



***KRISHI VIGYAN KENDRA
BOKARO***



ANNUAL REPORT

(April 2012- March 2013)

ZONAL WORKSHOP OF KVKs ZONE-II

Date: 20-22 APRIL 2013

VENUE: RAU, PUSA, SAMASTIPUR (BIHAR)

BIRSA AGRICULTURAL UNIVERSITY, RANCHI

1. GENERAL INFORMATION ABOUT THE KVK

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

Address	Telephone	FAX	E mail
Krishi Vigyan Kendra, Bokaro P.O.- Petarwar Pin- 829121	06549-265048 (O) 09431126991 (M)		kvk_bokaro@yahoo.co.in

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

Address	Telephone	FAX	E mail
	Office	Office	
Birsa Agricultural University, Jharkhand, Kanke, Ranchi Pin-834006	(VC) 0651- 2450500(O)	0651- 2450850	rpsratna07@yahoo.co.in deebauranchi@gmail.com
	(DEE) 0651- 2450849 (O)	0651- 2450525	

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

Name	Telephone / Contact		
	Residence	Mobile	Email
Sri Uday Kumar Singh	09431595179	9431126991	udaysingh72@gmail.com

1.4. Year of sanction:

(Reference of Sanction Order)

2004. Vide letter No. of ICAR- F.No. 6-5/2000-AE-1 dated 24-6-2004

1.5. Staff Position (as on 31st March 2013)

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	Sri Uday Kumar	I/C Programme Coordinator & SMS	Agronomy	PB(15600 - 39100) GP- Rs.6000.00	19-07-04	Permanent	Others
2.	Subject Matter Specialist	Dr. Anil Kumar	SMS	Horticulture	PB(15600 - 39100) GP- Rs.6000.00	19-07-04	Permanent	Others
3.	Subject Matter Specialist	Dr. Sudhir Kumar Jha	SMS	Soil Science	PB(15600 - 39100) GP- Rs.6000.00	20-07-04	Permanent	Others
4.	Subject Matter Specialist	Sri Vinay Kumar	SMS	Agril. Engg.	PB(15600 - 39100) GP- Rs.6000.00	20-07-04	Permanent	Others
5.	Subject Matter Specialist	Mrs Neena Bharti	SMS	Plant Prot.	PB(15600 - 39100) GP- Rs.6000.00	20-07-04	Permanent	ST
5.	Subject Matter Specialist	Mrs. Nandana Kumari	SMS	Home Science	PB(15600 - 39100) GP- Rs.6000.00	19-07-04	Permanent	Others
	Programme Assistant	Mrs Smita Shweta	Programme Assistant	Fishery Science	PB (9300-34800) GP-Rs. 4200.00		Permanent	Others
6.	Farm Manger	Miss Priyanka Verma	Farm Manager	Agril Science	PB (9300-34800) GP-Rs. 4200.00	31-07-04	Permanent	Others
7.	Assistant	Sri T.N. Tiwari	Assistant		PB (9300-34800) GP-Rs. 4800.00		Permanent	Others
7.	Computer Programmer	Sri Naman Kandulna	Programme Assistant(Computer)		PB (9300-34800) GP-Rs. 4200.00	20-07-04	Permanent	ST
8.	Accountant / Superintendent	Sri Abhay Kumar Singh	O.S.cum Accountant		9300.00	April 2008	Contractual Staff	Others
10.	Stenographer	Sri Ratnesh Kumar Mishra	Stenographer		5200.00	April 2008	Contractual Staff	Others

11.	Driver	Sri Ranchandra Lohar	Driver		5200.00	April 2008	Contractual Staff	ST
12.	Driver	Sri Panchanand Mahto	Driver		3000.00	April 2008	Contractual Staff	Others
13.	Peon	Sri Ruplal Marandi	Peon		4440.00	April 2008	Contractual Staff	ST
	Peon	Sri Durga Prasad Mahto	Peon		4440.00	April 2008	Contractual Staff	OBC

1.6. Total land with KVK (in ha) - 10 ha

S. No.	Item	Area (ha)
1	Under Buildings & Demonstration units and other encroachment	2.0
2.	Under Crops	6
3.	Orchard/Agro-forestry (Mother plant nursery)	1
4.	Technology park	0.4
5.	Pond	0.2
6.	Unutilized land due to undulating	0.4

1.7 Infrastructural Development:

A) Buildings

SI. NO.	Name of building	Source of funding	Stage						
			Complete			Incomplete			
			Completion Date	Plinth area (Sq.m)	Expenditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction	
1.	Administrative Building	I.C.A.R.	1-12-2007	500					completed
2.	Farmers Hostel	I.C.A.R.	01-10-2007	300					Completed
3.	Staff Quarters (6)	I.C.A.R.					400		Incomplete
4.	Demonstration Units (2) Preservation unit	I.C.A.R.							Not started
5	Fencing	District Administration							completed
6	Rain Water harvesting system	I.C.A.R.	June 2007	120x120x10 ft pond					Incomplete (Micro irrigation system is not installed)
7	Farm godown	District Administration	Dec.2007	1750					completed
8	Farm godown	I.C.A.R.							completed
9.	IT Infrastructure	I.C.A.R.							completed
9.	Soil testing lab	I.C.A.R.							Likely to be completed
10.	Plant diagnostic lab	I.C.A.R.							Not started
11.	Threshing floor	I.C.A.R.							Completed
12.	ATIC centre	District Administration							Completed
13.	Irrigation channel	I.C.A.R.							Not started
14.	Deep boring	I.C.A.R.							Failed

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Kms. Run during the year (1 st April 12 to 31 st March 2013)	Total Kms. Run	Present status
Jeep	2005	431129.00		224919	Time to time repairing is needed
Tractor	2006	361200.00		1048 Hrs Run	Time to time repairing is needed

C) Equipments & AV aids

Name of the equipment	Year of purchase	Cost (Rs.)	Present status
Seed drill cum fertilizer drill	2005	775.00	Good
Birsa ridger plough	2005	485.00	Good
Japanese paddy weeder	2005	525.00	Good
Dryland weeder	2005	300.00	Good
Birsa potato digger	2005	625.00	Good
Paddy transplanter	2006	-	Good
Cultivator 9 tine	2006	14200.00	Good
Land leveler	2006	8080.00	Good
Offset disk	2006	28020.00	Good
Trailer 4 wheel with tyre tube	2006	76500.00	Good
Disc plough 2 furrow	2007	26995.00	Good
Grass cutter	2007	38500	Good
M.B. Plough	2007	26993.00	Good
Rottary tiller	2007	88585.00	Good
Power sprayer	2007	48500.00	Good
Cage wheel nut bolt type	2007	5250.00	Good
Zero till fertilizer drill	2010	-	Good
Computer	2006	45000.00	Good
UPS	2006	7000.00	Good
Laser Printer	2006	8000.00	Good
Fax Machine	2006	8000.00	Not installed
Xerox	2007	72000.00	Not functioning
2 KVA Stabilizer	2007	4850.00	Good
Stabilizer 500 VA Manual Auto-cut	2007	1750.00	Good
Camera	2005	12650.00	Good
Camera	2007	14512.50	Not functioning properly
LCD Projector	2007	51989.00	Good
HAKIM Audio Visual Trolley	2007	8534.00	Good
Projector Screen 8'x6'	2007	7550.00	Good
15Mtrs special imported moulded VGA cable	2007	7500.00	Good
Laser pointer torch with duel effect	2007	2200.00	Good
Refrigerator	2007	11990.00	Good
Food processor	2007	4995.00	Good
Commercial gas cylinder	2008	3000.00	Good
Weighing machine	2008	7540.00	Good
Weighing machine	2010	12740.00	Good
Weighing machine	2010	7260.00	Good
Generator 5 KVA	2010	49500.00	Good
Hakim Info Pannel along with stand(4x4)	2010		
Power Tiller	2011		
Tomato Pulpar	2011		
Screw type Juice Extractor	2011		
Fire Extinguisher	2011		
Field king laser Guided Land Leveler Machine	2012		

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

Sl.No	Date	Number of Participants	Salient Recommendations	Action taken	If not conducted, state reason
1.	27.01.2012	38	On-farm trials which had been conducted for two years should be concluded and recommendations should be given to ATMA and feed	6 no. of OFTs which has been conducted for two years had been concluded and recommendation has been given to ATMA, Bokaro. On two best recommendation of OFTs FLD has been conducted this year 2012-13.	
			Rural youth training programme should be of long duration (more than one week), skill oriented for entrepreneurship development. Interested person should be trained in this programme	8 no. of Rural youth training programme of one week duration has been conducted, in which 210 youths were trained.	
			OFT should be conducted on fertilizer management in SRI.	OFT on standardization of nutrient requirement in SRI paddy has been conducted. Results are given in Annual Report.	
			The OFT on control of stem borer of maize should be concluded	This OFT had been concluded	
			Animal Husbandry programme should be strengthened with the help of S.M.S. (Animal Husbandry) of K.V.K. Dhanbad.	Training programme and demonstration on Livestock is conducted with the help of SMS(Animal Husbandry) of K.V.K. Dhanbad and line department.	
			Possibility of developing integrated farming system models should be explored with collaboration with District Fishery Department.	Work is in progress	
			NABARD offered to collaborate with KVK in skill development and capacity building of farmers and agreed to support for publication of technical literature & bulletin.	KVK has been imparting training to Kisan club of NABARD for skill development. For publication of technical literature & bulletin process is going on.	
			Training programme on moisture conservation and micro irrigation system should be strengthened for efficient utilization of available	Training programme on moisture conservation and micro irrigation system	

			water	had been conducted.	
			A group of entrepreneurs should be selected by ISAP (Indian Society of Agribusiness Professionals), Bokaro for trainings by the KVK.	KVK is imparting training to Agribusiness students.	

** Attach a copy of SAC proceedings along with list of participants*

2. DETAILS OF DISTRICT (2012-13)

2.1 Major farming systems/enterprises (based on the analysis made by the KVK)

S. No	Farming system/enterprise
1	Agriculture + Horticulture(Vegetable)+ Animal Husbandry
2.	Agriculture + Horticulture(Vegetable)
3.	Agriculture + Animal Husbandry
4.	Agriculture + Horticulture(Vegetable)+ Animal Husbandry+ Fishery
5.	Agriculture + Horticulture(Vegetable)+ Animal Husbandry+ Lac culture
6.	Agriculture + Animal Husbandry+ Lac culture
7.	Agriculture + Labour

2.2 Description of Agro-climatic Zone & major agro ecological situations (based on soil and topography)

S. No	Agro-climatic Zone	Characteristics
1.	IV- Central North Eastern Plateau Zone	Geographical area of Zone = 41293 K.m ² Mining dominates in central part. Damodar, Barakar, More and Ajay are the main rivers of this zone. Damodar basin is famous for coal. This zone is characterized by having humid & sub humid tropical monsoon type of climate. Average rainfall of the zone is 1320 m.m. Monsoon breaks in the second week of June. In normal years pre monsoon rains are received in the month of May about 60 m.m. Apart from this winter rain during December- February is sparse. Soil developed on Rajmahal traps are dark, heavy textured, neutral in reaction and moderately well drained to poorly drained and moderately rich in N but poor in P&K. Soils of Dhanbad & Giridih areas are light textured, moderately to slightly acidic and moderately well drained and poor in N & P and moderate to fairly rich in K. Upland Soils of Ranchi and Hazaribagh areas are gravely to sandy, shallow, acidic and of very poor fertility status where as medium land soil are yellow coloured, slightly to moderate acidic, some what poorly drained & moderately fertile where as the soils of Koderma side are light textured, silty in nature, yellowish to reddish in colour & neutral to moderately acidic in reaction. These are poor to moderate in N, poor in available P and rich to very rich in K. Very limited irrigation potential has been exploited in this zone. Although it is claimed that 8-9% area is irrigated. Larger part of agricultural land is rainfed. Less than 55% area comes under net cultivated area.

	<p>Good forest is available on 12-13 percent land. Rice, maize, wheat, potato, linseed, rapseed and mustard, til, niger, ground nut and vegetables are major crops of the region.</p> <p>Climate of the Bokaro district is sub humid with water deficiency in winter. Temperature ranges from 2⁰C in winter to 45⁰C in hot summer. The main drainage system is Damodar & Swarnrekha rivers. Only 5-8% of net sown area is irrigated. The average annual rainfall of the district is 1275 mm. Upland soils are red to brownish red in colour, light textured, well drained, acidic in reaction and poor in organic carbon, N, Ca, Mg., P & S. Medium land soils are yellow, yellowish in colour, light to medium texture, moderately acidic and poor in N, Ca, Mg and organic matter. Whereas the low land soils are gray to grayish in colour, heavy textured, neutral to slightly alkaline in reaction, poorly drained and medium in N and organic matter. The major crops of the district are rice, maize, wheat, potato, lentil, linseed, rapseed & mustard, groundnut, potato and vegetables like ladys finger, tomato, brinjal, rench bean, raddish, cauliflower, cabbage & cucurbits.</p>
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S. No	Agro ecological situation	Characteristics
1.	Red sandy loam, gravely undulating topography with mines and forests	Undulating topography, having red sandy loam soil, full of gravels, covered with perennial forests, having mines
2.	Sandy loam rainfed	Upland sandy loam soil, no irrigation facility, agriculture only depend on rain water
3.	Sandy loam irrigated	Medium land, sandy loam soil, having irrigation facility
4.	Clay loam rainfed	Low land, clay loam soil, agriculture depend only rain water

Source: ATMA, Bokaro District

2.3 Soil type/s

S. No	Soil type	Characteristics	Area in ha
1.	Stony and gravely soil	Found in the foot hill prone to intensive erosion low water holding capacity highly acidic low in fertility status and organic matter content only suitable for pasture and recreation purpose.	206465
2.	Light texture soil (Sandy soil)	Found in upland, coarse texture soil, highly acidic in reaction, low water holding capacity, low in organic matter content and poor in fertility status, rich in micronutrient except Boron and Molybdenum, prone to erosion.	619395
3.	Medium texture soil (Loamy soil)	Found in medium land, soil texture is mainly sandy loam to sandy clay loam, soils are moderately acidic, poor in fertility status and	2064650

		low in organic matter content and water holding capacity is moderate.	
4.	Fine textured soil (Clayey soil)	Heavy texture soil , found in low land, soils are fairly acidic to neutral in reaction, water holding capacity is high, organic matter content is medium and moderate in fertility status.	1238790

Source: NSSLUP India

2.4. Area, Production and Productivity of major crops cultivated in the district

S. No	Crop	Area (ha)	Production (MT)	Productivity (Qtl /ha)
1	Paddy (Hybrid)	3075	12300	40.00
2	Paddy	26113	40088	15.50
3	Wheat	1300	1272	10.00
4	Maiz	4746	7595	16.00
5	Arhar	2130	1374	6.50
6	Gram	1309	1149	8.25
7	Mustad	1615	388	6.00
8.	Pea	325	387	12.00
9.	Green gram			6.0
10.	Horse gram			4.0
11.	Black gram			6.0
12.	Lentil			8.0
13.	Sesame			2.0
14.	Niger			2.0
15.	Linseed			5.0
16.	Mustard			6.0
17.	Brinjal	496	5952	
18.	Potato	300	750	
19.	Cauliflower	508	4572	
20.	Pea	325	387	

Source: Distt. Agriculture office Bokaro

2.5. Weather data

Month	Rainfall (mm)	Temperature ° C		R H (%)	No. of Rainy Days
		Maximum	Minimum		
April 2012	13.6 mm				
May 2012	7.8 mm				
June 2012	63.8 mm				
July 2012	303.6 mm				
August 2012	179.8 mm				
Sept. 2012	305.6 mm				
October 2012	22.2 mm				
November 2012	44.0 mm				
Dec. 2012	32.0 mm				
Jan. 2013					
Feb. 2013					
Total	972.4 mm				

2.6 Production and productivity of livestock, Poultry, Fisheries etc. in the district

Category	Population	Production	Productivity
Cattle			
<i>Crossbred</i>	15121		
<i>Indigenous</i>	493525		
Buffalo	102956		
Sheep			
<i>Crossbred</i>	8898		
<i>Indigenous</i>	50183		
Goats	207156		
Pigs			
<i>Crossbred</i>	709		
<i>Indigenous</i>	42500		

Source: District Agriculture Office, Bokaro

2.7 Priority thrust areas

S. No	Thrust area
1	Soil and water conservation
2.	Intensification in crop production system
3.	Crop diversification
4.	Development of seed production system.
5.	Value addition of fruits & vegetables.
6.	Improvement of indigenous poor breeds of livestock.
7.	Management of soil acidity.
8.	Promotion of lac cultivation
9.	Development of integrated farming system
10.	Insect pest and disease management of major crops
11.	Mushroom production and value addition

3. TECHNICAL ACHIEVEMENTS

3. A. Details of target and achievement of mandatory activities by KVK during 2012-13

OFT				FLD			
1				2			
Number of OFTs		Number of farmers		Number of FLDs		Number of farmers	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
10	10			55ha	30ha	275	126

Training				Extension activities			
3				4			
Number of Courses		Number of Participants		Number of activities		Number of participants	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
109		3010		1483	1505		15000

Seed Production

Target 2012-13

Sl. No.	Crop	Variety	Area (ha)	Type of Seed
1.	Paddy	MTU- 7029	2.0	F/S
		Lalat	2.0	F/S
		Abhisekh	1.0	F/S
2.	Pigeon pea	Birsa Arhar - 1	0.5	F/S
3.	Niger	Puja	0.2	F/S
4.	Dhaincha	Asam Local	0.4	T/L
5.	Mustard	Shivani	0.4	F/S
6.	Toria	PT-303	0.2	F/S
7.	Turmeric	Rajendra Sonia	0.1	C/S

Achievement- 2012-13

Sl. No.	Crop	Variety	Area (ha)	Type of Seed	Quantity (qt) Expected	Remarks
1.	Paddy	MTU- 7029	1.5	F/S	30.0	Poor tillering due to moisture stress
		Lalat	1.8	F/S-i	20.0	
		Birsamati	0.4	F/S	30.0	
		Sahbhagi	1.0	F/S	20.0	
2.	Pigeon pea	Birsa Arhar - 1	0.25	F/S	0.60	
		ND-1	0.15	T/L	0.40	
3.	Niger	Puja	0.1	F/S	0.15	
4.	Toria	PT-303	0.2	T/L	4.0	
5.	Turmeric	Rajendra Sonia	0.2	T/L	4.0	
6.	Dhaincha	Asam Local	0.10	T/L	1.13	

3.1 Achievements on technologies assessed and refined

A. Details of each On Farm Trial to be furnished in the following format

- 1) Title of on-farm trials
- 2) Problem diagnose
- 3) Details of technologies selected for assessment/refinement
- 4) Source of technology
- 5) Production system and thematic area
- 6) Performance of the Technology with performance indicators
- 7) Final recommendation for micro level situation
- 8) Constraints identified and feedback for research
- 9) Process of farmers participation and their reaction

OFT – 1

- 1) **Title of on-farm trials** :- Standardization of nutrient requirement in SRI paddy.
- 2) **Problem diagnose** :- Low yield of SRI paddy in medium land situation due to less use of nutrients.
- 3) **Details of technologies selected for assessment/refinement:- Refinement**
 - Technology Option**
 - Farmers practice** - N 60kg + P₂O₅ 25 kg+ K₂O 10 kg/ha + FYM 5 ton/ha
 - Technological option i** - RDF (N 80kg + P₂O₅ 40 kg+ K₂O 20 kg/ha +FYM 5 ton/ha)
 - Technological option ii** - (N 100kg + P₂O₅ 50 kg+ K₂O 30 kg/ha[two split] +FYM 5 ton/ha)
 - Technological option iii** - (N 120kg + P₂O₅ 60 kg+ K₂O 50 kg /ha[two split] +FYM 5 ton/ha)
- 4) **Source of technology** :- B. A. U., Ranchi
- 5) **Production system and thematic area** :- Rice based production system, Integrated Nutrient Management
- 6) **Performance of the Technology with performance indicators:-** Given in part B
- 7) **Final recommendation for micro level situation** :- To harvest the potential yield in SRI paddy, fertilizer dose should be increased to N 120kg + P₂O₅ 60 kg+ K₂O 50 kg /ha.

B. TECHNOLOGY ASSESSMENT AND REFINEMENT IN DETAIL

INTEGRATED CROP MANAGEMENT

Problem definition: Low yield of SRI paddy in medium land situation due to less use of nutrients.

Technology assessed or refined (as the case may be): Refinement

KVK conducted on-farm trial to refine the fertilizer dose of SRI paddy. There was significant increase in no. of tillers/hill and grain yield with increase in fertilizer dose. Technology option-iii i.e. (120:60:50) N: P: K kg/ha gave the highest yield (66.4 q/ha), net return (Rs. 60700.00/ha) and B: C ratio of 3.72. The yield increase was 74.2 % over farmers practice and 42.8 % over RDF in Technology option-iii. So to harvest the potential yield in SRI paddy, fertilizer dose should be increased to N 120kg + P₂O₅ 60 kg+ K₂O 50 kg /ha.

Table I: Standardization of nutrient requirement in SRI paddy.

Technology Options	No. of trials	Yield attributing characters		No. of grains / panicle	Yield (q/ha)		Cost of cultivation Rs.	Gross return (Rs / ha)	Net return (Rs./ha)	BC ratio
		No. of tillers/hill			Grain	Straw				
		30 DAT	60 DAT							
Farmers practice - N 60kg + P ₂ O ₅ 25 kg+ K ₂ O 10 kg/ha + FYM 5 ton/ha	08	14.2	22.5	92.5	38.1	49.5	20200	47625	27425	2.36
Option i - RDF (N 80kg + P ₂ O ₅ 40 kg+ K ₂ O 20 kg/ha +FYM 5 ton/ha)		17.3	27.2	105.1	46.5	55.4	20900	58125	37225	2.78
Option ii (N 100kg + P ₂ O ₅ 50 kg+ K ₂ O 30 kg/ha[two split] +FYM 5 ton/ha)		21.0	38.5	122.5	57.8	70.0	21500	72250	50750	3.36
Option iii - (N 120kg + P ₂ O ₅ 60 kg+ K ₂ O 50 kg /ha[two split] +FYM 5 ton/ha)		26.3	44.1	132.8	66.4	84.1	22300	83000	60700	3.72
CD 5 %		3.2	3.6		5.82	6.53				

Table II: Effect of transplanting techniques on soil fertility status.

Technology option	Initial soil status				Final soil status			
	pH	OC (%)	P ₂ O ₅ (kg/ha)	K ₂ O (kg/ha)	pH	OC (%)	P ₂ O ₅ (kg/ha)	K ₂ O (kg/ha)
Farmers practice - N 60kg + P ₂ O ₅ 25 kg+ K ₂ O 10 kg/ha + FYM 5 ton/ha	5.8 - 6.4	0.52 – 0.68	12.5 – 20.5	105 - 190	Soil Analysis is going on			
Option i - RDF (N 80kg + P ₂ O ₅ 40 kg+ K ₂ O 20 kg/ha +FYM 5 ton/ha)	5.8 - 6.4	0.52 – 0.68	12.5 – 20.5	105 - 190				
Option ii- (N 100kg + P ₂ O ₅ 50 kg+ K ₂ O 30 kg/ha[two split] +FYM 5 ton/ha)	5.8 - 6.4	0.52 – 0.68	12.5 – 20.5	105 - 190				
Option iii - (N 120kg + P ₂ O ₅ 60 kg+ K ₂ O 50 kg /ha[two split] +FYM 5 ton/ha)	5.8 - 6.4	0.52 – 0.68	12.5 – 20.5	105 - 190				

OFT- 2

- 1) **Title** :- Use of weeder to reduce drudgery in weeding of groundnut crops.
- 2) **Problem diagnose:** - High drudgery involvement in weeding in groundnut crops.
- 3) **Technology Assessed/ Refined:** - Assessment
Technological option:-
 - Farmer's practice - Manual weeding by spade
 - Technological option i - Weeding by grubber weeder
 - Technological option ii - Weeding by single wheel hoe weeder
- 4) **Source of Technology** :- I.A.R.I., New Delhi
- 5) **Production system and thematic area:-** Weed management, drudgery reduction
- 6) **Performance of the Technology with performance indicators:-** Given in part B
- 7) **Final recommendation for micro level situation :-** Performance of single wheel hoe was found best in view of lower drudgery involvement and lower operating cost in comparison to farmer practice.
- 8) **Constraints identified and feedback for research** :- Non availability of Grubber and single wheel hoe in local market.
- 9) **Process of farmers participation and their reaction** :-Farmer s themselves used these weeding equipment and appreciated single wheel hoe.

B. TECHNOLOGY ASSESSMENT AND REFINEMENT IN DETAIL

WEED MANAGEMENT & DRUDGERY REDUCTION

Problem definition: High drudgery involvement in weeding in groundnut crops

Technology assessed or refined (as the case may be): Assessment

KVK conducted on-farm trial to reduce drudgery involve in weeding in groundnut crops. Performance of single wheel hoe was found best in view of lower drudgery involvement and lower operating cost in comparison to farmer practice.

Table I: Performance of different weeder to reduce drudgery in weeding of groundnut crops.

Technology option	No. of trials	Drudgery parameter		Field parameter				Operating cost (Rs./ha)	Cost of cultivation (Rs.)	Gross income (Rs.)	B:C ratio
		Average resting heart beat (b/min)	Average working heart beat (b/min)	*Weeding index	Field capacity (ha/h)	Labour requirement (man-hr/ha)	Yield (q/ha)				
Farmers practice- Manual weeding by spade	10	82	136	0.37	0.0032	313	16.2	2353.00	23500	97200	4.1
Option i - Weeding by grubber weeder	10	82	124	0.40	0.0053	189	16.4	1937.00	21260	98400	4.6
Option ii Weeding by single wheel hoe weeder	10	82	119	0.31	0.0077	130	15.9	1384.00	20280	95400	4.7

Note: Labour charge: Rs. 140.00/man days

$$\text{* Weeding index (WI)} = \frac{W1-W2}{W1}$$

W1= No. of weeds/ unit area before weeding
W2 = No. of weeds/ unit area after weeding

Table II: Responses on musculo – skeletal problems and perceived exertion experienced by respondents

Technology option	No. of trials	Musculo – skeletal problems	Rating of perceived exertion
Farmers practice Manual weeding by spade	10	Severe pain in shoulders, upper and lower back and upper arms	Very heavy
Technological option i Weeding by grubber weeder		Moderate to light pain in back, neck and arms	Heavy
Technological option ii Weeding by single wheel hoe weeder		Moderate to light pain in shoulders, hands and arms	Moderately heavy

OFT- 3

- 1) **Title** :- Effect of different method of irrigation on yield of tomato crop.
- 2) **Problem diagnose** : - Low yield of tomato due to moisture stress in summer season.
- 3) **Technology Assessed/ Refined:** - Assessment
Technological option:-
 - Farmer's practice - Furrow irrigation method
 - Technological option i - Skip irrigation method
 - Technological option ii - Raised bed and furrow irrigation method
- 4) **Source of Technology** :- I.A.R.I., New Delhi
- 5) **Production system and thematic area:** Vegetable production system & water management
- 6) **Performance of the Technology with performance indicators:-** Crop is standing and observation is being recorded.

OFT- 4

- 1) **Title of on- farm trials:** - Performance of suitable Ginger based cropping system under irrigated condition in summer season.
- 2) **Problem diagnose :-** Low system productivity of in vegetable based cropping system under irrigated condition.
- 3) **Details of Technologies selected for assessment/ refinement:** - Refinement
Technological option :-
Farmers practice - Ginger sole crops
Technological option i - Ginger+ Spinach (Mixed cropping)
Technological option ii - Ginger+ Spinach (Mixed cropping) + Cauliflower
Technological option ii - Ginger+ Amaranths (Mixed cropping) + Cauliflower
- 4) **Source of Technology :-** BAU
- 5) **Production system and thematic area:** - Vegetable production system, Inter cropping
- 6) **Performance of the Technology with performance indicators:-** Given in part B

B. TECHNOLOGY ASSESSMENT AND REFINEMENT IN DETAIL

INTER CROPPING

Problem definition: Low system productivity of in vegetable based cropping system under irrigated condition.

Technology assessed or refined (as the case may be): Assessment

Table I: Performance of different ginger based cropping system.

Technological option	Yield (qt/ha)		Ginger equivalent yield (qt/ha)	Cost of cultivation Rs.	Gross return Rs.	Net Return (Rs.)	B:C Ratio
	Ginger	Component crop					
FP- Ginger sole crops	209.6	-	209.6	146000	377280	231280	2.58
Option i- Ginger+ Spinach (Mixed cropping)	189.6	Spinach - 98.55	288.15	152000	420120	268120	2.76
Option ii- Ginger+ Spinach (Mixed cropping) + Cauliflower	181.5	Spinach- 91.08 Cauliflower- 207	479.58	164000	668664	504664	4.0
Option iii- Ginger+ Amaranths (Mixed cropping) + Cauliflower	193	Amaranths- 52.4 Cauliflower- 201.55	446.95	162000	635615	473615	3.92

OFT-5

- 1) **Title of on- farm trials:** - Assessment of different varieties of pea in rabi season
- 2) **Problem diagnose** : - Low productivity of pea due to no use of improved variety
- 3) **Details of Technologies selected for assessment/ refinement:** - **Assessment**

Technological option :-

Farmers practice - Use of local variety

Technological option **i** - Var- GS 10

Technological option **ii** - Var- Fresh Perl

Technological option **iii** - Var- 124

- 4) **Source of Technology** :- **HARP, Plandu**
- 5) **Production system and thematic area:** - **Vegetable production**
- 6) **Performance of the Technology with performance indicators** :-

Table I: Varietal trial of pea Yield attributing character

Technological option	Pod yield	Cost of cultivation	Gross income	Net return	B:C ratio
FP- (Ankur)	86.5	21600	129750	108150	6.0
GS – 10	118.0	25500	177000	151500	6.94
Fresh Perl	112.6	25500	168900	143400	6.62
JK - 124	126.8	28600	215560	186960	7.53

Price: JK- 124 @ Rs. 1700.00/q and other average price @ Rs. 1500.00/q

OFT-6

- 1) **Title of on- farm trials:** - Effect of control measures of fruit and shoot borer in brinjal in rabi season.
- 2) **Problem diagnose** : - Low productivity and profitability in brinjal due to attack of fruit and shoot borer.
- 3) **Details of Technologies selected for assessment/ refinement:** - Refinement

Technological option :-

Farmers practice - Cypermethrin @ 1 ml/lit after appearance of infestation (two spray)

Technological option **i** - Flubendamide 480 SC @1 ml/ 5 lit water at 30 & 50 DAT

Technological option **ii** - Cartap hydrochloride @ 1gm/lit at 30 & 50 DAT

Technological option **iii** - Flubendamide 480 SC @1 ml/ 5 lit water at 30 DAT+
Cartap hydrochloride @ 1gm/lit at 50 DAT

- 4) **Source of Technology** :- BAU, Ranchi
- 5) **Production system and thematic area:** - Integrated pest management
- 6) **Performance of the Technology with performance indicators** :- Given in part B

B. TECHNOLOGY ASSESSMENT AND REFINEMENT IN DETAIL

Integrated pest management

Problem definition: Low productivity and profitability in brinjal due to attack of fruit and shoot borer.

Technology assessed or refined (as the case may be): Assessment

Table I: Percent infestation by fruit & shoot borer, *leucinodes orbonalis* and yield in various control measures of brinjal.

Treatment	Damage of fruit (%)		Yield of marketable fruits (q/ha)	Yield over control (%)	Gross income	Cost of cultivation	Net income	B:C
	No.	Weight						
Farmers Practice-1 Cypermethrin @ 1 ml/lit after appearance of infestation (two spray)	10.2	7.20	178	47.86	142400	39400	103000	1:2.6
Option i – Flubendamide 480 SC @1 ml/ 5 lit water at 30 & 50 DAT	3.29	3.52	218	80.15	172000	41500	130500	1:3.1
Option ii – Cartap hydrochloride @ 1gm/lit at 30 & 50 DAT	3.95	4.22	212	75.42	169600	40450	129150	1:3.2
Option iii - Flubendamide 480 SC @1 ml/ 5 lit water at 30 DAT+ Cartap hydrochloride @ 1gm/lit at 50 DAT	2.26	2.42	242	85.35	180000	40975	139025	1:3.4
CD (0.05)	2.25	2.8	20.24					

Note: Brinjal sale price@ Rs. 800.00/q

OFT- 7

- 1) **Title of on- farm trials:** - Management of predators in kusumi lac cultivation
- 2) **Problem diagnose** : - Low productivity in Kusmi lac due to damage by predators.
- 3) **Details of Technologies selected for assessment/ refinement:** - Refinement

Technological option :-

- Farmers practice - No control measures for predators in lac cultivation
- Technological option **i** - 3 spray of Ethonfenprox 10 Ec @ 2 ml/lit at 25, 40 and 60
- Technological option **ii** - use of nylon net (60 mesh) for covering brood lac
- Technological option **iii** - use of nylon net (60 mesh) for covering brood lac + 2 spray of Ethonfenprox 10 Ec @ 2 ml/lit at 30 and 60 DAI

- 4) **Source of Technology** :- IINRG, Namkum, Ranchi
- 5) **Production system and thematic area:** - Integrated Crop management
- 6) **Performance of the Technology with performance indicators**

Table: Effect of different control measures on incidence of predators

Technological options	Dose	No. of predators/m encrustation					
		1 st spray- 25 day		2 nd spray- 40 day		3 rd spray- 60 day	
		<i>E.amabilis</i>	<i>P. pulvereaa</i>	<i>E.amabilis</i>	<i>P. pulvereaa</i>	<i>E.amabilis</i>	<i>P. pulvereaa</i>
Farmers practice		26	32.5	35.8	38	21.5	39.5
Option i - 3 spray of Ethonfenprox 10 Ec	2 ml/lit	17.0	27.0	12.6	13.0	9.8	7.0
Option ii - Nylon net (60 mesh)	60 mesh	19.5	28.0	15.5	12.5	11.6	9.0
Option iii - Ethonfenprox 10 Ec + Nylon net (60 mesh)	2 ml/lit + 60 mesh	14.5	24.0	9.8	14.0	6.2	6.5

OFT- 8

- 1) **Title of on- farm trials:** - Performance of pigeon pea based intercropping in rainfed upland situation.
- 2) **Problem diagnose** : - Low system productivity in rainfed upland situation.
- 3) **Details of Technologies selected for assessment/ refinement:** - Refinement

Technological option :-

Farmers practice - Sole pigeon pea (at 90 cm row spacing)

Technological option **i** - Pigeon pea + turmeric (1:2)

Technological option **ii** - Pigeon pea + ginger (1:2)

Technological option **iii** - Pigeon pea + groundnut (1:2)

- 4) **Source of Technology** :- **BAU, Ranchi**
- 5) **Production system and thematic area:** - Integrated Crop management
- 6) **Performance of the Technology with performance indicators:-** Given in part B

B. TECHNOLOGY ASSESSMENT AND REFINEMENT IN DETAIL

Integrated Crop management

Problem definition: Low system productivity in rainfed upland situation.

Technology assessed or refined (as the case may be): Assessment

Table I Performance of pigeon pea based intercropping in rainfed upland situation.

Technological option	Yield of component crop (q/ha)	Pigeon pea equivalent yield (q/ha)	Cost of cultivation (Rs.)	Gross Income (Rs.)	Net income	B:C
Farmers Practice- Sole pigeon pea (at 90 cm row spacing)	10.2	10.2	10500	30600	20100	2.91
Option i – Pigeon pea + turmeric (1:2)	Pigeon pea-7.2 Turmeric- 87.5	94.7	65200	284100	218900	4.35
Option ii- Pigeon pea + ginger (1:2)	Pigeon pea-7.8 Ginger- 68.4	98.8	82700	296400	213700	3.58
Option iii - Pigeon pea + groundnut (1:2)	Pigeon pea- 8.4 Groundnut- 9.5	21.0	19500	63000	43500	3.23

OFT- 9

- 1) **Title of on- farm trials:** - Effect of foliar application of potassium and boron on yield and fruit quality of tomato.
- 2) **Problem diagnose :** - Low productivity and profitability in tomato due to imbalance use of nutrients.
- 3) **Details of Technologies selected for assessment/ refinement:** - Assessment

Technological option :-

Farmers practice - N 25kg + P₂O₅ 15 kg+ FYM 5 ton/ha

Technological option **i** - FP +Foliar spray of Boron @ 0.2 % 30 – 35 DAT

Technological option **ii** - FP+ Foliar spray of potassium @ 1 % 30 DAT

Technological option **iii** - FP+ Foliar spray of Boron @ 0.2 % + Potassium @ 1 %
30 – 35 DAT

- 4) **Source of Technology :- HARP, Plandu**
- 5) **Production system and thematic area:** - Integrated Nutrient management
- 6) **Performance of the Technology with performance indicators:-** Crop is standing and observation is being recorded

3.2 Achievements of Frontline Demonstrations

A. Details of FLDs implemented during 2011-12 (Information is to be furnished in the following **three tables** for **each category** i.e. **cereals, horticultural crops, oilseeds, pulses, cotton and commercial crops.**)

Sl. No.	Crop	Thematic area	Technology Demonstrated@	Season and year	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement
					Proposed	Actual	SC/ST	Others	Total	

@ please mention component technology like seed/ fertilizer/ bio-fertilizer/ plant protection or full package Details of farming situation

Crop	Season	Farming situation (RF/Irrigated)	Soil type	Status of soil			Previous crop	Sowing date	Harvest date	Seasonal rainfall (mm)	No. of rainy days
				N	P	K					

Performance of FLD

Oilseeds: Mustard (Sponsored by DRMR, Bharatpur)

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	Integrated crop management	Var- Mahak	39	10.0	9.2	6.5	41.5	8200.00	23000	14800	2.8	6800	16250	9450	2.38
		Var- NPJ- 113	10	5.0	8.5		30.8	8200.00	21250	13050	2.59				
		Var- Pusa Agrani	17	5.0	10.2		56.9	8200.00	25500	17300	3.11				
		Var- NRCHB- 101	21	5.0	11.1		70.8	8200.00	27750	19550	3.38				
		NRCDR- 02	16	5.0	11.7		80.0	8200.00	29250	21050	3.56				
Total															

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

** BCR= GROSS RETURN/GROSS COST

Frontline demonstrations on oilseed crops

Oilseeds:

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
Groundnut	ICM	Variety, TG- 22	15	2.0	13.6	10.8	25.9	21500	68000	46500	3.16	20200	54000	33800	2.67
Niger	ICM	Variety - Puja	21	5.0	2.8	1.7	64.7	6500	11200	5700	1.77	5150	6800	1650	1.3
Total			36	7.0											

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

** BCR= GROSS RETURN/GROSS COST

Pulses

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
Pegion pea	ICM	Var- ND-1	8	2.0	13.6	8.2	65.85	10700	40800	33300	3.81	9500	24600	15100	2.58
Total															

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

** BCR= GROSS RETURN/GROSS COST

Cereals

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
Paddy	ICM	Var- Abhisek	28	10.0	30.5	22.2	37.4	20000	38125	18125	1.9	18500	27750	9250	1.5
Total															

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

** BCR= GROSS RETURN/GROSS COST

Other crops

Category and 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	
Cereals																		
Sweet potato		Balance use of fertilizer in acid uplands	11	5.0	16 ton	10.1	63.4	-	-	16500.00	96000.00	79500.00	5.8	14200.00	60600.00	46400.00	4.26	
Wheat + mustard		Balance dose of nutrients (100:50:40)	16	5.0	Crop is in the field													
Vegetable crops																		
Bitter gourd		Variety- Pali	15	2.0	Standing crop													
Bottle gourd		Variety -Uttra	14	2.0	Standing crop													
Chilly		Variety -JK - 918	10	0.4	Standing crop													
Cucumber		Variety -Malo & Malni	10	2.0	Standing crop													
Tomato		JK- Harsha & Nandani	12	1.0	Standing crop													
Brinjal			15	1.0	Standing crop													
Others (pl.specify)		Drum seeder for paddy sowing	10	2.0	31.5	29.0	8.62	-	-	19830.00	39375.00	19545.00	1.98	24350.00	36250.00	11900.00	1.49	
		Zero tillage machine	6	2.0	Standing crop													
		Total																

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

** BCR= GROSS RETURN/GROSS COST

Abstract of Achievements on Training 2012-13

Clientele	On		Off		Total	
	campus	Participants	campus	Participants	No. of course	Participants
	No. of course		No. of course			
Practicing farmers	32	802	46	1447	78	2249
Rural Youths	8	204	-	-	8	204
Extension functionaries	10	269	-	-	10	269
Total	50	1275	46	1447	96	2722
Sponsored training						
Practicing farmers	34	1065	-	-	34	1065
Extension functionaries	2	86	-	-	2	86
VLWs (60 days)	1	48	-	-	1	48
Total	37	1199	-	-	37	1199
Grand Total	86	2474	46	1447	133	3921

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

A) 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	M	F	T
(A) Farmers & Farm Women													
I Crop Production													
Cropping Systems	1	20	-	20	-	-	-	11	-	11	31	-	31
Integrated farming Systems	1	19	-	19	-	-	-	6	-	6	25	-	25
Seed production	1	1	-	1	-	-	-	14	6	20	15	6	21
Nursery management													
Integrated Crop Management	2	27	20	67	-	-	-	4	3	7	31	23	54
Total	5	67	20	107				35	9	44	102	29	131
II Horticulture													
a) Vegetable Crops													
Off-season vegetables	1	-	31	31	-	-	-	-	-	-	-	31	31
Nursery raising	2	15	16	31	-	-	-	8	7	15	23	23	46
Exotic vegetables like Broccoli	1	18	-	18	-	-	-	-	12	12	18	12	30
Mushroom production	3	3	78	81	-	12	12	1	-	1	4	90	94
e) Tuber crops													
Production and Management technology	1	6	17	23	-	-	-	-	-	-	6	17	23
Total	8	42	142	184		12	12	9	19	28	51	173	224
III Soil Health and Fertility Management													
Soil fertility management	1	4	-	4	-	-	-	26	-	26	30	-	30
Soil and Water Conservation	1	-	2	2	-	-	-	-	25	25	-	27	27
Integrated Nutrient Management	3	15	18	33	-	-	-	8	25	33	23	43	66
Production and use of organic inputs	1	11	4	15	-	-	-	5	-	5	16	4	20
Total	6	30	24	54				39	50	89	69	74	143
IV Livestock Production and Management													
Piggery Management	1	4	-	4	-	5	5	1	5	6	5	10	15
Total	1	4	-	4	-	5	5	1	5	6	5	10	15
V Home Science/Women empowerment													
Value addition	3	6	33	39	-	-	-	5	22	27	11	55	66
Minimization of nutrient loss in processing	1	-	20	20	-	-	-	-	5	5	-	25	25
Total	4	6	53	59				5	27	32	11	80	91
VI Agril. Engineering													
Installation and maintenance of micro irrigation systems	1	2	-	2	-	-	-	19	9	28	21	9	30
Total	1	2	-	2	-	-	-	19	9	28	21	9	30
VII Plant Protection													
Integrated Pest Management	3	4	30	34	-	-	-	26	-	26	30	30	60
Integrated Disease	2	31	9	40	4	-	4	11	-	11	46	9	55

Management													
Lac cultivation	1	12	-	12	2	-	2	16	-	16	30	-	30
Total	6	47	39	86	6		6	53		53	106	39	145
IX Production of Inputs at site													
Vermi-compost production	1	19	-	19	-	-	-	4	-	4	23	-	23
Total	1	19	-	19	-	-	-	4	-	4	23	-	23
GRAND TOTAL	32	217	278	515	6	17	23	165	119	284	388	414	802
(B) RURAL YOUTH													
Mushroom Production	2	17	18	35	-	-	-	11	6	17	28	24	52
Bee-keeping													
Integrated farming	1	24	-	24	-	-	-	-	-	-	24	-	24
Seed production	2	16	11	27	-	8	8	8	5	13	24	24	48
Production of organic inputs													
Vermi-culture	1	11	2	13	-	-	-	15	2	17	26	4	30
Repair and maintenance of farm machinery and implements	1	26	-	26	-	-	-	-	-	-	26	-	26
Lac culture	1	-	-	-	-	-	-	24	-	24	24	-	24
GRAND TOTAL	8	94	31	125		8	8	58	13	71	152	52	204
(C) Extension Personnel													
Productivity enhancement in field crops	3	65	2	67	-	-	-	-	-	-	65	2	67
Integrated crop management	1	3	-	3	-	-	-	26	1	27	29	1	30
Integrated Pest Management	1	25	-	25	-	-	-	-	-	-	25	-	25
Integrated Nutrient management	1	18	11	29	1	-	1	6	-	6	25	11	36
Botanical control of pest	1	28	-	28	-	-	-	-	-	-	28	-	28
Micro nutrient deficiency	2	15	-	15	-	-	-	42	-	42	57	-	57
ATMA	1	26	-	26	-	-	-	-	-	-	26	-	26
GRAND TOTAL	10	180	13	193	1		1	74	1	75	255	14	269

B) 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	M	F	T
(A) Farmers & Farm Women													
I Crop Production													
Weed Management	3	62	-	62	11	-	11	-	-	-	73	-	73
Cropping Systems	2	20	25	45	-	-	-	18	-	18	38	25	63
Crop Diversification	1	27	-	27	3	-	3	15	-	15	45	-	45
Integrated Farming	2	49	-	49	-	-	-	15	-	15	64	-	64
Water management	1	18	-	18	-	-	-	-	-	-	18	-	18
Seed production													
Nursery management													
Integrated Crop Management	5	130	20	150	1	-	1	12	-	12	143	20	163
Total	14	306	45	351	15		15	60		60	381	45	426
II Horticulture													
a) Vegetable Crops													
Off-season vegetables	1	30	-	30	-	-	-	-	-	-	30	-	30
Nursery raising	2	54	-	54	-	-	-	22	-	22	76	-	76

Hormone	2	50	-	50	3	-	3	15	-	15	68	-	68
b) Fruits													
Management of young plants/orchards	1	24	-	24	-	-	-	14	-	14	38	-	38
c) Spices													
Production and Management technology	1	21	6	27	-	-	-	6	2	8	27	8	35
Total	7	179	6	185	3		3	57	2	59	239	8	247
III Soil Health and Fertility Management													
Soil fertility management													
Soil and Water Conservation	1	9	23	32	-	-	-	-	-	-	9	23	32
Integrated Nutrient Management	4	87	29	116	3	-	3	-	-	-	90	29	119
Production and use of organic inputs	2	66	-	66	-	-	5	-	5	-	71	-	71
Soil and Water Testing	1	23	-	23	-	-	-	-	-	-	23	-	23
Others, if any													
Total	7	153	52	205	3		3				156	52	208
IV Livestock Production and Management													
Feed management	2	30	15	45	-	-	10	-	10	-	40	15	55
Total	2	30	15	45	-	-	10	-	10	-	40	15	55
V Home Science/Women empowerment													
Value addition													
Income generation activities for empowerment of rural Women	2	-	49	49	-	5	5	-	10	10	-	64	64
Preservation technique	3	10	65	75	-	-	-	6	14	20	16	79	95
Total	5	10	114	124		5	5	6	24	30	16	143	159
VI Agril. Engineering													
Installation and maintenance of micro irrigation systems	1	-	35	35	-	-	-	-	3	3	-	38	38
Repair and maintenance of farm machinery and implements	2	52	-	52	-	-	-	8	-	8	60	-	60
Post Harvest Technology	2	39	20	59	3	-	3	4	-	4	46	20	66
Others, if any													
Total	5	91	55	146	3		3	12	3	15	106	58	164
VII Plant Protection													
Integrated Pest Management	3	56	18	74	-	-	-	19	-	19	75	18	93
Integrated Disease Management	3	80	-	80	-	-	-	15	-	15	95	-	95
Total	6	136	18	154				34		34	170	18	188
GRAND TOTAL	46	905	305	1210	24	5	39	169	39	198	1108	339	1447

(D) Vocational 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
				M	F	T	Type of units	No. of units	Number of persons employed	
Mushroom	Mushroom production	Mushroom production techniques	7	-	22	22				
Paddy	Seed production	Seed production technology of paddy	5	24	-	24				
Paddy	Seed production	Seed production technology of paddy	5	-	24	24				
Vermi compost	Vermi compost	Use and production techniques of vermi compost	7	26	4	30				
Farming system	Farming system	Integrated farming system	7	24	-	24				
Farm Machinery	Care and maintenance of farm implements	Care and maintenance of diesel engine and pumpset	7	26	-	26				
Lac	Lac cultivation	Utilization of indigenous host plant for lac cultivation	5	24	-	24				
Mushroom	Mushroom production	Mushroom production techniques	7	28	2	30				
		Total	50	152	52	204				

*training title should specify the major technology /skill transferred

(E) Sponsored Training Programmes

Sl.No	Title	Thematic area	Month	Duration (days)	Client PF/R/Y / EF	No. of courses	No. of Participants										Sponsoring Agency
							Male			Female			Total				
							Oth	SC	ST	Oth	SC	ST	Oth	SC	ST	Total	
1.	Mushroom production techniques	Mushroom production	Feb 2013	6	EF	2	-	-	-	85	-	1	85	-	1	86	NPEGEL
2.	ATMA			5	PF	22										660	ATMA, Bokaro
3.	VLWs			60 days	EF											48	ATMA, Bokaro
4.	Mustard Production	ICM		1	PF	4			120			75			195	195	DRMR, Bharatpur
	Vegetable & crop production system	Crop production	March 2013	5	RY	1	-	-	40	-	-	20	-	-	60	60	26 Batalian, CRPF, Bokaro
5.	Advance technology of crop production	Crop production	March 2013	5	PF	1	8	-	14	2	-	1	10	-	15	25	ATMA, Ranchi
6.	Advance production technology of horticulture crops	Crop production	March 2013		PF	2										100	Grameen Seva Sangh, Ramgarh
6.	Mushroom production & Integrated crop management	Mushroom Production & ICM	March 2013	5	PF	2	24	-	26	-	-	-	24	-	26	50	ATMA, West Singhbhum, Chaibasa
	Total															1224	

3.4. 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	6			216						216
Kisan Mela	1			4000						4000
Kisan Ghosthi	9			395						395
Exhibition	2			3000						3000
Film Show	48			1400						1400
Method Demonstrations										
Farmers Seminar										
Workshop										
Group meetings										
Lectures delivered as resource persons										
Newspaper coverage										
Radio talks										
TV talks	6									
Popular articles	2									
Extension Literature	5			5000						5000
Advisory Services										
Scientific visit to farmers field	89			665						665
Farmers visit to KVK	606			606						606
Diagnostic visits										
Exposure visits	1			25						25
Ex-trainees Sammelan										
Soil health Camp										
Animal Health Camp										
Agri mobile clinic										
Soil test campaigns (Analysis)										
Farm Science Club Conveners meet										
Self Help Group Conveners meetings										
Mahila Mandals Conveners meetings										
Celebration of important days (specify)										
Help line service	886			886						886
Any Other (Technology Week)	1			260						260
Total	1662			16453						16453

**3.5 Production and supply of Technological products
KVK farm**

Crop	variety	Quantity of seed (q)	Value (Rs in lac)	Number of farmers provided
Cereals				
Paddy	MTU- 7029	30.0	0.72	
	Lalat	20.0	0.48	
	Birsamati	3.0	0.072	
	Sahbhagi	20.0	0.48	
Pigeon pea	Birsa Arhar-1	0.60	0.042	
	ND-1	0.40		
Niger	Puja	0.15		
Dhaincha				
Mustard				
Toria	PT-303	0.25	0.0125	
Turmeric	Rajendra Sonia	4.0	0.075	
Total				

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

(A) KVK News Letter ((Date of start, Periodicity, number of copies distributed etc.)

(B) Literature developed/published

Item	Title	Authors name	Number
Research papers			
Technical reports			
News letters			
Technical bulletins			
Popular articles			
Extension literature			
	dsapqvk [kkn iz;ksx ,oa cukus dh fof/k	Mk- lq/khj dqekj >k]Jh mn; dqekj flag]Mk- vfuy dqekj]]Jherh uhuk Hkkjrh	1000
	dkcZfud [kkn mRiknu rduhd	Jh mn; dqekj flag]Mk- lq/khj dqekj >k]Mk- vfuy dqekj] Jh fou; dqekj] Jherh uhuk Hkkjrh]fiz;adk oekZ	1000
	pkjk laj{k.k	Jh mn; dqekj flag] Mk- vfuy dqekj]Mk- lq/khj dqekj >k] Jh fou; dqekj	1000
	Jh /kku mRiknu rduhd	Jh mn; dqekj flag Mk- lq/khj dqekj >k]Mk- vfuy dqekj]Jh fou; dqekj]Jherh uhuk Hkkjrh]fiz;adk oekZ	1000
	mjn dh [ksrh	Jh mn; dqekj flag]Mk- lq/khj dqekj >k] Mk- vfuy dqekj, Jh fou; dqekj	1000
	xsgw; dh mUur [ksrh	Jh mn; dqekj flag]Mk- lq/khj dqekj >k] Mk- vfuy dqekj] Jh fou; dqekj]Jherh uhuk Hkkjrh]fiz;adk oekZ	1000

	e`k:e mRiknu rduhd	Mk- vfuy dqekj]Jh mn; dqekj flag]Mk- lq/khj dqekj >k]Jh fou; dqekj]Jherh uhuk Hkkjrh]fiz;adk oekZ	1000
	larqfyr moZjd dk O;ogkj ,oa dehs y{k.k	Mk- lq/khj dqekj >k]Mk- vfuy dqekj]Jh mn; dqekj flag] Jh fou; dqekj]Jherh uhuk Hkkjrh]fiz;adk oekZ	1000
	d`f`k esa iksVk`k dk egRo iqNsa vki&crk,sa ge	Mk- lq/khj dqekj >k]Mk- vfuy dqekj]Jh mn; dqekj flag] Jh fou; dqekj	1000
	?kjsyw Lrj ij vUu Hk.Mkj.k	Jh fou; dqekj]Jh mn; dqekj flag]Mk- lq/khj dqekj >k] Mk- vfuy dqekj]Jherh uhuk Hkkjrh]fiz;adk oekZ	1000
	ljlksa dh mRiknu rduhd	Jh mn; dqekj flag]Mk- lq/khj dqekj >k]fiz;adk oekZ]Mk- vfuy dqekj]Jh fou; dqekj Jherh uhuk Hkkjrh	1000
Others (Pl. specify)	Krishi Vigyan Kendra Bokaro At a Glance	Mk- lq/khj dqekj >k]Jh mn; dqekj flag]Mk- vfuy dqekj Jherh uhuk Hkkjrh	500
TOTAL			11500

(C) Details of Electronic Media Produced

S. No.	Type of media (CD / VCD / DVD / Audio-Cassette)	Title of the programme	Number

(D) Details of HRD programmes undergone:

Name	Programme	Date and Duration	Organized by
Sri Uday Kr. Singh	Zonal workshop of KVKs zone – II	16-18 April 2012	ZPD, Kolkata
	Review meeting of KVK	07-11-2012	BAU, Ranchi
	7 th National Conference of KVKS	20-22 Nov. 2012	PAU, Ludhiana
	Review meeting of KVK	21Jan 2013	BAU, Ranchi
	Training, Integrated crop management	22-24 Jan 2013	BAU, Ranchi
Dr. Anil Kumar	7 th National Conference of KVKS	20-22 Nov. 2012	PAU, Ludhiana
	Workshop on Panchayati Raj	12-13 Dec. 2012	BAU, Ranchi
	Training , Market led Horticulture	4-6 Feb. 2013	BAU, Ranchi
Dr. S.K.Jha	Training, Innovative communication strategies for KVK	3-5 Jan 2013	BAU, Ranchi
	Workshop		
Sri Vinay Kumar	Training	11-15 Sept. 2012	Directorate or research on women in Agriculture Bhubneshwer, Orissa

	Training- cum- Workshop	21-22 Dec. 2012	ZPD,Zone-II Kolkata
	Workshop	15-17 Jan. 2013	BAU, Ranchi
Miss Priyanka Verma	Training, Sustainable Livestock production	6-8 March, 2013	BAU, Ranchi
Mrs. Neena Bharti	Workshop on Panchayati Raj	12-13Dec. 2012	BAU, Ranchi
	Training, Integrated crop management	22-24 Jan 2013	BAU, Ranchi
Mrs Nandana Kumari	Workshop ITK	14-16 Jan 2013	BAU,Ranchi
Sri Naman Kandulna	7 th National Conference of KVKS	20-22 Nov. 2012	PAU, Ludhiana

3.14 Technology week celebration

Type of activities	No. of activities	Number of participants	Related crop/livestock technology
Inauguration ceremony	1	120	
Technology exhibition visit	-	260	
Video show	15	260	
Workshop	3	115	
Kisan Gosthi	2	85	
Field visit	3	260	
Presentation of Agricultural Expert System & SMS services	2	60	
Conclusion ceremony	1	95	

4.0 LINKAGES

4.1 Functional linkage with different organizations

Name of organization	Nature of linkage
1. DMR (ICAR) New Delhi	conducting training programmes and demonstration
2. DRMR (ICAR) Bharatpur, Rajasthan	Conducting training programmes and demonstration
3. IINRG, Namkum, Ranchi	Participation in meeting, conducting training programme & demonstration programme
4. HARP, Plandu Ranchi	Participation in meeting, conducting training programme & demonstration programme
5. KVKs of Other district	Participation in meeting
6. ATMA Bokaro	Joint diagnostic survey, joint implementation, participation in meeting, conducting training programme & demonstration programme
7. Line Dept. State Govt.	Joint diagnostic survey, joint implementation, participation in meeting, conducting training programme & demonstration programme
8. NABARD/COMMERCIAL BANK	Participation in meeting, conducting training programme
9. R.K. Mission Ranchi	Participation in meeting, conducting training programme & demonstration programme
10. CURRS, Hazaribagh	Participation in meeting, conducting training programme & demonstration programme
11. NGO (Pradan, Shayogni, Kalyani, Dhara etc)	Joint diagnostic survey, participation in meeting, conducting training programme & demonstration programme

NB The nature of linkage should be indicated in terms of joint diagnostic survey, joint implementation, participation in meeting, contribution received for infrastructural development, conducting training programmes and demonstration or any other

5. PERFORMANCE OF INFRASTRUCTURE IN KVK

5.1 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.	Cost of inputs	Gross income	
Cereals									
Paddy									
	July 2011	Dec 2011	2.0	MTU- 7029	F/S	70.0	40000	139600	
	July 2011	Nov. 2011	2.0	Lalat	F/S	60.0	40000	82640	
	July 2011	Nov. 2011	1.0	Abhisekh	F/S	25.0	18000	35280	
Pulses									
	26 June 2011	Jan. 2012	0.15	Birsa Arhar - 1	F/S	0.5	1500	3500	
	26 June 2011	Jan. 2012	0.25	ND-1	T/L	0.9	2200	4950	
Oilseeds									
Niger	4 Oct. 2011	20 th Dec. 2011	0.2	Puja	F/S	0.5	800	1100	
Mustard	Oct. 2011	Feb. 2012	0.4	Shivani	F/S	1.0	4000	5500	
Toria	Sept. 2011	Dec. 2011	0.2	PT-303	F/S	0.4	2000	2200	

5.2 Utilization of hostel facilities

Accommodation available (No. of beds)

Months	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
09.04.2012 to 13.04.2012	60	4	
19.04.2012 to 23.04.2012	60	4	
09.05.2012 to 13.05.2012	60	4	
26.05.2012 to 30.05.2012	60	4	
11.07.2012 to 15.07.2012	60	4	

(For whole of the year)

5.3 Joint activity carried out with line departments and ATMA

Name of activity	Season	With line department	With ATMA	Both
Second green revolution	Kharif		With ATMA	
Per motion of SRI	Kharif	With line department		
VLWs training programme	-		With ATMA	
Fallow land development programme	Kharif		With ATMA	
Technology week celebration	Rabi		With ATMA	
Kharif & rabi workshop	Kharif & rabi		With ATMA	
Kisan Mela	Rabi		With ATMA	
Training of Krishak mitras & BTM	Rabi		With ATMA	
Kisan goshti	Kharif & rabi		With ATMA	

Annexure2012-2013

Practicing Farmers/Farm Women

Clientele	Title of the training programme	Duration in days	Venue (Off / On Campus)	Number of participants OTH			Number of SC			Number of ST			Total		Grand Total
				M	F	T	M	F	T	M	F	T	M	F	
April 2012															
Installation and maintenance of micro irrigation systems	Use of micro irrigation system in vegetable production		Off	-	35	35	-	-	-	-	3	3	-	38	38
INM	Integrated Nutrient Management modules of vegetable crops		Off	-	29	29	-	-	-	-	-	-	-	29	29
May 2012															
Cropping system	Inter cropping system in upland condition		Off	-	25	25	-	-	-	-	-	-	-	25	25
IPM	Control of shoot and fruit borer in tomato and brinjal		Off	-	18	18	-	-	-	-	-	-	-	18	18
Soil and water conservation	Soil and water conservation techniques		Off	-	23	-	-	-	-	-	-	-	-	23	23
July 2012															
Weed management	Weed management in kharif crops		Off	33	-	33	11	-	11	-	-	-	44	-	44
Soil & water testing	Method of soil sampling		Off	23	-	23	-	-	-	-	-	-	23	-	23
Hormone	Role of hormone in vegetable crops		Off	22	-	22	-	-	-	-	-	-	22	-	22
August 2012															
ICM	Production technology of niger and kulthi		Off	26	-	26	-	-	-	-	-	-	26	-	26
INM	Nutrient management in paddy		Off	21	-	21	-	-	-	-	-	-	21	-	21
IPM	Integrated pest management in rice		Off	23	-	23	-	-	-	-	-	-	23	-	23

Soil & water conservation	Low cost water harvesting technology		Off	9	-	9	-	-	-	-	-	-	9	-	9
November 2012															
Production & management technology	Cultivation practice of onion and garlic		Off	21	6	27	-	-	-	6	2	8	27	8	35
ICM	Cultivation practice of wheat		Off	17	-	17	1	-	1	12	-	12	30	-	30
PHT	Processing and storage technique of seeds		Off	30	-	30	3	-	3	4	-	4	37	-	37
December 2012															
Income generation activities for empowerment of rural Women	Maximum profit and utilization from seasonal vegetable		Off	-	19	19	-	-	-	-	-	-	-	19	19
Weed management	Weed management in rabi crop		Off	29	-	29	-	-	-	-	-	-	29	-	29
Production and use of organic inputs	Benefit and use of rhizobium culture in pulse crops		Off	34	-	34	-	-	-	-	-	-	34	-	34
Off season vegetables	Off season vegetables cultivation for income generation		Off	30	-	30	-	-	-	-	-	-	30	-	30
IPM	Pest management in rabi crops		Off	33	-	33	-	-	-	-	-	-	33	-	33
January 2012															
Preservation techniques	Chemical preservation of vegetable		Off	10	40	50	-	-	-	1	-	1	11	40	51
ICM	Production technology of mustard		Off	-	20	20	-	-	-	-	-	-	-	20	20
PHT	Primary processing of vegetable		Off	9	20	29	-	-	-	-	-	-	9	20	29
INM	Importance of potassic fertilizer		Off	19	-	19	-	-	-	-	-	-	19	-	19
Repair & maintenance of farm machineries	Micro irrigation in vegetable		Off	17	-	17	-	-	-	-	-	-	17	-	17
Seed treatment	Seed treatment technique		Off	25	-	25	-	-	-	-	-	-	25	-	25
IDM	Disease management in wheat		Off	24	-	24	-	-	-	-	-	-	24	-	24
ICM	Cultivation practice of		Off	23	-	23	-	-	-	-	-	-	23	-	23

	leguminous vegetable														
Water management	Irrigation management of wheat		Off	18	-	18	-	-	-	-	-	-	18	-	18
ICM	Cultivation practice of cucurbits		Off	20	-	20	-	-	-	-	-	-	20	-	20
ICM	Cultivation practice of cucurbits		Off	20	-	20	-	-	-	-	-	-	20	-	20
IPM	Insect pest & disease management in mustard		Off	-	-	-	-	-	-	19	-	19	19	-	19
INM	Fertilizer management in cucurbit		Off	21	-	21	3	-	3	-	-	-	24	-	24
February 2013															
Preservation technique	Preservation of tomato		Off	-	-	-	-	-	-	5	14	19	5	14	19
Preservation technique	Pickle making technique		Off	-	25	25	-	-	-	-	-	-	-	25	25
Nursery raising	Nursery raising in poly tube		Off	24	-	24	-	-	-	-	-	-	24	-	24
Feed management	Feed management in poultry		Off	10	15	25	-	-	-	-	-	-	10	15	25
Integrated farming	Integrated farming system		Off	24	-	24	-	-	-	-	-	-	24	-	24
IDM	Control of shoot and fruit borer in tomato and brinjal		Off	26	-	26	-	-	-	-	-	-	26	-	26
INM	Integrated nutrient management in vegetables		Off	26	-	26	-	-	-	-	-	-	26	-	26
ICM	Cultivation practice of summer maize		Off	24	-	24	-	-	-	-	-	-	24	-	24
March 2013															
Cropping system	Cultivation practice of summer maize		Off	20	-	20	-	-	-	18	-	18	38	-	38
Crop diversification	Management practices of summer crops		Off	27	-	27	3	-	3	15	-	15	45	-	45
Integrated farming	Integrated farming in summer season		off	25	-	25	-	-	-	15	-	15	40	-	40
Nursery raising	Improved nursery raising of cucurbitaceous vegetable		Off	30	-	30	-	-	-	22	-	22	52	-	52
Management of fruits crop	Management of young orchard		Off	28	-	28	3	-	3	15	-	15	46	-	46

Rural Youth

Clientele	Title of the training programme	Duration in days	Venue (Off / On Campus)	Number of participants OTH			Number of SC			Number of ST			Total		Grand Total
				M	F	T	M	F	T	M	F	T	M	F	
April 2012															
Mushroom production	Mushroom production techniques	7	On	-	16	16	-	-	-	-	6	6	-	22	22
May 2012															
Seed production	Seed production technology of paddy	5	On	16	-	16	-	-	-	8	-	8	24	-	24
July 2012															
Seed production	Seed production technology of paddy	5	On	-	11	11	-	8	8	-	5	5	-	24	24
August 2012															
Farming system	Integrated farming system	7	On	24	-	24	-	-	-	-	-	-	24	-	24
September 2012															
Care and maintenance of farm implements	Care and maintenance of diesel engine and pumpset	7	On	26	-	26	-	-	-	-	-	-	26	-	26
November 2012															
Lac culture	Utilization of indigenous host plant for lac cultivation	5	On	-	-	-	-	-	-	24	-	24	24	-	24
December 2012															
Vermi-compost production	Vermi compost production technology	7	On	11	2	13	-	-	-	15	2	17	26	4	30
Mushroom Production	Mushroom production technology	7	On	17	2	19	-	-	-	11	-	11	28	2	30
Total				94	31	125		8	8	58	13	71	152	52	204

CONTENT

SL. No.	PARTICULARS	PAGE NO.
1.	General information about KVK	1-3
2.	Details of district	4-8
3.	Technical Achievement	9
4.	OFT	10-23
5.	FLD	24-26
6.	Training	27-32
7.	Extension Activity	33
8.	Literature Developed	34-35
9.	Linkage	36
10.	Performance of infrastructure in KVK	37
11.	Joint Activity with line dept. and ATMA	38