	6	On	60	30	90	120	60	180

	Technology of Oyster Mushroom Cultivation									
II Livestock Production and Management										
Poultry management	Duck farming	1	3	Off	20	20	20	40	20	60
III Fishery										
Carp breeding and hatchery mgt.	Induced breeding of Indian major carp	1	3	On	15	0	75	60	30	90
IV Production of Inputs at site										
Seed Production	Seed production techniques of major vegetable crops	1	3	Off	9	0	36	36	09	45
V Agricultural Extension										
Capacity building for ICT application	ICT application in agriculture	1	3	On	15	9	36	40	20	60
	Total	**8**	**24**		**168**	**90**	**357**	**464**	**151**	**615**

(c) Extension functionaries

Thematic Area	Title	No of courses	Duration	On/Off	No of participants/trainee days					
					SC	ST	Others	M	F	Total *
I Crop Production										
Resource Conservation Technologies	Rice cultivation through SRI	1	2	On	18	02	40	50	10	60
Others, if any (Climate change)	Climate change and agriculture	1	3	On	24	06	60	81	09	90
Protective cultivation (Green Houses, Shade Net etc.)	Micro irrigation technology in horticulture crops	1	3	On	6	3	36	30	15	45
	Improved fertilizer management in oilseeds and pulses to augment productivity	1	3		24	06	60	81	09	90
	Vermicompost production & its utilization for soil health	1	3		24	06	60	81	09	90
	Farm mechanization	1	3		24	06	60	81	09	90
II Livestock Production and Management										
Management of farm animals	Feed and feeding practice of livestock	1	3	On	15	0	45	45	15	60
Management of farm animals	Artificial insemination	1	1	on	20	0	0	20	0	20
Management of farm animals	Pen-side clinical pathological test for better animal health	1	3	on	15	0	45	45	15	60
III Fishery Sc.										
Composite fish culture	Sustainable aquaculture	1	3	On	9	6	30	42	3	45
IV Home Science										

Development of low cost nutritious food	Utilization of locally available food resources	1	3	On	15	0	45	40	15	60
V Agricultural Extension										
WTO and IPR issues	WTO and GATT – implications for Indian agriculture	1	3	On	15	0	45	45	15	60
Total		**12**	**33**		**231**	**33**	**506**	**641**	**129**	**770**

(d) Sponsored Training

Thematic Area	Title	Courses	Duration	On/ Off	No of participants/trainee days					
					SC	ST	O	M	F	Tot
Resource Conservation Technologies	Rice cultivation through SRI	1	2	On	10	0	20	30	0	30
Nursery raising	Nursery management in vegetable crops	1	3	On	15	0	30	30	15	45
Soil fertility management	Improved fertilizer management in oilseeds and pulses	1	2	Off	12	08	40	60	0	60
Soil and Water Testing	Need for soil testing and soil test based fertilizer application	1	3	Off	30	15	45	80	10	90
Production of organic inputs	Vermicompost production at farmers level	1	3	On	12	6	42	54	06	60
Preservation and Value addition	To provide knowledge about the use of preservatives, preparation methods and value addition	1	3	Off	12	3	45	9	51	60
Total		**6**	**16**		**102**	**40**	**203**	**263**	**82**	**345**

(e) Vocational Training

Thematic Area	Title	courses	Duration	On/ Off	No of participants/trainee days					
					SC	ST	O	M	F	Tot
Protective cultivation (Green Houses, Shade Net etc.)	Green house cultivation of high value vegetables	2	5	On	20	5	50	50	25	75
Poultry Management	Broiler farming	2	7	On	35	0	105	105	35	140
Income generation activities for empowerment of rural Women	Jute handicrafts preparation for Self employment	2	7	On	60	30	120	0	210	210
New generation pesticides	New generation pesticides and its application for crop health	1	5	On	50	0	100	125	25	150
Mushroom Production	Improved Production Technology of Oyster Mushroom Cultivation	1	5	On	50	10	90	100	50	150
Rural crafts	Tie and Dye method	1	7	Off	91	28	91	0	210	210
Repair and maintenance of	Operation,	1	5	On	25	5	45	75	0	75

farm machinery and implements	maintenance and repairing of power tiller, pumpset and other agricultural implements									
Entrepreneurship development	Various enterprise choices in Agriculture	1	7	On	35	14	56	91	14	105
(Fish entrepreneur development	Ornamental fish culture	1	3	Off	12	3	15	21	9	30
Others, if any	Recent advances in agricultural crop production	3	7	On	14	0	56	70	0	70
Total		**8**	**34**		**392**	**95**	**728**	**637**	**578**	**1215**

(f) Skilled Development Programme

Thematic Area	Title	Courses	Duration	On/ Off	No of participants/trainee days					
					SC	ST	O	M	F	Tot
Rural Crafts	Training on Preparation of kantha stitch	2	7	Off	91	35	84	196	14	210
Care and maintenance of farm machinery and implements	Repairing of farm machineries & implements etc.	1	3	On	15	0	45	60	0	60
Total		**3**	**10**		**106**	**35**	**129**	**256**	**14**	**270**

4. Frontline Demonstration

Season	Crop	Variety	No. of demonstration	No. of area (ha)
Summer 2013	Jute (Varietal)	JRO 204, JRO 128, JBO 2003H	35	5
Kharif 2013	Paddy (SRI)	MTU-7029	15	2
Rabi, 2013	Mustard	Pusa bold	15	2
Summer, 2014	Sesame	IS 5	15	2
Rabi, 2013	Lentil	WBL 81	15	2
Kharif 2013	Paddy (Bio control of YSB)	MTU-7029	7	1
Rabi 2013-14	Tomato (Packaged Demonstration)	Abhilash	15	2
Kharif 2013	Banana (Package demo. Of TCB)	Grand Naine	7	1
Kharif, 2013	Paddy (Pest Management)	MTU-7029	7	1
Kharif 2013	Rice bean (Fodder)	Bidhan-I	5	0.2
Rabi 2013	Oat (fodder)	Kent	10	0.5
Year round	Diversified vegetables (Nutritional gardening)	Cucurbits, GLV and other vegetables	5	0.2
Total			**151**	**18.9**

Enterprise

Season	Enterprise	Variety	No. of demonstration	No. of animal/ area (ha)
Year round	Cattle (Home Feed management)	Deshi cow	10	10 nos.
Year round	Cattle (Nutrient management)	Deshi cow	10	10 nos.
Year round	Poultry (Improved rural breed)	RIR	10	200 nos.
Year round	Monosex culture of *Oreochromis mossambicus*	Tilapia	10	0.2 ha
Year round	Culture of Pangus (*Pangasius sutchi*)	Pangus	10	0.25 ha

5. Seed and planting material production

Seed		Planting material	
Crop	**Area**	**Crop**	**Area**
i. Paddy (Foundation Seed)	5 ha	i. Tomato	60000 nos.
ii. Pulses (Green gram, Blackgram) (Seed Production)	2 ha	ii. Brinjal	20000 nos.
iii. Sesame (Seed Production)	2 ha	iii. Cauliflower	20000 nos.
iv. Lentil (Certified Seed)	6 acre	iv. Livestock (Goat Kid)	50 nos.
v. Garlic	0.1 ha	v. Orchard (different fruits)	1 ha
vi. Oat	0.5 ha	vi. Brooding Chicks (RIR)	2000 nos.
		vii. Kid Production (Bengal breed)	100 nos.
		viii. Fish fingerling production	1.5 ha
		ix. Fish spawn to fry production	1.5 ha
		x. Fish spawn production	10 million

6. Extension Activities

Activities	No.	Participants
Field day	4	300
Technology Week	1	750
Farmers-Scientist interaction	2	80
Ex-trainees' sammelan	2	60

Film show/ TV show	5	250
Farmers' Study Tour	4	200
Kisan Mela/ Kisan Gosthi	1	200
Exhibition	4	300
Workshop	2	200
Soil health Camp (Soil testing campaign)	4	200
Animal Health Camp	4	400
Farm Science Club Conveners meet	16	480
Self Help Group Conveners meetings	6	180
Mahila Mandals Conveners meetings	3	90
Awareness camp on Nutrition, health and hygiene	1	150

7. Revolving Fund

Open balance (2012-13) (Rs. in lakh)	Amount to be invested (Rs. in lakh)	Return (Rs. in lakh)
2.25 in cash + 5.00 in kind	**6.0**	**8.0**

8. Expected fund utilization

Project	Source	Amount to be received (Rs. in lakh)
Nil		

9. On-Farm Trials to be conducted (11 nos)

Thematic area	Title	Treatments	No. of farmers
Vareital evaluation	Evaluation of performance of different varieties of jute under rainfed and medium upland situation of Burdwan district	**FP:** JRO 524 **TO 1:** JBO 2003H **TO 2 :** JRO 204 **TO 3 :** JRO 128 **TO 4 :** CO 58	**4**
Resource conservation	Assessment of performance SRI under different modes of nutrition in medium upland soils of Burdwan	**FP:** Conventional rice cultivation **TO 1:** Brown manuring **TO 2:** SRI **TO 3:** Aerobic rice	**5**
Nutrient management	Effect of sulphur and zinc nutrition on rice yield in medium upland situation of	**FP:** 90:90:30 N, P, K **TO 1:** Recommended doses	**4**

	Burdwan district	(100:50:50) through urea, DAP and MOP **TO 2:** RD + 6 kg $Znha^{-1}$ through chelated Zn **TO 3:** RD + 20 kg Sha^{-1} through elemental S **TO 4:** RD + 6 kg $Znha^{-1}$ through chelated Zn + 20 kg Sha^{-1} through elemental S	
Production technology	Evaluation of different agrochemicals on flowering and yield of chilli	**FP:** Recommended dose of fertilizer (100:50:50 kg NPK/ha) **TO 1:** Recommended dose of fertilizer + NAA as FS (3 times) **TO 2:** Recommended dose of fertilizer + Triacontanol as FS (3 times) **TO 3:** Recommended dose of fertilizer + Boron as FS (3 times)	**5**
Nutrient management	Evaluation of nutrient management practice in tissue cultured banana	**FP:** 200:150:100 kg NPK/ha **TO 1:** 200:150:200 kg NPK/ha + (S, Mg combined product) as FS (5 times) **TO 2:** 200:150:200 kg NPK/ha + (Ca, Mg, B, Mo combined product- Aquacal) as FS (5 times)	**7**
Pond management	Effect of liming doses in fish ponds on fish productivity under pond ecosystem of Burdwan	**FP:** Occasional use of lime **TO 1:** liming – pH based single dose. **TO 2:** liming – pH based split dose.	**7**
Nutrient management	Effect of regular application of organic fertilizer and supplementary feeding of IMC on fish productivity under pond ecosystem of Burdwan	**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 feed supplement (EPIC) fish feed @ 3% of total stocked fish biomass	**7**
Breed Evaluation	Evaluation of performance of different pig breeds in Burdwan using low input systems.	**FP:** Local breed **TO1: Ghungroo** **TO2: white yorkshire**	**7**
Breed	Evaluation of performance of different	**FP:** Local breed	**7**

Evaluation	duck breeds in Burdwan under backyard farming.	**TO1: Khaki Campbell** **TO2: Indian Runner**	
Extension teaching method evaluation	Effectiveness of extension teaching methods in gain and retention of knowledge of SRI	**FP: Farmers own knowledge** **TO1: Lecture + FFS** **TO 2: Lecture + demonstration** **TO 3: Lecture + Training literature**	**5 (each group of 20)**
Post harvest technology	Assessment of preservation techniques for improving shelf life of cauliflower pickle	**FP:** Traditional method using salt, turmeric and chilli powder , onion, garlic and ginger with little amount of mustard oil **TO 1:** T_1 – FP + use of locally made tamarind pulp (50 ml/kg) as a preservative + adequate amount of ingredients **TO 2:**T_2 – FP + use of Acetic acid @ 20 ml/kg and sodium benzoate @ 0.5 mg/ kg as a chemical preservative + adequate amount of ingredients	**7**

10. List of Projects to be implemented

Name of the project	Fund expected (Rs.)

11. No. of success stories to be developed

a) SRI technology: 03

b) Banana Cultivation: 01

c) Broiler Farming: 02

d) Rural Crafts : 01

12. Scientific Advisory Committee

Date of SAC meeting held during 2010-2012	Proposed date
9th SAC meeting held on 12/04/2012	--
10th SAC meeting to be held	May. 2013
11th SAC meeting to be held	Dec. 2013

13. Soil and water testing

Sample	No. of samples to be analysed
Soil	**250**
Plant	**100**
Water	**50**
Manure	**50**

14. Staff position

Sanctioned	In position	If vacant, since when
Programme Coordinator / Sr. Scientist	0	1(since 01.12.12)
SMS (Agril.) / T-6	1	0
SMS (Hort.) / T-6	1	0
SMS (A.H. & V.S.) / T-6	1	0
SMS (Fishery Sc.) / T-6	1	0
SMS (Agril. Extn)/ T-6	1	0
SMS (Home Sc.) / T-6	1	0
Programme Assistant (Computer)/ T-5	1	0
Programme Assistant/ T-5	1	0
Farm Manager/T-4	1	0
Assistant	1	0
Stenographer, Grade – III	1	0
Driver/ T-2	1	0
Driver / T-2	1	0
Skilled Supporting Staff	1	0
Skilled Supporting Staff	1	0
Total	15	01

15. Status of infrastructure

Infrastructure	Complete	Under construction	Not started	Reasons, if not started
Administrative building	Completed	-	-	-
Trainees' hostel	Completed	-	-	-
Staff quarter	Completed	-	-	-
Demonstrations:				
i) IFS	Completed	-	-	-
ii) Portable Carp Hatchery	Completed	-	-	-

16. Fund requirement and expenditure (Rs.)

Total Fund Requirement:

	Expenditure (last year) (Rs. in lakh)	Expected requirement (Rs. in lakh)
Recurring		
i. Pay & allowance	**67.40**	**75.00**
ii. Contingency	**13.00**	**17.84**
iii. TA	**0.68**	**2.00**
Non-recurring (specify)		
i. Vehicle and implement shed	**0.0**	**25.00**
ii. Storage godown	**0.0**	**50.00**
iii. Threshing and drying yard	**0.0**	**5.00**
iv. Furniture & Equipment	**0.0**	**40.0**
v. Library	**0.0**	**0.50**
TOTAL		**215.34**

17. **Every KVK should bring a brief write-up supported by quality photographs about the technology having wide acceptability among the farming community of the district with factual data**.

Annexure –I

1. Efficient Resource Utilization through Integrated Farming System Approach

Farmers have resources and there is lack of proper utilization in their farms. Therefore, integration of different enterprises/ crop by utilizing farmer's available resources is one the best multidisciplinary approaches to the farmers from production and economic point of view. In this context, awareness and dissemination of this farming approach are taken as a priority of work with multidisciplinary interventions.

Brief description of the technology: The technology has been developed through the following steps:

- Survey of available resources and analysis of production constraints
- Training of farmers having aquatic bodies
- Model development (Crop- poultry- fish) in aquatic based production system and trials through
  OFT and FLD
- Farmers and district officers visit, news paper coverage
- Training of MGNREGS workers, SHGs and beneficiaries of MGNREGS

Shoyeb Hossain is a marginal farmer-cum-rural youth of village Jagulipara, Galsi-I of the district Burdwan. Although being a rural youth he has got a pragmatic view towards latest agricultural technologies and is keen to learn and as such he was chosen for developing the integrated farming system model in his backyard. He own one pond of 1 bigha with adjoining 1.5 bigha land including bund area. While the pond was mainly used for household purposes like washing with irregular or no pisciculture, the land area was used for growing seasonal vegetables for meeting the household needs and as a result he was hardly having any meaningful income from the resources. He was extensively trained by KVK personnel towards developing the same system in his backyard which he accomplished with success. To start with he was supplied with tissues cultured banana plantlets, vegetable seedlings, ducklings and IMC fingerlings. He developed a good banana orchard intercropped with vegetables like chili, tomato, brinjal, turmeric etc. Now he is earning an amount of Rs. 50,000/- yearly from his farm and inspiring other farmers to adopt this kind of intervention.

Progress/ Impact: The model has been successfully tested and implemented in pond based farming situation. The model plan was IMC fish cultivation at pond- tissue culture banana cultivation at bund area and poultry rearing under free range condition. Advantageous aspects such as production potentiality, insurance coverage by other crops/ enterprise flow of return motivated farming community as well as district officials and ICAR. It had been taken up in MGNREGS Convergence programme to transfer this approach in newly developed ponds under MGNREGS. I personally delivered lecture with presentation regarding the technology to all the beneficiaries and officers of line departments of the study area in a one day workshop conducted by MGNREGS, Burdwan. After that series of trainings were conducted for the SHGs, beneficiaries of MGNREGS in the district. The model has been also taken as pilot project by CAPART for better resource utilization in this district.

Pond selection by KVK and state govt. personnel

2. Supplementation of Region Specific Mineral Mixture for Deshi Cow

Brief description of the technology: Minerals (P, Zn, Cu, Mn, Ca & Fe) in feedstuff and soil of Burdwan district were estimated and found that daily diet of lactating cow were deficient in P, Zn, Cu & Mn. So, to overcome the deficiency and production losses an area specific mineral mixture, composed of sulphate salt of minerals, was formulated and supplemented. Higher milk yield has been noticed with increased in fat % in supplemented group with enhancement of lactation period in deshi cow.

Mineral contents (copper, zinc, manganese, and iron) of the feeds & forages were estimated by AAS. Phoshphorus content was estimated colorimetrically. The program was formulated to develop a region specific mineral mixture for deshi cow by analyzing mineral status in locally available feed stuffs with the objective of improvement of productivity and reproduction efficiency. The trial was conducted in deshi cow (2nd lactation) under tradition feeding practices (3kg straw, 1 kg rice husk, 100 g oil cake and 20 g salt daily plus grazing) producing 1.8 to 1.9 kg milk/ day on an average having 3.2- 4.2 5 fat. The parameter on milk yield and fat % were analyzed but record keeping on calving interval is continuing as calving interval in deshi cow is 20-22 months.

The trial was then taken into FLDs taking 50 number of demonstration in different villages and results have been obtained so promising.

Impact of the practice: Now the farmers of the district are purchasing the mixture packet from the KVK and in some cases farmers are preparing their own and feeding their cattle @ daily mineral supplementation (25 g/day) which significantly improved milk yield (0.5 kg/ day/ cow) which also reduced calving interval.

3. Popularization of home made feed preparation technology

Feed is the key component directly linked with the productivity of animal. There is a huge feed scarcity in villages resulting poor productive and health performance of animals. And most of the animal raisers are not in position to procure balanced ration for their dairy cow or goat. In this context, home feed preparation technology is approached among the farmers for popularization.

Brief description of the technology: Demonstration of home made feed preparation for lactating cow and feed techniques after hand tool training in villages. Preparation of feed for cows in farmer's participatory mode was initiated to meet their requirement for animal's feed. After that, a plan project was submitted for installing feed preparation unit in KVK and it was sanctioned as an innovative plan of the district by ATMA.

Impact of the Practice: After getting training the farmers were started to prepare their own feed at home and rate of inclusion of different locally available feed ingredients (rice husk, mustard oil cake and broken rice) was optimized for preparation of economic ration for deshi cow. And a further step on popularization of techniques among farmers, SHG and field extension personnel have been initiated through training demonstration and film shows. After reorganization of this technology as an Innovative idea (*Annexure – V*) for the district by the ATMA-Burdwan, one feed grinder and feed mixture were installed at KVK to facilitate farmers and method was demonstrated to them. Now it is utilized regularly by farmers to prepare their feed for livestock and poultry by using their own feed ingredients as demonstration purpose.

4. Mass vaccination programme for livestock and poultry

Mass vaccination of livestock and poultry has been adopted among villagers to prevent the most prevailing diseases of their animals namely, Foot and Mouth Disease of cattle and buffalo, Goat pox of goat, Ranikhet disease of poultry, Duck plague of duck and *Peste Des Petits Ruminants(PPR)* of goat. A huge economic loss due to morbidity and mortality has been noticed in PPR and goat pox at the time of multidisciplinary PRA in the villages. Even goat pox infection causes skin damage and reduced its value. For this reason, it was identified as priority area of work.

Brief description of the practice: First an intervention module has been developed for systemic mitigation of the problems in villages containing awareness cum training- mass vaccination- routine

sero-monitoring- distribution of vaccine card, extension literature on vaccine schedule- farmers science club meeting- strengthening of farmers science club for subsequent follow up. Vaccination of 700 goats in 2008, 920 goats in 2009 and 1255 goats in 2010 was done against PPR and Goat pox.

Impact of the Practice: Major progress has been achieved in controlling PPR and Goat Pox in our adopted villages where 15- 20 % goat mortality was reduced in 800 farm families. Villagers enjoyed the first time of such animal vaccination camps in their villages in the year 2007. The activities encourage the villagers to rear their animal safely. In addition to, skin value of goat has been improved through vaccination against Goat pox.

A motivation progamme was initiated among members of farm science club and the practice has been popularized among villagers and near by villagers through film show, FLD and training of animal raisers, extension personnel namely LDA, Prani Bandhu and members of SHGs.

5. Development of Model of Organic Farm

Sri Tapan Nandi is an organic farmer but he like himself to be called entrepreneur. He has not only developed his farm holistically but provides permanent employment to 12 person He grows organic rice on his farm using SRI method. According to him the production of rice grown using organic method is more then in traditionally grown rice using fertilizers. Normally per hectare yield of rice is 3-3.5 t/ha. He gets yield upto 5.5 t/ha. Scented rice (Govind bhog) produced by him has great demand in market. In addition to rice he grows fodder crops on his farm mostly leguminous. This leguminous fodder crop not only increases the milk production but also add nitrogen to soil. On the North West side of farm he has planted Malaysian Sal tree. These work as wind break and protect farm from severe wind.

He also produces many seasonal organic vegetables through out the year like potato, chilly, brinjal, cauliflower, cabbage, cowpea and radish which have great demand in local market.

He has 17 crossbreed cows which on an average give 30-36 lit milk/ day. This milk is sold to Amul Dairy daily. Also he gets an additional income from fishing. His farm produces 10 tonnes fish annually.

He is more than just an organic farmer on grounds that apart from rescinding application of inorganics of all kind, he has reverted to using all possible forms of

available organic material, wholly or in recycled manner for cultivation of crops on his farm ranging from biofertilisers, biopesticides, green manure, cow urine, vermicompost and vermiwash and even night soil, too! Apart from having a 4 cubic meter biogas unit from cow dung, he maintains a night soil biogas unit of 2 cubic meter, the slurry from which is utilized in feeding the fishes in the 4 acre pond in his farm. This is where he has been innovative. He has made one floating bed of half decomposed water hyacinth with night soil slurry (as shown in the picture) for feeding the fishes in one corner of his pond that resulted in augmented growth of the gluttonous fish species like grass carp and other major carps. The oxygen deficiency due to this composting is made up with creation of artificial waves through regular pumping of water and an electrical turbine. These artificial waves also increase fish production in winter by facilitating fish movement.

For this noteworthy work he has received many awards. Recently he was given a letter of appreciation by Prof, M.S. Swaminathan at Indian Science Congress 2013 held at Kolkata. He also received Krishi Samrat Samman (East region) in March, 2013 for his contribution in organic scented rice production.

Practical utility

There are many more such farms where there are sufficient numbers of laborers are engaged to generate night soil which can be utilized in this fashion profitably. Presently KVK Burdwan is exploiting the technology developed by him in other such farms in the district which is practicable apart from being environmentally benign.

Picture 1: Innovative feeding of fishes