"Baseline and Diagnostic report for FPO Promotion in Chakai, Jamui"

By

Professional Assistance for Development Action (PRADAN)

Content:

Diagnostic report on millet FPO, Chakai

A. Baseline Survey:

Cluster comprises four Panchayats out of panchayats of Chakai Block. Baseline survey has been carried out with 113 farmer families, chosen randomly from the cluster. Demographics of the four Panchayats is as follows:

Panchayat	Geography Area (Ha)	Household	Population
Gaji	4818	1809	11876
Saron	2517	1930	12263
Poja	6086	2682	7419
Nawadih	5721	3688	20164

Number of farmer household surveyed: 113

Questionnaires answered by head of the family: 82%

Category wise division:

- SC- (11%) : Paswan
- ST (26%) : Santhal
- OBC:49% Kori, Khani, Ghatwar etc.
- Gen: 14% Major Case Brahmnin & Rajput

Education Level:

- Illiterate: 31
- Illiterate (But could sign) : 42%
- Primary level : 14
- Middle level: 5
- 10th: 8%

Food security:

- Availability of food grains from own land:
  - 17% families have less that 3 months food security form own land
  - 36% families having food security up to 6 months
  - 47% families have food security for a year or more.
- Family details
  - Average family size: 4.8
  - 32 families in survey have 6 members in their members
  - No families in the survey had 2 members in their family.

Land Holdings (Own & Leased):

- Average landholding: 374 decimals
- % of Families have land less than 50 decimal: 6 %
- % of families have land 50 decimal to 100 decimals: 18 %

- % of families have land between 1 acre to 2 acres: 29 %

Crop	% of farmers grow	Average area per farmer in Acre	Seed type (Hybrid-H, Non Hybrid-NH, Both-B, L-local)	Average Cost of cultivation per acre						Average productivity per acre in kg	Average Market Price per kg	Gross income per acre (Average)	Net profit per acre (Average)
				Seed	Nutrient Management	Plant Protection	labour	irrigation	Total				
Paddy	97%	1	H-97%, NH-3% B-31%	1222	1121	300	432	1500	3353	2321	12.5	29012.5	25659.5
Maize	49	0.2	H-100%	1906	2971	1200	3311	1211	8693	1021	11	11231	2538
Creepers	65	0.3	H-68%	3500	1221	8876	4545	3231	17873	4456	15	66840	48967
Vegetable(chilli ,cauliflower etc.)	48	15	NH-90%	2121	4322	11211	6500	1435	23468	4324	15	64860	41392
Millets	54	0.2	Local 100 %	432	1280	1034	4107	593	7014	451	30	13530	6516

- %of families have land more than 2 acres: 47%

Irrigation Status

- **38% families have irrigation support average 33 decimal of land. It is able to give only one crops after the kharif**

Cropping Details (Major Crops):

Mechanization status: Access to Machineries

- Tractor: 34%
  - Own:5%
  - Hired/Rent 95%
- Power tiller: 10%
  - Hired/Rent 100%
- Rotavator: 5%
  - Hired/Rent 100%
- Thresher: 15%
  - Hired/Rent 100%
- Sprayer: 12%
  - Hired/Rent 100%
- Irrigation Pump: 10%
  - Hired/Rent 100%

Access to market for various goods and services: Block office of the cluster is having rural small market.

Particulars	Panchayat Shop	Block Level Shop	District level Shop/ Others
Seed	26	40%	36%
Fertilizer	30%	16	54
Pesticide	30 %	40%	30
Tools and Implements	29 %	35%	36%

Processing of produce:

- Only 38% farmers process their produce for marketing
- 73%of the above are engaged in processing of paddy
- 100% of the above take paddy for processing to nearby small-scale processing unit.

Credit Facilities for agriculture purpose: Only 14%% are availing loan for agricultural purposes from various institutional sources.

- Kisan Credit card loans: 2%
- Self Help Groups/MFI: 98%

Awareness about government institutions:

- ATMA: 21%
- KVK: 13%
- Block/ District Agriculture offices: 52%

Purposes for which farmers know above institutions:

- For Training purposes: 41%
- For agricultural inputs: 63%
- Just know by name and nothing else: 27%

Awareness about voluntary organizations working in the area:

- Jeevika, BRLPS: 92%
- PRADAN: 92%

Access to Government Schemes:

- Jal Jeevan Hariyali Abhiyan: 14%
- PM Kisan Samman Nidhi: 39%

Exposure to Agricultural risks:

Risk type	Never (%)	Once in 5-6 years (%)	Every 2-3 years (%)	Each year (%)	Each Season (%)
Agricultural Land	91	5	2	1	1
Capital	63	5	2	1	29
Quality Inputs	5	3	11	10	71
Labour	21	0	25	16	38
Irrigation	9	13	35	20	23
Pests & Diseases	2	1	1	24	72

Timely Availability of Machines	0	0	5	22	73
Fair Prices of produce	0	0	4	23	73
Drought	0	35	60	5	0
Flood	100	0	0	0	0
Irregularity in rainfall	1	2	11	21	65

Best agricultural practices:

- Summer ploughing: 25%
- Seed Treatment: 32%
- Use of Bio-cultures: 7%
- Line sowing (Proper plant geometry): 22%
- Use of insecticides: 12%
- Integrated Pest Management: 0%
- Non pesticidal management: 0%
- Use of machineries in agriculture: 35%
- Drip Irrigation: 0%
- Trellis farming:14%
- Mulching: 0%
- Online access to information: 0%
- Direct Seeded Rice: 0%

B. Diagnostic Report:

1.1 Objectives:

- To understand the Social, political, demographic and geographical profile of the district and cluster.
- To comprehend the scenario of agriculture in the district and cluster.
- To establish an analytical basis for defining strategic priorities for agriculture in the area.
- To explore the existing system of agricultural market linkages, stakeholders involved and their economic significance.
- To assess the breaches at various levels of services in agriculture.
- To define plausible ways at which cementing could be done to strengthen the agricultural services.

1.2 Deliverables:

- Diagnosis of baseline study in the cluster.
- Data regarding Socio-political, geographical conditions of the district.
- Facts and figures about climatic conditions of the district and Cluster.
- Scenario of agriculture in the district and cluster.
- Value chain and marketing prospects of the pulses
- Gaps, Scopes and opportunities in existence

1.3 Methodology:

The report was prepared by compilation of both Primary data from surveys, visits along with secondary data from various reliable sources i.e., government portals and studies earlier conducted by institutes and individuals. As PRADAN is working in Nawada and Bihar state, well before initiation of the project with NAFED, so our understanding, being working here for long in the field of agriculture and rural development are also encompassed in the study. Wherever needed tables, charts and pictures are in also added, to make it clear, brief and comprehended.

2. District Profile:

2.1 Socio- political profile:

The district of Jamui, which till the 1991 Census was a part of Munger district as one of its sub-divisions, was elevated to the status of a district on 20th February, 1991 by the Government of Bihar. Jamui has the distinction of being one of the oldest subdivisions of the state of Bihar. Jamui lies in the south Bihar region of the state. The district is bounded in the north by the districts of Sheikhpura and Munger, in the south by the Giridih district of the state of Jharkhand, in the east by the Banka and in the west by the district of Nawada. The district has got only one subdivision i.e. Jamui. There are 10 Community Development Blocks viz., Chakai, Sono, Jhajha, Laxmipur, Gidhour, Barhat, Jamui, Khaira, Sikandra and Islam nagar-Aliganj in the district. Jamui (Nagar Parishad) and Jhajha(Nagar Panchayat) are the two statutory towns and three census towns in the district.

Jamui is ranked 37th in Food Security Index among 38 districts in Bihar. Jamui comes next to Kisanganj district in extremely insecure in availability of food as per Food security atlas of Bihar. Chakai, a block of Jamui, ranks 209th least developed sub-districts, out of 5955 sub-districts of India. It is the remotest block in the district. Average literacy rate of Jamui in 2011 were 59.79 compared to 42.43 of 2001. If things are looked out at gender wise, male and female literacy were 71.24 and 47.28 respectively. For 2001 census, same figures stood at 57.06 and 26.32 in Jamui District. Rural poor female literacy of Bihar stood at 33% as against India at 54% .It is one leading factor for food insecurity along with nutrition insufficiency for child mortality of Bihar. Due to the status of food security Jamui comes under SCD(Special category district)rank for immediate attention of government for different interventions.

2.2 Geography:

Jamui falls in South Bihar Platue region, with more than 30% undulating hilly wasteland and not fit for cultivation. The area receives an annual rainfall of 1200mm and almost all agriculture activities are rain-fed. Food grain sufficiency from own land is very low i.e. around 6- 8 months in average. And for the rest months the community depend on Public distribution System (PDS) and wage labour. Due to low productivity of agricultural crops, most of the families depend on migration to fulfil their food security. Women in this area also work as a wage labour in agriculture field, mostly in transplanting and harvesting times. Other sources of livelihood are Leaf plate stitching, fire wood selling and Bidi making. Rural women also rear goat, local poultry bird and pigs for getting additional income in emergency cases. Goat rearing is widely accepted across the forest fringe areas. Goat rearing makes a valuable contribution to the livelihood of economically weaker section of families in Chakai. Black Bengal is the local breed which is being reared in almost all Panchayats.

Agriculture especially in the proposed project area, is still at subsistence level and mostly based on food crops, despite having a unique advantage to diversifying crop choices. With the average productivity land holding a representative tribal and schedule class families hardly manage to get a return of Rs 30000 in a year, considering there is not severe fluctuation in weather condition.

2.3 Climate and Rainfall:

The climate of the area is monsoon type, tropical with hot summer and not too cold winter. The area lies entirely in the belt of south-west monsoon and the monsoon usually breaks in the second or third week of June. The average annual rainfall in the area is nearly 1200 mm (The average rainfall at Banka district is 1204.1 mm and that of Bhagalpur district is 1135 mm respectively). About 81 per cent of the annual rain is received in the south west monsoon season during July to September. Out of the total rainfall, 974 mm is received during the months of June to September.

The crop intensity of the districts is 1.30. The district comes under Alluvial Zone 3A. However, it falls in Agro climatic zone VII. Average rainfall fall for the zone is 1200 mm. It has sandy loam, clay loam, loam clay soil texture. This zone has the following six broad soil association groups

- Sub – Himalayan and forest soils

- Recent alluvial tarai soils
- Young alluvial calcareous soils
- Young alluvial calcareous saline soils
- Young alluvial non – calcareous, non-saline soils, and
- Recent alluvial calcareous soils

The district known as cereal belt. Paddy and maize is the main cereal crops in Khariff and wheat in winter and pulse and pulses are majorly sown.Potato onion, cauliflower and Brinjal are some major cash crop in the district.

2.4 Land utilisation:

The terrain of the area is very much unique. Here it is difficult to segregate land in low, medium or upland category instead it is a continuous undulation. Broadly land Homesteads – It is known as badi in local language somewhat flat land. Maize mixed with Ghaghara is the major crop in kharif and if irrigation available people for mainly potato and mix crop like chilly, tomato etc.

- Upland – It is known as tand in local language. It is available in continuous patches. Mainly un-bunded. Pulses like Pigeon pea in kharif and horse gram in Rabi.
- Medium Upland: It is Jarahan land in local language. Medium duration paddy of (100-110 days) are grown in kharif. Wheat is also shown as per availability of water.
- Low lands – It is known as Jola Presence is also patchy and these are not absolute low lands. These are some natural depression. These lands are used for long duration paddy in kharif and wheat in winter.

Season Land Type	Kharif	Rabi	Summer
Homestead / Upland	Maize, Ghaghara Creepers, Tomato, Chilly	Brinjal, Potato, Tomato (majorly) Onion	Creepers
Medium Upland	Paddy	Wheat, Chickpea, Mustard	
Low Land	Paddy		

The average land holding of the proposed area and representative SC and ST family is 1.5 Ha under which 15 to 20 decimal comes in homestead land. 40 to 50 decimal comes under up land and the same availability is medium upland. 20 to 30 decimal land is medium upland.

2.5 Agriculture Profile of the District:

	Area and Production of Crop							
	Paddy		Maize		Wheat		Pulses	
	Area In Ha	Production in M.T	Area In Ha	Production in M.T	Area In Ha	Production in M.T	Area In Ha	Production in M.T
Jamui	45.79	53.31	4.01	10.08	26.9	57.1	9.67 (2)	10.89 (2.4)

Source: Economic survey, Department of Agriculture (2018-19)

Key Oilseed of Jamui Districts:

	Area and Production of Crop			
	Mustard		Total oilseed	
	Area In Ha	Production in M.T	Area In Ha	Production in M.T
Jamui	299	33	144	393

Source: Directorate of Statistics & Evaluation, Government of Bihar, (2015-16)

Key Cash Crops of Jamui Districts:

	Production Vegetable (Area in '000 Hectare and production in '000 tonnes)							
	Potato		Onion		Cauliflower		Brinjal	
	Area	Production	Area	Production	Area	Production	Area	Production
Jamui	2.55 (0.8)	64.57 (0.8)	0.8 (1.4)	20.07 (1.5)	0.39 (0.6)	7.39 (0.7)	0.61 (1)	11.85(0.9)

Source: Department of Horticulture, GoB (2018-19)

Despite receiving a fair annual rainfall of 1204 mm the crop productivity less than state average in certain crops. Purely rain fed agriculture coupled with lack of knowledge and other functional linkage for input, output and credit, leaves behind subsistence agriculture across the district barring some of the pockets.

Altogether small holdings coupled with, erratic rainfall, poor infrastructure and moribund agricultural practices makes agriculture less profitable and unpredictable, which further contributes to the vicious cycle of poverty by affecting farmer's ability to invest on the resources, access to technologies and aspire for a quality life.

3. Cluster Profile:

Demographic profile of Chakai team

Sl. No.	Particulars	Chakai block	PRADAN's outreach till date
1.	Total Panchayats	23	15
2.	Total Villages	600	216
3.	Total ST Population (%)	18.1	29.8
4.	Total SC Population (%)	27.3	22.7
5.	Total Village House Hold	41725	13736
6.	Total Village Population	223965	153289

As per district statistical data, out of the total area under cultivation in the block, 70 percent area (9399 ha) is covered by cereals crop during Kharif season, 16 percent (2140 ha) during Rabi season and nil during summer season. Coarse cereals occupy a total of 20 ha of land during Kharif season. All of this is under rainfed condition only. In case of Pulses, it occupies 12.1 percent (1257 ha) of the gross cropped area of the district. During Kharif season, 2.1 percent of the gross cropped area of the district is covered by pulses while the same during Rabi and Summer are 4.0 percent and 6.0 percent respectively. The area under Oilseed is limited to the tune of 1.2 percent (160 ha) of the gross cropped area of the block. Most of the oilseeds are cultivated during Rabi season under irrigated condition. No fibre crops are grown in the district. Horticulture and Plantation occupies 3.5 percent (470 ha) of the Gross cropped area which is totally irrigated.

Category of Households in the project cluster

Land holding pattern - Sample Size 1000 families	
Land Less	5%
Marginal farmers (<1 ha)	74%
Small farmers (1-2 ha)	17%
Semi Medium farmers (2-4 ha)	4%

Irrigation status of Chakai

Net Area Sown (in Hectares)	Total Unirrigated Land Area (in Hectares)	Area Irrigated by Source (in Hectares)	Canals Area (in Hectares)	Wells/Tube Wells Area (in Hectares)	Tanks/Lakes Area (in Hectares)	Water-fall Area (in Hectares)
22373	17593	4780	675	3048	627	153

The above table depicts only 20% of the total sown area are being covered under irrigation areas. Rest 80% of total area of Chakai remains depends on rain fall. Uncertain and irregular rainfall of the area makes agriculture production most vulnerable. To overcome such gaps and make the area most productive, Land and water management planning are being facilitated to change the sinerio.

Agricultural Credit

The advent of technology has led to increased demand for modern inputs which require credit support. Credit is an important input to accelerate production and productivity in agriculture. The main channels of disbursement of institutional credit to agriculture are commercial banks, cooperatives, and micro-finance institutions. Timely provision of institutional credit helps meet the expenses of working capital. The least priority of the government for the district in different financial years has been depicted below.

Jamui's Cooperative Credit Distribution (2016-17 to 2018-19)

Target (Rs. Lakh)			**Achievement (Rs. lakh)**		
2016-17	**2017-18**	**2018-19**	**2016-17**	**2017-18**	**2018-19**
0	**0**	**128**	**0**	**15.28**	**4.5**

Source: Department of Cooperative, GoB

a. - Availability of credit (working capital) is a major gap of the area. The key sources of credit and their status is given below

- Informal credit sources like relative or neighbour or input supplier. Some local traders also play important role in this regard. Usually, they provide credit to families just in the beginning of agriculture season and in return they purchase the produce at a lower price than market.

- Self-help groups – In Pradan's operational area 44% of the total credit from SHGs is used in agriculture. The prevalent rate of interest in SHGs varies from 24-26% however this is the most easily accessible credit source for the households.

Achievement of Kisan Credit Card (NEW and RENEW) (2010-11 to 2018-19) (Numbers in '000)

Districts	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Jamui	22.59	28.02	30.84	50.86	64.32	64.64	68.24	75.42	50.07

- Kisaan Credit Cards – The 60% rural population of the district have ownership of land. It makes them eligible to get the most acknowledged source of farm credit that is KCC. However as per the Bihar Economic Survey, Bihar 2018-19 only 45000 famers have access of it. It is not accessible to more than 50 % of the farmers in Jamui. The scenario is even worse in the project area (data from baseline).set targets, dairy sector had the highest achievement level of 38.5 percent, followed by poultry

Agri-Infrastructure – The basic Agri infrastructure can be categorized as follows based on their relevance at different stages. Details of investment of the districts for farm mechanisation has depicted below.

Number of Farm Implements (2017-18)

Farm Implements	Combine Harvester	Zero Tillage	Pump set	Power Tiller	Manually Operated tools	Thresher
993	0	2	68	58	366	53

Source: Economic survey, Department of Agriculture (2017-18)

a. **Pre-production infrastructures –** Institutional credit and input market are two key elements of this bracket. The status of institutional credit is already narrated above. As far as backward market linkage is concern, other than 20-25% of the villages, situated within 10-15 km of radium of Chakai, rest of the area suffers from timely availability of quality agriculture input. There are only two whole sale seed shops are actively supplying the total volume of seed to the block.

b. **Production –** Extension support and required infrastructure to provided services at various crop production stage like agriculture implements are available to well-connected villages only which constitutes only 15-20% of the total households of the block.

c. **Post production** – Post production infrastructure like storage facility, warehouses and regulated market are not available. Low consumption capacity of local market h ,ability of the

farmers to access and survive in the competitive larger market, on poor confidence of the producers on commercial agriculture due to the production rate make their distance to face the aggregated demand of market

Unlike central Bihar and Alluvial zone 1 ,where penetration of agriculture mechanization is increasing substantially, this area yet predominantly depends on manual or draught power. Remoteness as well as undulating terrain of the project area is the principle constraint towards large scale farm mechanization. For last couple of year we have been working for establishing a suitable model for small farm mechanization in this area and in this context we have introduces power tiller, reaper, ridger and power sprayers but large scale commercial farming that we are eventually aiming at, is still subject to rapid expansion of access to such services.

4. Millet Value Chain

The combination of vegetables will have the largest share in household income followed by individual crops like maize and paddy. The project is aiming at productivity enhancement of cereal crops especially paddy ,millet and maize by more than 100% and for vegetables it is 175%. In the present context maize and vegetables becomes more central to the focus as

1. Maize as sole crop will contribute to an extent of 22% to the total income and it bears risk of damage from above average rainfall. As we experienced in last couple of year maize productivity remained 1.5t/ha, if it continues in the coming years the net income will reduce .Among vegetables creepers will have the highest share in the family income a. A weather fluctuation can cause a yield loss of more than 50% thereby reduce the total income up to 8,000-10,000Rs. To reduce the risk potential, the project therefore plans for a mix of vegetables having contra variant risk proposition.

2. project therefore plans for a mix of vegetables having contra variant risk proposition. **Proposed Value addition to selected produce**

Sl No	Crop	Proposed value Addition
1	Millet	a. Seed sorting and seed treatment for production b. Land preparation and enhanced area for the crop c. Crop Management practices d. Harvesting and preserving of seeds e. Sorting and grading of millets

3	Tomato and Cauliflower	1. Market linkage. 2. Sorting and grading. 3. Market research to build understanding of 'consumer preference' and educating farmers to take up varieties accordingly.
4	Potato	1. High yield variety

5. Data Analysis to Identify Gaps

- Sowing of maize on ridges which results to a better crop growth and make weeding or other inter-culture operations easier. Additionally, it is a prerequisite for mechanization of other agriculture operation at later stage of plant growth.
- Threshing of maize is the most critical operation, having a significant impact on winter crops especially wheat. Manual deshelling takes huge time to get the final product for marketing, and unless the grain is marketed farmers are not able to invest further in wheat or other cash crops.
- Weeding in vegetables is the most critical but laborious work, which is usually done by the women only. In general, manual weeding of 20 decimal of vegetable plot especially in kahrif takes almost 2-3 labour days which becomes further complicated as someone miss the short dry spell, the entire crop growth suffers throughout the season.
- Paddy reapers can be the part ,It will help farmers to harvest the crop timely with low investment of labour. Still during the peak harvesting time deploying labour and taking the second crop in moisture retained areas is so difficult.

Table 1. Cropping Pattern of the Area

Categories of Land	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Homestaed irrigated						MIaze/ Ghagra				Potato or some vegetables		
Homestaed unirrigated						MIaze/ Ghagra/Millet						
Upland						Pigeon pea/Maize/Millet				Linseed or horse Gram		
Medium and low land	Wheat in few areas					Paddy					Wheat/Gram	

Some of the key trends of shift in cropping pattern

- In the proposed clusters very strong demonstration of vegetables in khariff as well as in winter has been done with more than 800 families, which is inevitably opening up a new avenue for the farmers to enhance their return from farm-based activities.
- Vegetables like tomato, cow pea and okra in monsoon, cauliflower and tomato in winter and bottlegurd in summer are gradually becoming choice of farmers.
- Marketable Surplus – With the traditional agriculture practice a farmer holding 1.5 ha of land; produce 5-8 q of additional food grain, which is marketed as per the cash requirement of the family. Particularly for rice the organized marketing system is this not very fairly instrumental in the area. In case of vegetable or other cash crop, it is mostly grown for household

Nearest market

As we are targeting our FPO in remote villages of Chakai blocks of Jamui district, here existing nearest markets are as following.

Table 2. Targeted market for selected produces

S.No.	Target markets	Selected produce	Distance from FPO (Kms.)
1	Chatro	Millet	35
2	Mirzaganj	Millet	40
3	Bhagalpur	Vegetable, Potato, Onion and Fruits	100
4	Lakhisarai	Vegetable, Potato, Onion and Fruits	70
5	Giridih	Vegetable, Millet	70

Current govt. scheme available in district and feasibility of convergence1

- The schemes to improve the organic matter content in the soil and productivity of crops are quite innovative. Recently under MGNREGA a number of composting models like vermin composting, nadep composting etc are included therefore it can be seen as an opportunity for large scale replication for the same especially when soil organic carbon content across the district is significantly low.
- "Mukhyamantri Tivra Beej Vistar Karyakram evam Samekit Beej Gram Tatha Pramanit Beej Vitrana Krayakram" program is also very much relevant in this context particularly to remove the bottle neck of timely availability of seeds.
- Custom hiring Center is another ambitious scheme of Govt of Bihar which is aiming at establishing cluster level agriculture tool bank for agriculture equipment.
- The schemes such as "Sutran aur Parvekshan Sudhrikaran" helps in supervision and replication of other ongoing schemes
- Programs of community nursery alias "Samudayik Nursery" to expend the vegetable production and "dhatu kothi" to preserve grains are two important schemes for farmers' confidence building as well as for further expansion.
- Marketing is the essence of agriculture. Realization of a remunerative prices and cutting down the marketing costs are important to keep the interests of both the producers and consumers safe from the exploitation by middlemen. Creation of more marketing infrastructure will cut down the costs of transportation and the time needed for marketing. The massive program for expansion of marketing infrastructure will help in farmers realizing better prices for their produce.

[1] https://dbtagriculture.bihar.gov.in/AchivmentReport.aspx

- Taking banking services to the door step of the farmers can certainly meet the biggest challenge of working capital deficit.
- MGNREGA is the most promising scope for creation of irrigation infrastructure and land development.
- RKVY is the most important scheme for productivity enhancement of field crops, which has been integrated especially for improving farm productivity at mass level.

Gaps Identified

The current state of agriculture in the selected clusters is a product of knowledge, state of infrastructure or resources and institutional arrangement of service delivery as well as ensuring access to other two constructs. In the light of the above understanding the critical gaps of agriculture of the area are explained below.

- Knowledge of Scientific Agricultural Practices - As pointed out in several studies and different Govt programs, lack of knowledge and access to knowledge of scientific agricultural practices of the community is one of the key bottlenecks for growth in agriculture sector. The project area alike other tribal dominated pockets of the country have been historically suffering from 'tarmac and road side biases'*(By Robert Chambers) of the main stream extensive services. Precisely strong cultural perspective of the tribal community behind existing agricultural practices and poor affordability of modern technologies aided with inefficiency of main stream extension services leads to reduced confidence of the community of this area for taking up new concepts and technologies for productivity enhancement.

  Speaking differently, the situation altogether weakens the process of learning which is described as 'relatively permanent change in knowledge, attitude and behaviour' for the tribal farmers.

- Availability of credit – As discussed above, majority of rural households in Banka district do not have access to financial institutions like Bank or Primary cooperative societies. As far as the project area is concern District Administration's Official data says that credit services in especially Katoria and Chandan, blocks are poorly developed, whereas the major concentration of Primary Credit Cooperative Societies is evident in relatively developed blocks like Amarpur, Dhoriya and Banka itself. Still in a study it was found that more than 60% of the farmers do not have Kisan Credit Cards which is the most sustainable institutional way of accessing farm credit.

  There are two main agriculture seasons for the farmers, one is from June to November and another is, from November to March. As per the cultural practices, most of the festivals especially marriages in the societies here are done in late winter and summer season just after the harvest of winter crops. This leads to a situation when farmers get exhausted of their surplus income, what she/he might have earned from rabi. This further implies that the main season of agriculture that is Kahrif, starts with a severe

deficit of working capital. Now in this situation even if the farmer somehow manages to get input either on credit or burrowing money from other sources, a big chance of crop failure always remains in the subsequent months due to unpredictable rainfall, as we witnessed in last two years. In addition, for a marginal farming community, meeting the basic requirements of her family is the most serious challenge particularly in kharif months as the crops are yet to harvest to fetch some income from the market. So, it is easily comprehensible that throughout monsoon a farmer's family keeps on prioritizing between two challenges, managing family need on one hand and meeting input requirement of agriculture on another, with the very little resource available.

Assuming that a family gets a modest crop in kharif, still she/he suffers from working capital deficit in rabi season. As two agriculture seasons overlaps, a farmer need to have enough of resources available to start with rabi season even before kharif agriculture is translated into monetary value. So, this cycle continues until one accumulates enough of surplus production to withstand failures for at least 2-3 cycles.

- Market Linkage - The disadvantageous geographical position of the proposed cluster of villages, makes it difficult for the input market to reach farmers. The entire area struggles for on time quality input availability in peak agriculture season. On the flip side this situation brings the local input supply system into existence, which often sale inputs at exorbitant rates compromising quality. In a survey it was repeatedly asserted by the respondents that these local input suppliers are the primary nodes they approach for referral services particularly for plant protection. Intent of profit maximization on one hand and poor knowledge on another, makes these channels sale what they want to sale or what the input dealer in the back end, wants. In both the cases farmers become the losers.

  The situation with the output market is no different. The regularize output market do not have its reach to these pockets which is partly because of the remoteness and certainly partly because of the fact that the area does not produce a critical volume of output which offers a viable business proposition. This phenomenon gives birth to an old debate of 'chicken and egg which comes first?' Should farmers attract market or should the market put forward offers before the farmers to produce in scale?

  Basic gaps in infrastructure like proper transportation facility is another factor that aggravate the problem especially produce marketing.

- Basic Infrastructure - All weather roads, means of transportation, sorting-grading centres, warehouses, cold storages these are some of the prerequisites for transformation of an area from subsistence level of agriculture to agribusiness. The project area lacks of such infrastructure facilities.

- Farm Mechanization – This is another bottleneck for commercial agriculture in the area. Primarily the scattered and small pieces of land holding makes it difficult to operate big farm machines, in addition to that alike market institution, service systems also do not have reach to these pockets. Generally,

these costly machines are not own by any individuals, instead some service systems are instrumental in other parts of the district or in neighbouring Bhagalpur district, which is not the fact for the proposed project area. However, in some of the clusters people are gradually being exposed to the mechanized farm operations.

- Other service – It includes extension and referral services which is largely absent in our context. So far, we have been able to groom a handful of Community service providers to provide hand holding support to the community in the critical stages of crop growth but compared to the requirement of the area it is not significant.

  Services around making 'enabling information' like price forecasting, weather forecasting, etc, available to farmers is rapidly growing as a future scope to work upon.

  In the commercial agriculture belts like Bhagalpur and lakhisari etc service sector is also growing around 'removing critical and risky farm operations' from farmers fold. Setting up of commercial poly nurseries and opting multi option horticulture option in large number in those belts is a typical example for the same. It is basically freeing farmers from getting engaged into nursery rising and, in a way, covering the risk of nursery failure at a reasonable price and optimum utilization of land.

- Interest of Young Generation in Agriculture - Increasing uncertainties and instability of farm income is not an attractive livelihood proposition and it is failing to meet the aspiration that the new generation has for themselves. The current state of agriculture also invokes the issue of identity, farming these days especially in the context where the project seeks to work, somewhat associates with an identity of labor (as a farmer has to work with the soil), and it is obvious that none from the young generation having some education would like to see themselves as labor as the way, they have been observing their parents or grandparents. Therefore, sometimes identity poses a greater challenge than the others, which has be addressed else none of the efforts will yield in long run.

6. Possible Services of FPC:

The livelihood plan for the target families would primarily focus on better land use and crop husbandry thus aiming at improving income from agriculture. A representative of family having 2.5 ha of land, earns Rs 35000 in a year from the below mentioned crop combination.

Table 3. Current land use-productivity-income

S.NO	Number of Women in Agriculture and Horticulture	Average Crop Area in Ha	Productivity (t/ha)	production	Market price (rs/ton)	cash Income from production
1	Paddy	0.274	3	0.82	0	0
	Maize	0.120	2	0.24	12000	2880.00
2	Wheat	0.159	2.6	0.41	1300	536.60
3	Pigeon Pea	0.073	1.3	0.10	50000	4766.83
4	Lenthil/Horse gram etc.	0.140	1	0.14	30000	4200.00
6	Linseed	0.062	0.83	0.05	30000	1551.63
7	Vegetables-Kharif	0.042	6	0.25	15000	3807.54
8	Vegetables-Rabi	0.062	8	0.50	12000	5975.24
	Total	0.933				23,717.00

The project seeks to bring about change in family income by two-fold through introducing commercial vegetable cultivation and productivity improvement of field crops. Another significant intervention would be reducing the area under soya bean as it has continued to be an extremely low remunerative crop over last 3-5 years.

The significant changes in the land use are

1. Encouraging farmers to take up vegetables in at least 40 to 50 decimals of land in a year.
2. Commercial maize which has a higher yield potential will be introduced in existing area of land.
3. Varietal change will be done for potato, wheat and, paddy.

The proposed land use in given below in Table No 4

Table 4. Proposed Land Use – Productivity – Income

	Land Holding pattern for a representative Family				
	Low Land (ha)	Medium land (ha)	Upland (ha)	Homestead Land	Total (ha)
Proposed Land use pattern	0.27	0.322	0.374	0.12	1.086
Monsoon	Paddy	Paddy	.3 Acre Pigeon pea+ .3 Acre Millet+.3 Acre Creepers	Kitchen garden Vegetables	1.00
Early winter	Paddy continues	Paddy continues	Cauliflower in 0.15 Acre decimal and cabbage in 0.20 Acre and Pigeon pea continues	Potato	0.6
Winter	Wheat	Bengal Gram/lentil ain 50 decimals to 1 acre in addition to chilli brinjal and tomato in 35 decimal.	Pigeon pea will continue and chilli brinjal and tomato in 35 decimals.	Potato continues	0.516
Summer		bottlegurd in 10 decimals			0.04

7. Conclusion: -

It could be concluded that producers in the area have small acreage, deferred practices of production, lower productivity thus resulting in the small production, of which only a part is marketable surplus and for that too, farmers didn't get reasonable prices which consequently results in lower net incomes of the farmer family. Moreover the market of millet is not very localised and the crop is not in MSP list to attract farmer.Therefore, by facilitating them in procurement of inputs and marketing of their produce at rational prices and providing them hand holding support in modern and improved agricultural practices by a organized system of efforts with a motivation of self-help, farmer producers would be able to get an assured and sustainable livelihood. Thus, an organization like Farmer Producer Company could act as a game changer in the agriculture and in lives of drivers of agriculture i.e., farmers in the region.

Annexure(I)

Checklist:

1. Objectives and Methodology

2. District Profile: demographics, socio-economics, geography, climate, agriculture scenario, market etc.

3. Cluster profile: Demography, geography, climate, cropping patterns, major crops etc.

4. Value chain on pulses in brief

5. Data analysis to identify existing breaches and enumeration of gaps

6. Possible services of FPO

7. Conclusion

Annexure (II)

Baseline Survey Format

Section 1. General Information – Demographics, household size, members and details of occupation.

Sl.No.	Question	Units	Answer
1.1	Today's date	Date (dd-mmm-yyyy)	
1.2	Name of interviewer	Name	
1.3	Name of Women farmer (HH)/ interviewee	Name	
1.4	Is She head of the Family	Yes/No	
1.5	If "No" in 1.4 (Please give the name of Head of the family)	Name	
1.6	Name of District	Name	
1.7	Name of Block	Name	
1.8	Name of Village	Name	
1.9	Name of Hamlet	Name	
1.10	Name of Self-Help Group	Name	
1.11	Scheduled Tribe	Please mention the Caste name	
1.12	Scheduled Caste		
1.13	Backward Caste		
1.14	*Mahadalit* (Applicable for Bihar)		
1.15	General Caste		
1.16	Marital Status (Single/Married/Widow/Divorced)		
1.17	Household food security from their own crops (Wheat, Maize & Paddy, Millets)	Number of Months in the past year	

1.18	Household food security from PDS	Number of Months in the past year	
1.19	Household food security from market purchases	Number of Months in the past year	

For each household member, please answer the following questions (if there are more than 6, don't ask details about those under 5 years old)

SL.No	Question						
2.1	Person ID	1	2	3	4	5	6
2.2	Relation to household head (HH)						
2.3	Female =1, male =0						
2.4	Age (years)						
2.5	Formal education (years)						
2.6	Highest level of education (code below)						
2.7	Can read (yes/no)						
2.8	Can write (yes/no)						
2.9	Primary occupation (code below)						
2.10	Secondary occupation (code below)						
2.11	Does The person migrate (Yes/ No)						

2.12	Did the person has to return in lockdown (Yes/ No)						
2.13	Is S/He is planning to go back to a destination for work (Yes/No)						
2.14	If “No” in the question above. What occupation is S/He planning/started doing in the village (Code below)						

1=university 2=college 3=high school 4=primary school 5=none.1=agriculture, 2=agricultural labourer, 3=livestock producer, 4=salary in off-farm activity, 5= collect wood or other products in forest, 6=cart coal, 7= MGNREGA, 8=other (specify).

Section 2. Land Ownership

Sl.No	Land class	Own Land Area (in decimals)	Lease Land Area (in decimals)	Irrigation Support Available (Yes/No)	How many months Irrigation Support is Available	Area Under Assured Irrigation (in decimals)		
						Kharif	Rabi	Summer
3.1	Homestead							
3.2	Gora/ Tanr (uplands)							
3.3	Baid (medium uplands)							
3.4	Kanali (medium lowlands)							
3.5	Bohal (lowlands)							

Section 3. Production – Quality and quantity of inputs, technological levels, input suppliers and vendors, seasonality of production, availability and tied sales & Economics of Agriculture – Costing, input and output ratios, yields and current productivity.

Kharif

Sl.No	Crop	Grown in (in decimals)	Seed		Cost (INR)						Yields (mention as per the area grown) (in Kgs)	Whether produce sold in the market? (Yes/No)	How much Quantity Produced (In Kg) **(B)**	Price realized per Kg) In INR**)** **(C)**	Total Price Realized **(D=B*C)**	Net Profit **(D-A)**	Whether product sold through a collective? (Yes/No)
			Seed Rate (kg/Acre)	Seed Type (Hybrid/ Op/ domestic)	Seed	Fertilizer	Pesticide	Irrigation	Hired Labour	Total **(A)**							
4.1	Paddy																
4.2	Maize																
4.3	Pigeon Pea																
4.4	Pulses Others (Please specify)																

4.5	Oilseed: Please specify															
4.6	Vegetables 1 (Please specify)															
4.7	Vegetables 2 (Please specify)															
4.8	Vegetables 3 (Please specify)															

Rabi

Sl.No	Crop	Grown in (in decimals)	Seed		Cost (INR)						Yields (mention as per the area grown) (in Kgs)	Whether produce sold in the market? (Yes/No)	How much Quantity Produced (In Kg) **(B)**	Price realized per Kg) In INR) **(C)**	Total Price Realized **(D=B *C)**	Net Profit **(D-A)**	Whether product sold through a collective? (Yes/No)
			Seed Rate (kg/Acre)	Seed Type (Hybrid/ Op/ domestic	Seed	Fertilizer	Pesticide	Irrigation	Hired Labour	Total **(A)**							
4.9	Wheat																
4.10	Others Cereals (Please specify)																
4.11	Bengal Gram																
4.12	Horse Gram																
4.13	Pulse: Others (Please specify)																
4.14	Oilseed: Mustard/Linseed																
4.15	Vegetable 1 (Please specify)																
4.16	Vegetable 2 (Please specify)																

4.17	Vegetable 3 (Please specify)																

Summer

Sl.No	Crop	Grown in (in decimals)	Seed		Cost (INR)						Yields (mention as per the area grown) (in Kgs)	Whether produce sold in the market? (Yes/No)	How much Quantity Produced (In Kg) **(B)**	Price realized per Kg) In INR**) (C)**	Total Price Realized **(D=B*C)**	Net Profit **(D-A)**	Whether product sold through a collective? (Yes/No)
			Seed Rate (kg/Acre)	Seed Type (Hybrid/ Op/ domestic	Seed	Fertilizer	Pesticide	Irrigation	Hired Labour	Total **(A)**							
4.18	Summer Paddy																

4.19	Cereal (Please specify)																
4.20	Green Gram																
4.21	Other Pulses: Please specify																
4.22	Oilseed: Please specify																
4.23	Vegetable 1 Please specify																
4.24	Vegetable 2 Please specify																

SL.No	Particulars	Used (Yes/NO)	Owned	Borrowed
5.1	Tractor			
5.2	Power tiller			
5.3	Power weeder			
5.4	Seed drill			
5.5	Rotavator			
5.6	Thresher			
5.7	Sprayer-knapsack, gutter hose, etc.			
5.8	Ridge Maker			
5.9	Reaper			
5.10	Brush cutter			
5.11	Pump Machine			
5.12	Poly/green House			
5.13	Any other Agri machine. (please mention)			

Input Suppliers & Vendors

Sl. No	Particulars	
1.	Seed	• Panchayat level shop • Block market • District market • Agriculture Entrepreneur • PACS • Company representative • Domestic Desi seeds

2.	Fertilizer	• Panchayat level shop • Block market • District market • Agriculture Entrepreneur • PACS • Company representative
3.	Pesticide	• Panchayat level shop • Block market • District market • Agriculture Entrepreneur • PACS • Company representative
4.	Small tools and Implements	• Panchayat level shop • Block market • District market • Agriculture Entrepreneur • Company representative • Online

Section 4. Processing, Packaging & Value Addition

Particulars	Do you do process the commodity (Yes/No)	If "Yes" Where do that
Paddy		• You have your own processing unit

		• You process it at local processing centre • You process it at mill far from your village
Wheat		• You have your own processing unit • You process it at local processing centre • You process it at mill far from your village
Maize		• You have your own processing unit • You process it at local processing centre • You process it at mill far from your village
Fruit & Vegetables		• You have your own processing unit • You process it at local processing centre • You process it at mill far from your village
Any other (Please Mention)		• You have your own processing unit • You process it at local processing centre • You process it at mill far from your village

Section 5. Financial Aspects – Sources, terms and conditions, interest and existing outstanding, access to government programmes

Particulars	Did you Avail Loan in last year? Yes /No	Amount	Compulsory Mortgage (Yes/No)	EMI/Bullet/Balloon	ROI	Any penal Interest (Yes/No)	Net Outstanding
SHG							
MFI							
Banks							
KCC							
Friend /Relatives							
Any other (Please mention)							

Institution	Have you heard about these institutions? (Yes/No)	Have you got any training from these institutions? (Yes/No)	Have you got any material benefit from these institutions? (Yes/No)	If Yes, mention the benefit (Implements/seed, fertilizer, etc/Insurance Others)
ATMA				
KVK				
Block Agriculture Office/District Agriculture Office				
District Animal Husbandry Office/Block Animal Husbandry Office				
NABARD				

Land and water development Departments				
Non-Profit Organization (Such as PRADAN)				

Sl. No	Name of Scheme	Did You Receive (Yes/No)
1.	Jal Jivan Hariyali Yojana	
2.	Bihar PM Kisan Samman Nidhi Yojana	
3.	Bihar Rajya Fasal Sahayata Yojana (Farmers Bima Yojna) Application	
4.	Mukhyamantri Harit Krishi Sanyantra Yojana	
5.	Mukhyamantri SC / ST Udyami Yojana in Bihar (Interest Free Loans to Entrepreneurs)	
6.	State Crop Assistance Scheme - Bihar Fasal Sahayata Yojana (Insurance) for Farmers	
7.	Animal & Fish Resources Department	
8.	Samekit Murgi Vikas Yojana	
9.	Distribution of Three-Wheeler / Four-Wheeler with Ice Box to SC & ST	
10	Scheme for Subsidized Moped and Ice Box Distribution	
11	Anudanit Dar Par Matasya Angulikao Ke Utpadan Avam Vitran Ki Yojana	
12	Samagra Gavya Vikas Yojana	
13	Co-Operative Department	
14	Godown Construction Scheme	
15	Disaster Management Department	
16	Shatabdi Anna Kalash Yojna	
17	Industry Department	
18	Implementation Of National Mission On Food Processing	

19	Modernization of Rice Mills Scheme	
20	Food Park Yojana	
21	Integrated Development Food Processing Sector Yojana	

Section 6. Risk & Challenges

How frequently do you face challenges in the following aspects?

Particulars	Almost every season	In Every Year	In 2 to 3 Years	Rarely	Never
Availability of land					
Availability of Working Capital					
Quality Input					
Availability of Labour					
Irrigation					
Proper Market					
Price of the Produce					
Disease/ Pest attack					
Flood					
Drought					
Any other					

Impact of Risk & Challenges mentioned

Particulars	Complete Crop Loss	50 % Crop Loss	Partial loss
Availability of land			

Availability of Working Capital			
Quality Input			
Availability of Labour			
Irrigation			
Proper Market			
Cost of the Produce			
Disease/ Pest attack			
Flood			
Drought			
Any other			

Section 7. Best Practises

Do you practice	Yes/No
Deep ploughing in summer	
Seed treatment	
Use of bio culture	
maintain row to row and plant to plant distance	
Use of pesticides	
Any IPM method	
Hire any types of farm tools & implements	
Call anyone to your field for suggestions	
Drip irrigation	
Trellis	
Mulching	

Any Smart phone/mobile/IVRS services	

Section 8. Any other comments

Constraints and Challenges

Prospects and Opportunities

Annexure (III)

Government Programs in Bihar for agricultural Development

सबमिशन ऑन एग्रीकल्चर एक्सटेंशन

इस योजना के मुख्य अवयव प्रखण्ड स्तर से मुख्यालय तक कम्प्यूटर एवं उपस्करों का क्रय, प्रमण्डलीय स्तर पर सूचना तकनीक प्रशिक्षण प्रयोगशाला की स्थापना, संविदा के आधार पर 3 वर्षों के लिए प्रखण्ड स्तर से मुख्यालय तक डाटा इन्ट्री ऑपरेटरों की नियुक्ति, मुख्यालय स्तर पर परियोजना प्रबन्धन इकाई हेतु वरीय परामर्शी एवं परामर्शी का चयन, प्रति दो प्रखण्ड पर टच स्क्रीन कियोस्क की स्थापना हेतु जिलावार प्रखण्डों का चयन, आत्मा योजना के माध्यम से Pest Surveillance के लिए हस्तचालित यंत्र का क्रय आदि है।

राजकीय बीज गुणन प्रक्षेत्रों में बीज उत्पादन

राजकीय बीज गुणन प्रक्षेत्र पर खरीफ में धान, बाजरा, मडुआ, अरहर, जूट, मूँग, लोबिया, मूँगफली तथा सोयाबीन, रबी में गेहूँ, जई, चना, मसूर, मटर, राई/सरसों और तीसी एवं गरमा मौसम में मूँग, उरद और तिल के बीज उत्पादन हेतु राशि कर्णांकित की गई है। प्रक्षेत्रों के स्थानीय उपयुक्तता एवं परिस्थिति के अनुसार फसलवार आच्छादन लक्ष्य निर्धारित किया गया है।

राजकीय बीज गुणन प्रक्षेत्रों में बीज उत्पादन

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सब मिशन ऑन एग्रीकल्चरल मैकेनाईजेशन योजना

इस योजना अंतर्गत 10 लाख, 25 लाख एवं 40 लाख रूपये की लागत से कस्टम हायरिंग हेतु कृषि यंत्र बैंक तथा 80 लाख रूपये की लागत वाले हाईटेक हब की स्थापना किया जाना है। उक्त सभी कृषि यंत्र बैंक/हाईटेक हब पर 40 प्रतिशत अनुदान का प्रावधान है। इसके आलावा चयनित ग्रामों में 10 लाख रूपये तक की लागत से कृषि यंत्र बैंको की स्थापना की जानी है, जिसमें 80 प्रतिशत अनुदान का प्रावधान है, जो मात्र आवेदक समूह को ही देय है।

राष्ट्रीय कृषि विकास योजना

कृषि एवं संबद्ध क्षेत्रों के अधिक समग्र एवं समेकित विकास को सुनिश्चित करने के लिए कृषि जलवायुवीय, प्राकृतिक संसाधन और प्रौद्योगिकी को ध्यान में रखते हुए गहन कृषि विकास करने के लिए राज्यों को बढ़ावा देने हेतु एक विशेष अतिरिक्त केन्द्रीय सहायता (एसीए) योजना के लिए इस योजना की शुरूआत वर्ष 2007-08 से की गई। कृषि का सर्वांगीण विकास करना ही इस योजना का मुख्य उद्देश्य है। इसके तीन घटक- उत्पादन में वृद्धि, आधारभूत संरचना एवं परिसम्पत्ति का विकास तथा फलेक्सी फंड है। वर्ष 2007-08 से 2014-15 तक 100 प्रतिशत राशि अनुदान के रूप में मिलता था, परन्तु वर्ष 2015-16 से यह फंडिंग पैटर्न बदलकर 60:40 केन्द्रांश एवं राज्यांश के अनुपात में किया गया है।

डीजल अनुदान वितरण

वर्ष 2017-18 में अल्पवृष्टि के कारण सुखाड़ जैसी स्थिति को देखते हुए धान बिचड़ा, धान रोपनी करने तथा धान, मक्का एवं अन्य खरीफ फसलों को डीजल चालित पम्पसेट से पटवन करने के लिए सरकार द्वारा किसानों को डीजल अनुदान देने की व्यवस्था की गई है।

खरीफ फसलों की सिंचाई के लिए 30 रूपये प्रति लीटर की दर से 300 रूपये प्रति एकड़ प्रति सिंचाई डीजल अनुदान दिया जायेगा। यह अनुदान धान बिचड़ा के 2 सिंचाई, धान के 3 सिंचाई, मक्का एवं अन्य खरीफ फसल के 3 सिंचाई के लिए प्रति एकड़ अधिकत्तम 900 रू० दिया जायेगा।

रबी फसलों यथा-गेहूँ फसल के तीन सिंचाई एवं अन्य रबी फसलों के लिए दो सिंचाई के लिए प्रति एकड़ 300 रू० की दर से अधिकतम 900 रू० प्रति एकड़ अनुमान्य किया गया है।

बीज ग्राम योजना

इस योजना का कार्यान्वयन वर्ष 2007-08 से किया जा रहा है। योजनान्तर्गत किसानों को धान एवं गेहूँ फसल हेतु 50% अनुदान पर आधार/प्रमाणित बीज तथा दलहन एवं तेलहन फसल हेतु 60% अनुदान पर आधार/प्रमाणित बीज उपलब्ध कराया जाता है। किसानों को बीज उत्पादन हेतु तीन स्तरों पर (बोआई से पूर्व, फसल के मध्य अवस्था में एवं कटाई से पूर्व) प्रशिक्षण दिया जाता है। प्रत्येक बीज ग्राम हेतु अधिकतम 100किसानों का चयन किया जाता है। चयनित किसानों को एक एकड़ क्षेत्र के लिए चिन्हित फसलों के बीज उपलब्ध कराया जाता है।

अनुदानित दर पर बीज वितरण

इस योजनान्तर्गत भारत सरकार के नये दिशा-निर्देश के आलोक में नवीनतम प्रभेद के बीज की पहुँच ग्रामीण क्षेत्रों में करने हेतु धान एवं गेहूँ के 10वर्षों से कम अवधि के प्रभेद के बीज पर अनुदान अनुमान्य किया गया है, जबकि दलहन एव तेलहन फसलों हेतु 15 वर्षों से कम अवधि के प्रभेद के बीज पर अनुदान अनुमान्य किया गया है।

मुख्यमंत्री तीव्र बीज विस्तार कार्यक्रम

योजना का उद्देश्य राज्य के सभी राजस्व गाँवो में एक साथ उन्नत प्रभेदों के बीज उपलब्ध कराकर बीज उत्पादन हेतु किसानों को प्रोत्साहित करना है। आधार बीज का वितरण सभी जिला एवं प्रखंड मुख्यालयों में शिविर आयोजित कर किया जाता है। बीज वितरण के समय ही सभी चयनित किसानों को प्रखंड स्तर पर बीजोत्पादन का प्रशिक्षण दिया जाता है।

कृषि यांत्रिकरण

69 विभिन्न प्रकार के कृषि यंत्रों पर अनुदान की व्यवस्था है, वत्तमान वित्तीय वर्ष में विभिन्न यंत्रों को बढ़ावा देने के उद्देश्य से ट्रैक्टर, कम्बाईन हार्वेस्टर, पावर टीलर, पम्पसेट, जीरोटिलेज/सीड कम फर्टिलाईजर ड्रिल एवं एच०डी०पी०ई० लेमिनेटेड वुभेन ले फ्लैट ट्यूब तथा रोटावेटर का राज्य स्तर से लक्ष्य निर्धारित किया गया है, जबकि शेष यंत्रों को मांग आधारित किया गया है।
कृषि यांत्रिकरण योजना में आवेदन प्राप्ति से लेकर यंत्र वितरण तक की ऑन-लाइन व्यवस्था हेतु मैकेनाइजेशन सॉफ्टवेयर का उपयोग किया जा रहा है।
किसान मेला के अतिरिक्त मेला के बाहर क्रय किये गये कृषि यंत्रों पर भी अनुदान देने का प्रावधान है।

धान की मिनीकीट योजना

केन्द्र प्रायोजित योजनान्तर्गत मिनीकीट बीज चयनित कृषकों के बीच 80% अनुदान पर उपलब्ध कराया जाता है। इसके अन्तर्गत 5 से 10 वर्षों के विकसित प्रभेदों को राज्य के चयनित क्षेत्रों में वितरित कर उसके फलाफल को देखा जाता है कि यह प्रभेद किस क्षेत्र के लिए उपयुक्त है। इसमें आधे एकड़ के लिए बाढ़ एवं सुखाड़ रोधी धान के प्रभेद क्रमशः स्वर्णा सब-1 तथा सहभागी/सम्पदा प्रभेद के 6 किलो प्रमाणित बीज पैकेट कृषकों को उपलब्ध कराया जाता है।

धातु कोठिला का अनुदानित दर वितरण कार्यक्रम

राज्य योजना अंतर्गत अन्न भंडारण के लिए किसानों को अनुदानित दर पर धातु कोठिला वितरित किया जाता है।

एकीकृत बीज ग्राम योजना

एकीकृत बीज ग्राम की स्थापना हेतु गया, नालन्दा, बक्सर, रोहतास, कैमूर, भोजपुर, औरंगाबाद, कटिहार एवं पूर्णिया जिले के चिन्हित गाँव में किया जाना है, जिसमें किसानों को 60% अनुदान पर दलहन एवं तेलहन फसलों के आधार/प्रमाणित बीज तथा अन्य फसलों के बीज 50% अनुदान पर उपलब्ध कराया जाता है। स्थापित एकीकृत बीज ग्राम को पाँच वर्षों तक सहायता प्रदान की जाती है।

जैविक खेती प्रोत्साहन योजना

वर्ष 2017-18 में जैविक खेती को बढ़ावा देने हेतु जैविक कोरिडोर का निर्माण किया जा रहा है, जिसमें प्रथम चरण में पटना से भागलपुर तक के गंगा के किनारे पड़ने वाले गाँव तथा दनियावाँ से बिहारशरीफ तक के राष्ट्रीय/राजकीय मार्ग के किनारे बसे गाँवों में जैविक कोरिडोर का निर्माण किया जायेगा।

पटना एवं नालंदा जिला में जैविक कोरिडोर का निर्माण परम्परागत कृषि विकास योजना से किया जायेगा।

पटना, नालंदा, लखीसराय, बेगुसराय, मुंगेर एवं भागलपुर जिलों के दियारा क्षेत्र में जैविक कोरिडोर का निर्माण दियारा विकास योजना से कराया जायेगा।

जैविक खेती प्रोत्साहन योजनान्तर्गत अंगीकरण एवं प्रमाणीकरण के कार्य हेतु पटना, नालंदा, वैशाली, समस्तीपुर, बेगुसराय, खगड़िया, मुंगेर, भागलपुर जिलों में गंगा के किनारे के गाँवों में कोरिडोर का निर्माण किया जायेगा।

जैविक खेती योजना से कोरिडोर में किसानों/उत्पादकों का समूह बनाकर राष्ट्रीय जैविक उत्पादन कार्यक्रम के अनुसार जैविक खेती के लिए निर्धारित पैकेज पर अनुदान देकर अंगीकरण कराकर प्रमाणीकरण कराया जायेगा।

जैविक खेती प्रोत्साहन योजनान्तर्गत जैविक खेती का अंगीकरण का कार्य जिला कृषि पदाधिकारी द्वारा किया जायेगा तथा प्रमाणीकरण संबंधी अन्य कार्य बिहार स्टेट सीड एण्ड ऑरगेनिक सर्टिफिकेशन एजेन्सी द्वारा किया जायेगा।

योजना के कार्यान्वयन के लिए सब्जी की खेती करने वाले किसान/उत्पादन समूह का चयन कर अनुदान पर जैविक उपादान का वितरण कराया जायेगा।

सभी किसानों को कलस्टर में जैविक खेती करने हेतु प्रोत्साहित किया जायेगा।

जैविक कोरिडोर में किसानों को अधिक-से-अधिक पक्का वर्मी कम्पोस्ट इकाई, गोबर गैस तथा अन्य उपादान का वितरण किया जायेगा।

जैविक खेती प्रोत्साहन योजनान्तर्गत प्रत्येक जिला में एक जैविक ग्राम की स्थापना की जायेगी जिसमें किसानों को अधिक-से-अधिक पक्का वर्मी कम्पोस्ट इकाई एवं गोबर गैस इकाई का लाभ दिया जायेगा।

वर्मी कम्पोस्ट उत्पादन में वृद्धि के लिए किसानों को 75 घन फीट क्षमता के स्थायी/अर्द्धस्थायी उत्पादन इकाई पर मूल्य का 50%अधिकतम 3,000 रू० प्रति इकाई की दर से अनुदान देने का प्रावधान है। एक किसान अधिक-से-अधिक 05 इकाई के लिए अनुदान का लाभ ले सकते हैं। इसके अतिरिक्त व्यावसायिक स्तर पर वर्मी कम्पोस्ट उत्पादन को बढ़ावा देने के लिए उद्यमी/सरकारी प्रतिष्ठानों को सहायता का प्रावधान है। वर्मी कम्पोस्ट वितरण में मूल्य का 50% अधिकतम 300 रू०/क्विं० की दर से अधिकतम 02 हेक्टेयर के लिए अनुदान का प्रावधान किया गया है। व्यवसायिक स्तर पर वर्मी कम्पोस्ट उत्पादन इकाई की स्थापना हेतु निजी उद्यमी को प्रतिवर्ष 1,000, 2,000 एवं 3,000 मे० टन प्रतिवर्ष उत्पादन क्षमता के लिए लागत मूल्य का 40% अधिकतम 6.40, 12.80 एवं 20.00 लाख रूपये क्रमशः अनुदान देने का प्रावधान किया गया है, जो पॉच किस्तों में प्रतिवर्ष उत्पादन क्षमता का कम-से-कम 50% उत्पादन करने के उपरांत देय होगा अर्थात् कुल अनुदान राशि का प्रथम वर्ष में 30%,द्वितीय वर्ष में 20 प्रतिशत, तृतीय वर्ष में 20%, चतुर्थ वर्ष में 15% एवं पंचम वर्ष में 15% अनुदान राशि देने का प्रावधान किया गया है। सरकारी प्रतिष्ठानों को प्रतिवर्ष 1,000, 2,000 एवं 3,000 मे० टन प्रतिवर्ष उत्पादन क्षमता के लिए लागत मूल्य का शत्-प्रतिशत अधिकतम 16.00 32.00एवं 50.00 लाख रूपये क्रमशः अनुदान देने का प्रावधान है।

जैव उर्वरक पोषक तत्वों को जमीन में स्थिर करने तथा इसे पौधों को उपलब्ध कराने में उपयोगी है। इस कार्यक्रम अन्तर्गत जो किसान जैव उर्वरक खरीदना चाहते हैं, उनके लिए मूल्य का 50% अधिकतम 75 रूपये प्रति हेक्टेयर अनुदान दर प्रस्तावित की गई है। व्यावसायिक जैव उर्वरक में सरकारी/गैर सरकारी संस्थाओं को अनुदान देने का प्रावधान किया गया है।

टाल विकास योजना

टाल क्षेत्रों में कीट-व्याधियों के समेकित प्रबंधन एवं पर्यावरण संतुलन को ध्यान में रखते हुए फसल का उत्पादन बढ़ाने एवं फसल समस्या समाधान में कृषकों को आत्मनिर्भर बनाने हेतु कृषक प्रक्षेत्र पाठशाला संचालित किये जा रहे हैं।

किसान सलाहकार योजना

प्रत्येक पंचायत में पदस्थापित किसान सलाहकारों के मानदेय राज्य योजना से कर्णांकित की गई है।

दियारा विकास योजना

दियारा क्षेत्रों के विकास हेतु राज्य के बक्सर, भोजपुर, पटना, वैशाली, मुजफ्फरपुर, पूर्वी चम्पारण, पश्चिमी चम्पारण, खगड़िया, सहरसा, सुपौल, मधेपुरा, पूर्णियाँ, कटिहार, भागलपुर, मुंगेर, लखीसराय, समस्तीपुर, दरभंगा, मधुबनी, बेगूसराय, सारण, सिवान, गोपालगंज, शिवहर एवं सीतामढ़ी कुल- 25 जिलों में दियारा विकास योजना कार्यान्वित की जाती है। इस योजना अंतर्गत गोर्डस यथा (कद्दु, नेनुआ, करेला), मेलन तथा भिंडी के हाईब्रिड बीज का वितरण 50% अधिकतम 8,000 (आठ हजार) रू० प्रति हे०, मटर उन्नत/हाईब्रिड बीज वितरण 50% अधिकतम (तीन हजार) रू० प्रति हे० तथा किसानों को पी०भी०सी० पाईप बोरिंग हेतु लागत मूल्य का 50% (100 फीट तक, 4 इंच व्यास की पाईप हेतु) अधिकतम मो०-7,500 (सात हजार पाँच सौ) रूपये अनुदान अनुमान्य है।

राष्ट्रीय तेलहन एवं ऑयलपाम मिशन

भारत सरकार द्वारा केन्द्र प्रायोजित नेशनल मिशन ऑन ऑयल सीड्स एवं ऑयलपाम (NMOOP) योजना अन्तर्गत मिनी मिशन-I (तेलहन) को बिहार में वित्तीय वर्ष 2014-2015 से लागू किया गया है।

तेलहन के उत्पादन एवं उत्पादकता में नियमित वृद्धि लाने हेतु तेलहनी फसलों में सरसों/राई, मूँगफली एवं सूर्यमुखी को सम्मिलित किया जाना, भूमि की उर्वरता को बरकरार रखते हुए तेलहन के क्षेत्र में राज्य को पूर्णतः आत्म निर्भर बनाना, कृषकों द्वारा परम्परागत बीज की जगह उन्नत एवं संकर प्रभेदों के बीज के उपयोग में वृद्धि लाना, कृषकों को अन्य उपादान उपलब्ध कराते हुए कृषि तकनीकी हस्तानान्तरण को सफल बनाना, कृषकों की आर्थिक स्थिति में सुधार लाना तथा कृषकों के बीच रोजगार के अवसर में वृद्धि लाना इस योजना का मुख्य उद्देश्य है।

जिरो टिलेज तकनीक से गेहूँ का प्रत्यक्षण

धान फसल के कटाई उपरान्त गेहूँ की बोआई जिरो टिलेज तकनीक से करने के लिए किसानों को प्रोत्साहित करने हेतु राज्य योजना अंतर्गत इस तकनीक से गेहूँ के प्रत्यक्षण हेतु 2,960 रू० प्रति एकड़ अनुदान की व्यवस्था की गई है। इससे गेहूँ की बोआई के समय में 20-25 दिनों की बचत होती है। साथ ही, किसानों को जुताई का पैसा भी बच जाता है।

राष्ट्रीय कृषि संधारणीय मिशन

(क) वर्षाश्रित क्षेत्र विकास योजना (आर०ए०डी०)- इस योजना का मूल उद्देश्य कलस्टर आधारित दृष्टिकोण (100 हे०), समेकित कृषि प्रणाली को अपनाकर फसलों की उत्पादकता बढ़ाना जैसे-फसल, बागवानी, गव्य, पशु संसाधन, मत्स्य, वानिकी इत्यादि तथा प्राकृतिक संसाधन का संरक्षण तथा मूल्य संवर्द्धन है। इस योजना का मुख्य कार्यक्रम ग्रीन हाउस, मधुमक्खी पालन, साईलेज इकाई, कटाई उपरान्त भंडारण/प्रसंस्करण इकाई, तालाब/जलाशय का निर्माण (व्यक्तिगत/सामुदायिक), जलाशय का उद्धार, ट्यूब वेल, सिंचाई पाइप, सोलर पाइप, डीजल/विद्युत चालक पाइप, वर्मी कम्पोस्ट इकाई, हरी खाद इत्यादि है।

(ख) मिट्टी स्वास्थ्य कार्ड एवं प्रबन्धन योजना- इस योजना के मुख्य उद्देश्य अगले तीन वर्षों में पूरे राज्य के खेतों की मिट्टी की जाँच कर किसानों को मिट्टी स्वास्थ्य कार्ड उपलब्ध कराना, कृषि छात्रों के क्षमता संवर्द्धन भागीदारी तथा भारतीय कृषि अनुसंधान परिषद/राज्य कृषि विश्वविद्यालयों के साथ प्रभावी सहयोग से मिट्टी जाँच प्रयोगशालाओं को सुदृढ़ करना, इस योजना अंतर्गत जिलों के मिट्टी की उर्वरता संबंधित समस्याओं का निदान हेतु समान रूप से मिट्टी नमूना लेने के लिए मानकीकृत प्रक्रियाओं के साथ विश्लेषण, विकसित एवं पोषक तत्वों के उपयोग क्षमता को बढ़ाने के लिए जिलों में मिट्टी परीक्षण के आधार पर पोषक तत्व प्रबन्धन को बढ़ावा देना, पोषक तत्व के तरीकों को बढ़ावा देने के लिए जिला एवं राज्य स्तर के मिट्टी जाँच से जुड़े० कर्मियों तथा प्रगतिशील किसानों का क्षमता संवर्द्धन आदि है।

(ग) परम्परागत कृषि विकास योजना- इस योजना के मुख्य उद्देश्य जैविक खेती के परम्परागत संसाधनों का उपयोग को प्रोत्साहित करना एवं जैविक उत्पादों को बाजार के साथ जोड़ना, जैविक खेती को बढ़ावा देने के लिए कलस्टर एवं पी०जी०एस० प्रमाणीकरण के द्वारा जैविक गाँव विकसित करना, इस योजना के तहत कलस्टर में 50 एकड़ भूमि में जैविक खेती कराने के लिए 50 या अधिक किसानों को लेना, तीन वर्ष के लिए बीज से लेकर फसल की कटाई, ब्रांडिंग, पैकेजिंग तथा उत्पाद के विपणन तक प्रत्येक किसान को 20000 रू० प्रति एकड़ सहायता उपलब्ध कराना तथा किसानों के सहयोग से घरेलू उत्पादन एवं जैविक उत्पादों के प्रमाणीकरण में वृद्धि करना है।