

1. Introduction

The Government of Bihar is implementing a rural livelihoods project titled “Bihar Rural Livelihoods Project” through the Bihar Rural Livelihoods Promotion Society (BRLPS), with financial support from the World Bank. BRLPS, an independent society under the Department of Finance, Govt. of Bihar, is implementing the five year project in 44 blocks of eight selected districts namely Gaya, Nalanda, Muzaffarpur, Madhubani, Purnea, Khagaria, Madhepura & Supaul. The aim of the project is to improve the rural livelihoods by enhancing social and economic empowerment of the rural poor. This also includes improving the livelihoods and quality of life of the rural poor (focusing on women and other disadvantaged groups) through social, economic and democratic empowerment. This would be done by developing organizations of rural poor and producers to enable them to access and negotiates better services, credit and assets from public and private sector agencies and financial organizations. The project is also investing in capacity building of public and private service providers.

The main objective of the project is to improve the rural livelihoods through formation, strengthening and development of community institutions. The project will form SHGs in villages, which will be federated as Village Organization/s and subsequently as Block Level Federation/s. The project will work with ‘saturation approach’ i.e., leaving no poor households from the loop of SHG. Hence these community institutions of poor and producers will enable them to access and negotiate better services, credit and assets from public and private sector agencies and financial organizations. The project will also intervene in the selected sectors / sub sectors / commodities in the project operational districts for the income enhancement for the rural poor, who are or can be engaged in any point of the value chain deriving maximum income for their livelihood improvement.

A large proportion (around 70%) of poor families in Bihar is small and marginal farmers. For these families; with average landholding of less than 50 decimals - usually with no irrigation; the options in agriculture are limited to production of cereals and pulses for subsistence; and in some cases taking a small second crop. Productivity is low with an average return of Rs 4500 per hectare in rainfed conditions; with food security of 3 to 5 months from own lands. Further, a large proportion of Schedule Caste families are landless; depending heavily on sharecropping or wage earning in various unorganized sectors such as farming, brick kiln, stone quarrying etc. Understandably, the group, constituted of marginal farmers and landless households is the largest in the State and among the more vulnerable section of the rural poor. A large majority of them migrate to different parts of the country in search of employment in unskilled vocations. The income earned is however inadequate to create enough surpluses to withstand severe shocks on household economy and thus the ascent from poverty are neither significant nor steady. The total area under wheat cultivation in Bihar is around 2.16 million hectare and productivity is around 4.12 million tones. In Bihar, around 82.9% of the total number of land holding belonging to the small and marginal farmers having less than 1 hectare of land. The average productivity of wheat is 18.94 quintal / hectare, where as in Punjab

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and Haryana is 45.31 quintal / hectare and 40.66 quintal per hectare. However, the farmers confess it to be as 13 quintal / hectare, which is lower than the average productivity of the country.

Bihar Rural Livelihoods Promotion Society (BRLPS) has carried out the System of Wheat Intensification (SWI) for around 25000 SHG members with support from the Village Resource Persons being identified by the concerned Village Organizations. The Society has hired the services of PRADAN and ASA to support the VOs and their SHG members to carry out SWI in their agriculture fields.

- a. The Village Organizations of six project districts have created the demand and identified 25000 SHG households / members, who were interested to undertake System of Wheat Intensification (SWI).
- b. The Village Organizations have identified the Village Resource Persons (VRPs), who will be trained and handhold the participating SWI farmers.
- c. The Village Organizations have developed the proposals on the requirement of agriculture inputs, implements, etc. and requested BRLPS to get funds for procurement and distribution of inputs in time through the Village Organizations.
- d. PRADAN and ASA have been contracted by the BRLPS to train the Village Resource Persons and who in turn train would handhold the 25000 SWI participating farmers for the entire wheat crop cycle in the year 2009-2010.
- e. PRADAN and ASA have also supported the participating SWI farmers belonging to SHG households and ensure SWI practices carried out by the farmers / SHG members timely with condition that the Village Organizations should have procured and distributed to the participating SWI farmers in time as prescribed by the personnel of PRADAN and ASA.
- f. In Muzaffarpur and Madhubani, the System of Wheat Intensification (SWI) was carried out by the SHG members, without any technical service providers such as PRADAN and ASA. The field teams (BPIUs) of Muzaffarpur and Madhubani have hired the SWI resource persons as per the need felt by the SHG members.
- g. The project aims to introduce and propagate specific agriculture methodologies for the enhancement of agriculture productivity.
- h. SWI is carried out in all the project operational districts. The SHG members of Gaya and Nalanda are supported by PRADAN and Purnea and Khagaria are supported by ASA. The SHG members of Muzaffarpur and Madhubani districts have undertaken SWI with support from the VRPs identified by the VOs and part time support from the resource person only. There are no technical service providers supporting the SHG members to carry out SWI in Muzaffarpur and Madhubani.
- i. The point to be noted that BRLPS has a full fledged staff structure in the referred districts and blocks to carry out the mobilization of SHG members / members

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households for the intervention in the agriculture support services & its associated works. ASA and PRADAN work as technical service providers in the project villages in association with the Village Organizations (federation of SHGs at the village level), BRLPS staff with clear target for output. ASA and PRADAN has its own field staff to carry out the assignment on the ground.

- j. Nearly 25,000 farmers across the 6 District Project Coordination Units (DPCUs) have taken up SWI methodology of wheat cultivation this winter. It was therefore decided to hire a consultant to assess the progress and achievement of outputs achieved through the System of Wheat Intensification (SWI) by the project and technical service providers jointly (shared responsibilities) and to assess the impact of the SWI methodology.

Given the expected results through the SWI methodology and potential this methodology has to contribute significantly to the livelihood and as a result to the food security of the participating families, this performance review looks at the various aspects of intervention to provide inputs for defining the future strategy.

2. Objectives

- a. Assessment of the Impact of the SWI methodology on the yield enhancement in Wheat. It was envisaged that the methodology would result in an additional yield of 1.25 T/ha.
- b. Assessment of the progress & achievement of outputs achieved by the project and technical service providers during first year of implementation against that identified in the agreement with 'BRLPS'.
- c. Make recommendations for improvement

3. Key areas of enquiry (with respondents)

a.i Change in productivity of the participating families (between SWI and non SWI and between SWI and Pre-SWI)

- a. Participating families/ Control families

a.ii Change across different farming segments (i.e. marginal, small, medium and large farmers)

- a. Participating families/ Control families

a.iii Change across different social groups (i.e. SCs, STs, OBCs and General)

- a. Participating families/ Control families

a.iv Change in food security in months

- a. Participating families/ Control families

b. 1 Mobilization, Training & Capacity Building of farmers

b.1.i Extent of coverage in the project villages.

- a. Participating Families
- b. V.R.P.
- c. V.O.

b.1.ii Spillover effects on SHG and Non SHG members.

- a. V.R.P.
- b. V.O.
- c. Project Implementation Team

b.1.iii Process of mobilization in terms of equity (inclusion of marginalized communities).

- a. Participating Families:
- b. V.O.
- c. V.R.P.
- d. P.I.T.

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- b.1.iv Extent of inclusion of poor marginal farmers and scheduled caste farmers.*
 - a. Participating families
 - b.1.v Quality of capacity building programs for individual SHG members and its impact.*
 - a. Participating families
 - b. V.O.
 - c. V.R.P.
 - d. P.I.T.
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b.2 Mobilization, Training & Capacity Building of the Village Resource Persons

- b.2.i Process for selection of Village Resource Persons and their nurturing*
 - a. V.O.
 - b. V.R.P.
 - c. P.I.T.
 - b.2.ii Impact of inputs (VRPs distribution, seed, training, exposure and other agricultural inputs) on the output (enhancement in yields)*
 - a. Participating families
 - b.2.iii Understanding of technical knowledge about SWI amongst VRPs and participating families.*
 - a. Participating families
 - b. V.R.P.
 - b.2.iv Understanding of quality of village resource persons in terms of support and sensitivity amongst the participating families.*
 - a. Participating families
 - b.2.v Ownership and command developed by the VRP.*
 - a. V.R.P.
 - b. V.O.
 - b.2.vi System in place for the management of VRPs and their performance management.*
 - a. V.R.P.
 - b. V.O.
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b.3 Role of Village Organization

- b.3.i Clarity in procurement and distribution of inputs*
 - a. V.O.
 - b. V.R.P.
 - b.3.ii Timely availability of inputs to SWI farmers from the V.O.*
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- a. V.O.
- b. V.R.P.
- c. Participating families

b.3.iii Understanding of the V.O. of the service charge model.

- a. V.O.
- b. V.R.P.

b.3.iv Capacity of the VO in managing the service charge model.

- a. V.O.
- b. V.R.P.

b.3.v Understanding of the SWI participating families about the technical aspects of SWI.

- a. Participating families
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4. Research instruments vis-à-vis key informants

S. No.	Key informants	Research Tools
1	Target and control households	Household survey
2	Village Resource Persons	Interview
3	Village Organization	FGD
4	Project Implementation Team	Interview

5. Sampling Intensity

A total of three districts would be covered under the study with one district from each service provider.

Service Provider	Districts	Sample
Pradan	Gaya & Nalanda	Gaya
ASA	Purnea & Khagaria	Purnea
No Service Provider	Muzaffarpur & Madhubani	Muzaffarpur

i. Household Survey

Unit	Size	Remarks
SWI participants	240	80 participants from each district irrespective of number of participating families in the district.
SWI non- participants	120	40 non- participants from each district with proportionate numbers from the same village as of the sampled participants

ii. Focused group discussion

Unit	Size	Remarks
Village Organization	6	2 per district

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iii. Semi Structured Interviews

Unit	Size	Remarks
Village Resource Persons	6	2 VRPs per district
NGO Officials/ DPIUs	3	1-2 functionary per district

3. Findings and Analysis

The following section deals in detail with the findings and analysis of the study. As the study was undertaken across 3 districts, the compiled data for all three districts has been presented here. Where ever the district-wise data has not been presented in the following section, the same can be referred to in the **Annexure A**.

3.1 Profile of the participating families (SWI)

The families who have taken up wheat cultivation through SWI methodology in the study area primarily belong to the socially and economically marginalized group. This has been possible primarily as a result of the system of incentivization of services to the VRP, the key person at the field level.

Box 1: System of incentive

The program has hired services of VRPs on a deliverable basis. They are paid on the number and type of farmers that take up paddy cultivation through SWI methodology in their area. A system of incentive is in place which is detailed below. This deliverable based system has not only ensured quality work but also proper targeting. In terms of inputs also (like seed, fertilizer, weeder etc), preference has been given to the marginalized groups and members of the SHGs.

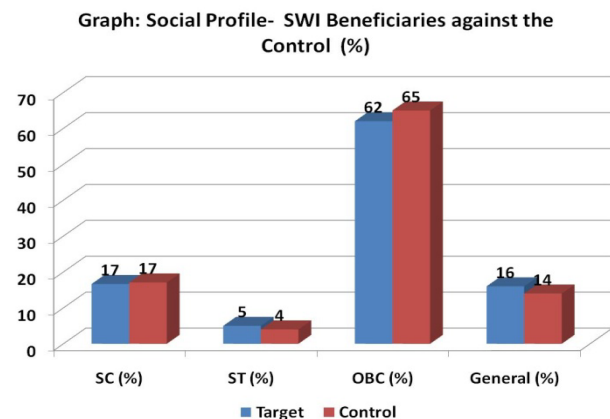
- SC Farmer (leased land): Rs. 35/- per farmer per month
- SC Farmer (own land): Rs. 30/- per farmer per month
- OBC Farmer (leased land): Rs. 25/- per farmer per month
- OBC Farmer (own land): Rs. 25/- per farmer per month
- Gen Farmer (leased land): Rs. 20/- per farmer per month
- Gen Farmer (own land): Rs. 20/- per farmer per month

a. Based on the social group

The graph presents the social profile of the participating families as against the control families across the 3 sampled districts. The proportion of participating families aligns with the control families in the region.

A majority of the participating families belong to the OBC category.

As the target area has a relatively small percentage of SC and ST families, same proportion of the families have participated in the



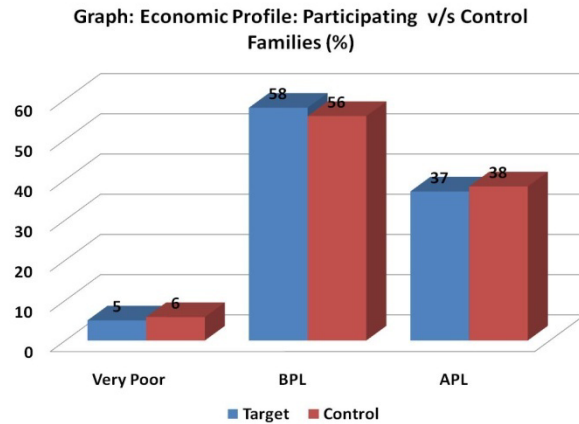
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program.

b. Based on the Economic Profile

In terms of economic profile, a majority of the participating families belong to the BPL category and a substantial proportion of the APL families as well. Only 5% of the very poor families have been able to take up SWI methodology.

The proportion of participating families corroborates with the control families in the area.

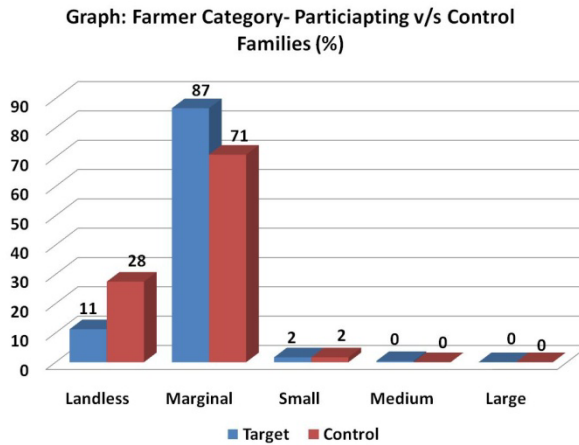


c. Based on the Farmer Profile

The sampled target area comprised of primarily the landless and marginal farmers.

The SWI methodology has been adopted mainly by farmers coming under the marginal farmers' category.

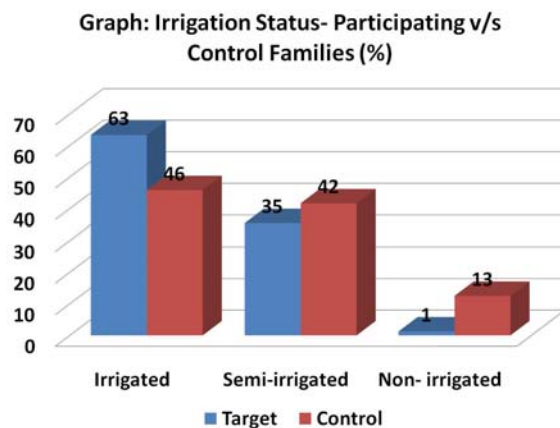
A small proportion of landless farmers have also tried the SWI methodology through the share cropping on leased land.



d. Based on the Status of Irrigation

The SWI methodology has been adopted by a greater proportion of farmers having irrigation facility as compared to the control families.

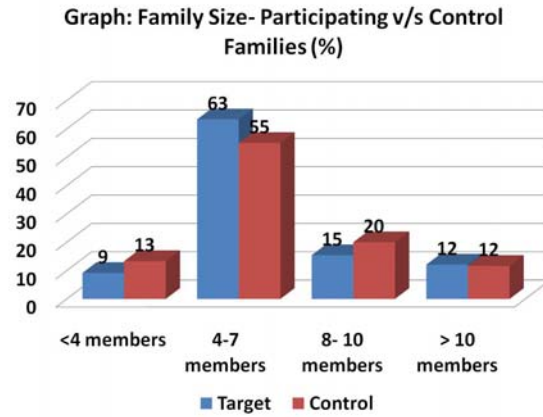
In case of no source of irrigation, only 1% families have tried the methodology.



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e. Based upon the Family Size

As the SWI methodology is perceived to engage more labor, it is observed that majority of participating families (66%) have a family size of 4-8 members as compared to 55% such families in the region.



F. Based on the SHG Membership

About 98% families across the three districts which participated in the SWI program belonged to an SHG.

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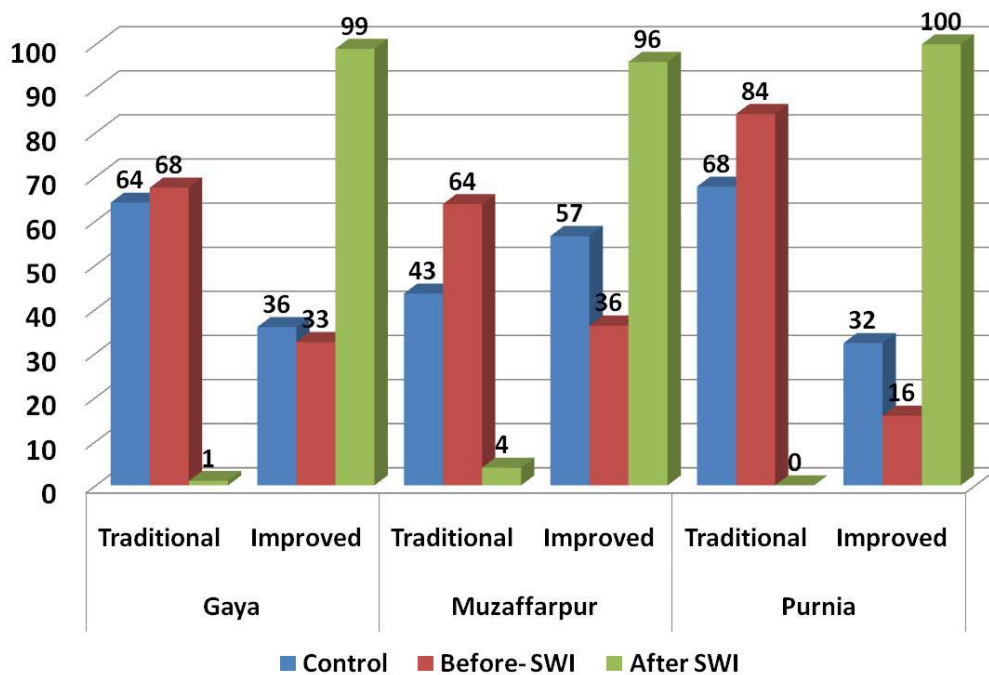
3.2 Status of Production Factors under SWI

There are several factors of production that affect the productivity of the crop. The status of some of the critical factors of production amongst the SWI participating families is presented below.

a. Type of seed utilized

A majority of the farmers in the control group or in the pre-SWI phase utilized local seeds or grains from the previous crops as seed. In the SWI phase, the participating farmers shifted to using seeds of improved varieties like PBW 154, LW 71, SW 273, GW 173, UP 2565 etc.

Graph: Type of Seed Utilized

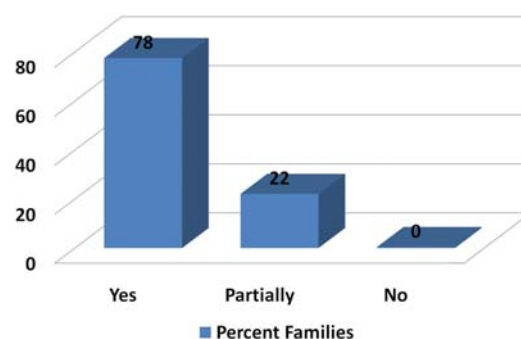


b. Seed Treatment

Almost all the participating families understood the importance of seed treatment. About 78% families said that they followed all the steps in seed treatment. The remaining 22% families said that they too undertook seed treatment but were not sure if they followed all the steps.

The seed treatment comprises of primarily

Graph: Seed Treatment by Participating Families



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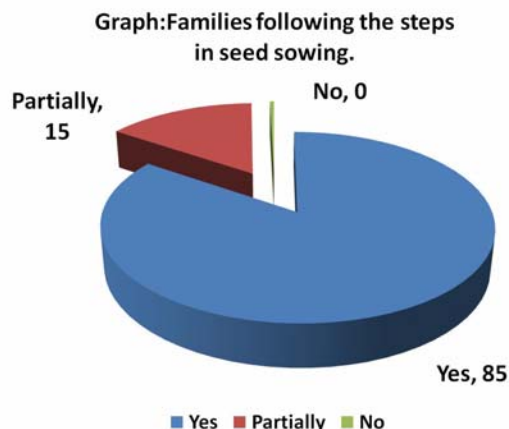
the following steps; use of new seed, selection in warm water and seed treatment with cow urine/ fungicide.

c. Seed Sowing

The important guideline for seed sowing comprise of two points; sowing of seed about 1 to 1.5 inch deep and sowing of two seeds at one point.

Across the three districts, 85% families followed the process completely while the remaining 15% followed it partially.

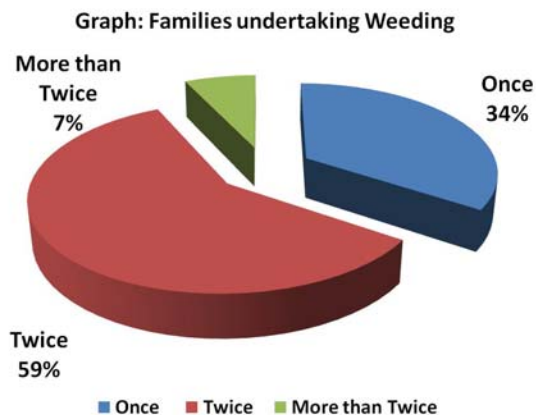
In terms of plant to plant distance, which is prescribed at about 20*20 cm in case of SWI, almost all the farmers (87%) followed the same. The remaining farmers (13%) followed it partially.



d. Status of Weeding/ Hoeing

In terms of weeding / hoeing, only 7% farmers could undertake weeding more than twice.

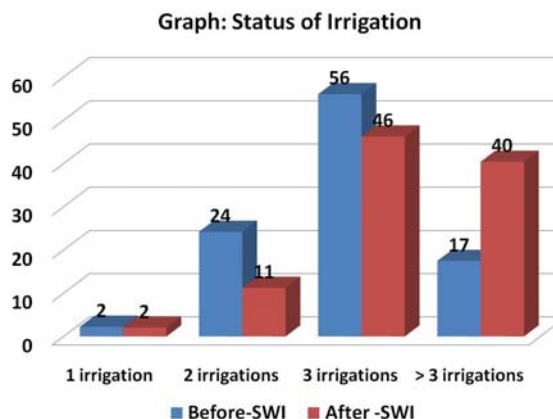
A majority of the farmers (59%) could undertake weeding twice while the remaining 34% could provide it only once.



e. Status of Irrigation

The SWI methodology only prescribes for continuous moisture in the fields.

The comparative situation of irrigation in the pre-SWI phase and SWI phase suggest that as compared to 3 irrigations in pre SWI phase for a majority of farmers, more than 3 irrigations have been given by a large number of farmers in SWI phase..



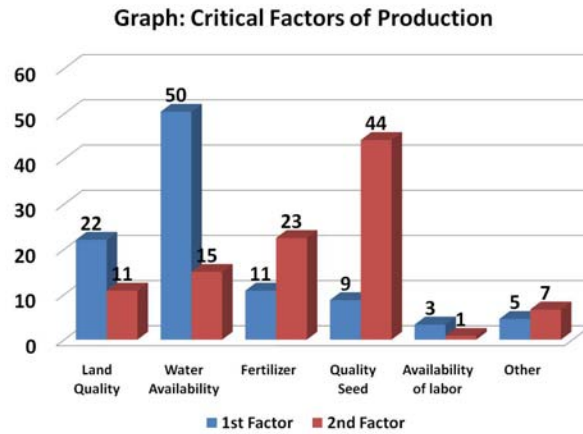
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f. Critical factors of production

The farmers across the area of study chose water for irrigation as the most critical factor of productivity followed by good quality seed.

The availability of fertilizer and quality of land ranks next in terms of critical factors of productivity. Labor seems to be easily available in the region and therefore does not rank high the factors of productivity.

With reference to irrigation, the target group requested for pump sets and electricity connections to their area. They feel that with assured irrigation, the risk related to this critical factor could be controlled.



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3.3 Change in Productivity and Impact

The district-wise detailed table of area, production and productivity in pre-SWI, control and SWI phase is presented in the annexure.

a. Compared to the Pre-SWI

The following table presents comparison between the productivity of same set of farmers in the Pre-SWI scenario and in the SWI phase. The average increase in productivity of 240 sampled farmers across the 3 districts comes to about 1.08 Tons/ Ha (53.40%).

Table: Increase in Wheat Productivity against the Pre-SWI Phase				
Productivity	Pre-SWI (Tons/ Ha)	SWI (Tons/ Ha)	Increase (Tons/ Ha)	Percentage Increase (%)
Gaya	2.07	4.00	1.93	92.83
Muzaffarpur	1.63	3.29	1.66	102.14
Purnia	1.84	2.38	0.54	29.11
Total	1.93	3.01	1.08	56.31

The increase has been highest in Gaya with 1.93 T/Ha and lowest in Purnia with 0.54 T/ Ha. The production in Purnia in the SWI phase has been poor in one block due to sudden rise in temperature during the milking stage. This caused poor grain formation across the block resulting into poor production.

Range Analysis

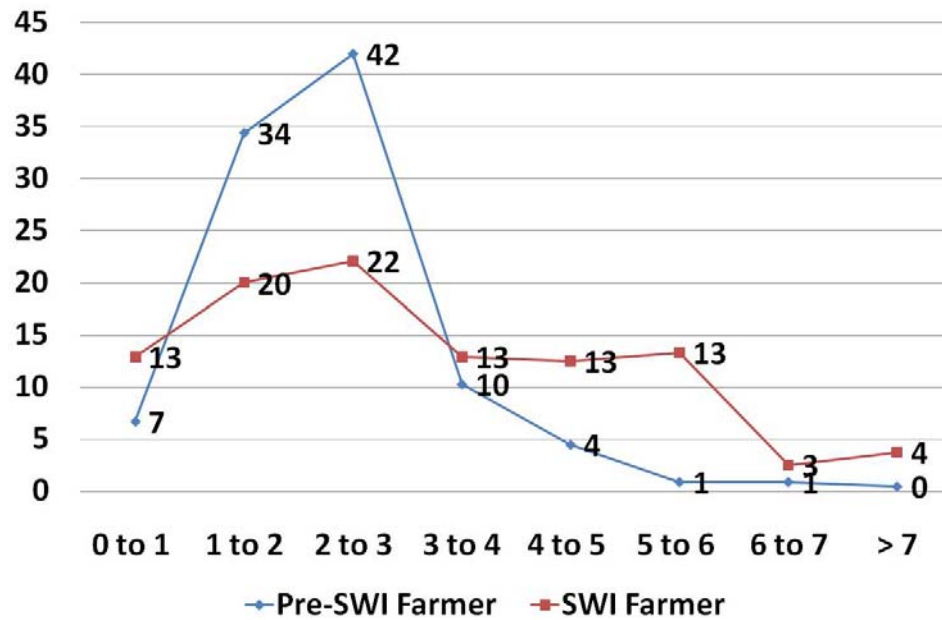
Though the average productivity of the SWI farmers have been about 3.01 T/Ha¹, the potential of productivity that can be achieved in the SWI methodology is presented in the graph below.

The graph presents that in traditional method of cultivation a majority of farmers get a productivity yield less than 4 T/ Ha while in case of SWI methodology, the yields achieved by a substantial proportion of farmers reaches up to 6 T/ Ha. The maximum yield achieved though SWI as per the study comes to about 10.125 Tons/ hectare.

¹ The average productivity has been calculated as total production across the sampled families divided by the total area under cultivation. The results, therefore, incorporates the families which have completely lost their produce due to poor grain formation.

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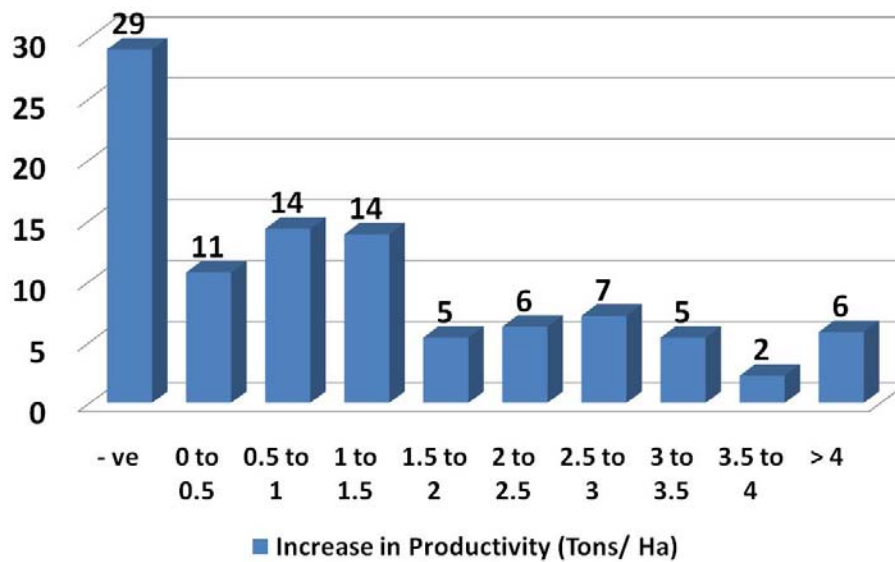
Graph: Frequency of Productivity (in %)



Change Analysis

The following graph helps to better understand the productivity results in the SWI phase as compared to the pre-SWI phase with the same set of farmers.

Graph: Change in Productivity- Pre-SWI and SWI Phase (Tons/ Ha)



The intervention aimed at achieving an incremental yield of 1.25 T/ ha. The graph suggests that about 29% of the families achieved yield less than the pre-SWI stage.

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Another 25% got an increase of up to 1 tons/ ha over the traditional methods. The remaining 45% families got more than 1 tons/ ha as incremental yield over the traditional method.

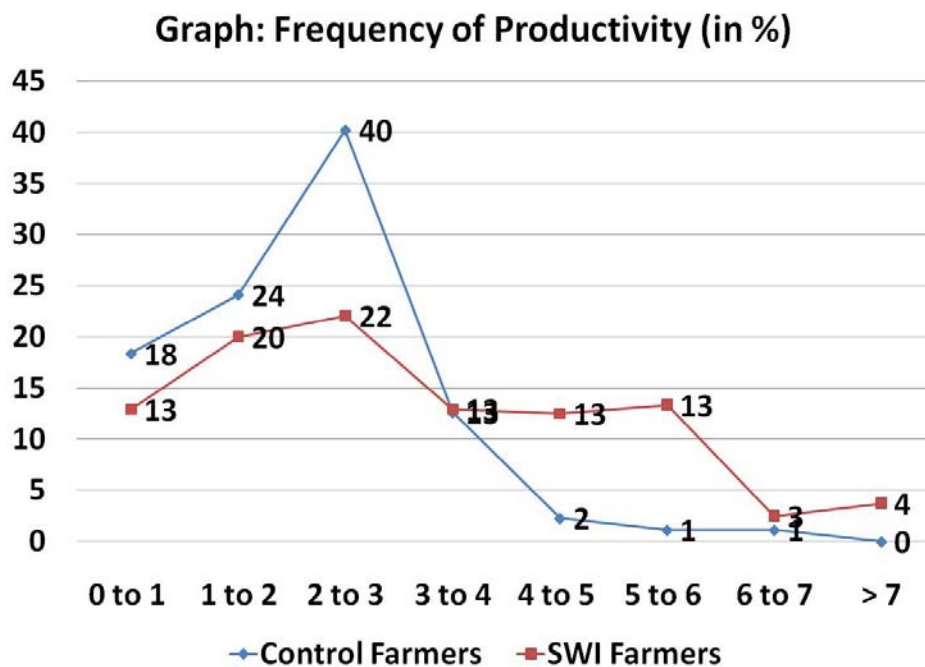
b. Compared to the control

The following table presents comparison between the productivity of SWI participating farmers and control farmers. The average increase in productivity across the three districts comes to about 50%.

Table: Increase in Wheat Productivity against the Control				
	Control (Tons/ Ha)	SWI (Tons/ Ha)	Increase (Tons/ Ha)	Percentage Increase (%)
Gaya	2.18	4.00	1.82	83.70
Muzaffarpur	2.54	3.29	0.75	29.67
Purnia	1.30	2.38	1.08	82.76
Total	2.01	3.01	1.00	49.97

Range Analysis

The following graph presents the comparative productivity between the SWI participating families and control families. The graph presents that in traditional method of cultivation a majority of farmers get a productivity yield less than 4 T/ Ha while in case of SWI methodology, the yields achieved by a substantial proportion of farmers reaches up to 6 T/ Ha.



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c. Productivity trends across farming segments

The productivity trends across the farming segments are compared in two forms. The first is comparison of productivity of SWI farmers against the productivity of same set of farmers in pre-SWI phase. The second is productivity of SWI farmers against the productivity of control farmers.

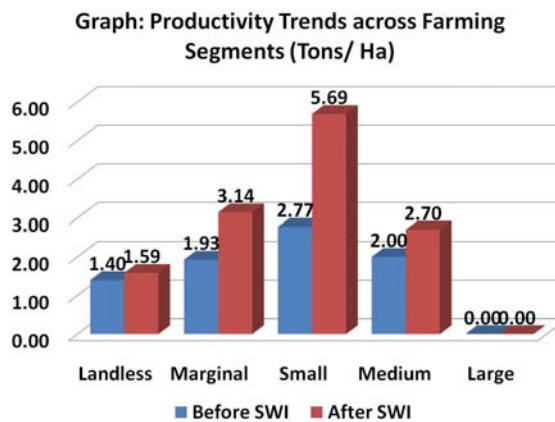
The data set where no data is available is presented by 0.00.

	Landless (%)	Marginal (%)	Small (%)	Medium (%)	Large (%)
Target	11	87	2	0	0
Control	28	71	2	0	0

i. Compared to Pre-SWI

The graph presents the productivity of different farming groups (i.e. landless, marginal, small, medium and large) and compares the productivity data of same set of farmers in Pre-SWI phase and SWI phase.

The graph clearly presents an increasing trend in productivity (in both non SWI and SWI cases) with increasing size of land holding. This can be attributed to the fact that larger farmers have better control over the critical resources.

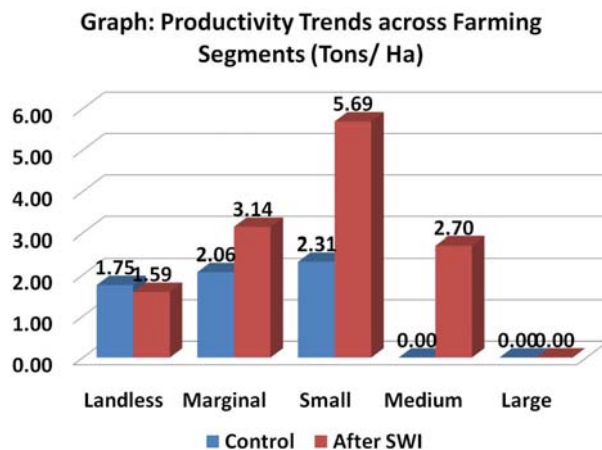


The greatest increase in productivity is in case of small farmers.

ii. Compared to Control

The graph presents the productivity trends across farming segments (i.e. landless, marginal, small, medium and large) and compares the productivity data of control farmers and SWI farmers.

The graph presents an increasing productivity with increasing land holding in case of both control and SWI farmers up to small landholding.



The maximum average increase in

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productivity has been in case of small farmers followed by marginal farmers. Landless farmers show a decrease in productivity in SWI methodology.

d. Productivity Trends across Social Groups

The productivity trends across the social groups are compared in two forms. The first is comparison of productivity of SWI farmers against the productivity of same set of farmers in pre-SWI phase. The second is productivity of SWI farmers against the productivity of control farmers.

The data set where no data is available is presented by 0.00.

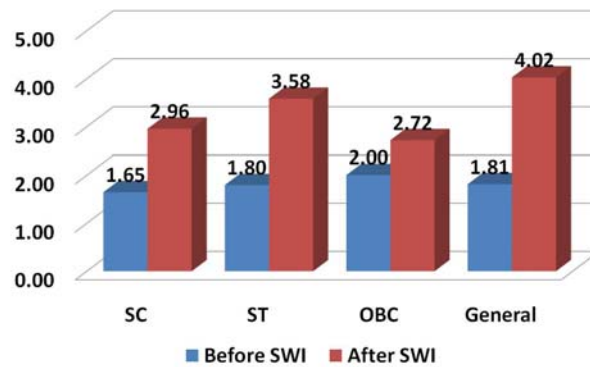
Families	SC (%)	ST (%)	OBC (%)	Gen (%)
Target	17	5	62	16
Control	17	4	65	14

i. Compared to Pre-SWI

The graph presents the productivity comparisons across different social groups (SC, ST, OBC and Gen) of the same set of farmers in the Pre-SWi phase and SWI phase.

The graph suggests a substantial increase in productivity across all the social groups ranging between 35% and 100%.

Graph: Productivity Trends across Social Groups (Tons/ Ha)

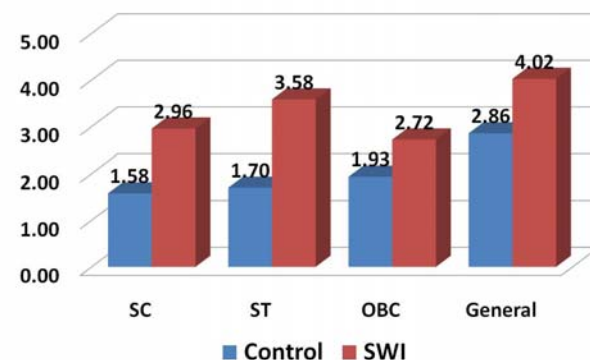


ii. Compared to Control

The graph presents the productivity comparisons across different social groups (SC, ST, OBC and Gen) of participating farmers against the control farmers.

The graph here too suggests a substantial increase in the productivity similar to the above.

Graph: Productivity Trends across Social Groups (Tons/ Ha)



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e. Impact on the Food Security

The intervention has had a strong impact on the food security of the participating families. The graph presents the change in food security for sampled participating families from all the three districts. About 26% families have surplus grains as against only 13% in the “before” situation.

There is also a marginal increase in the families having a food security between 9 and 12 months.

The district- wise change in food security is presented in the table below;

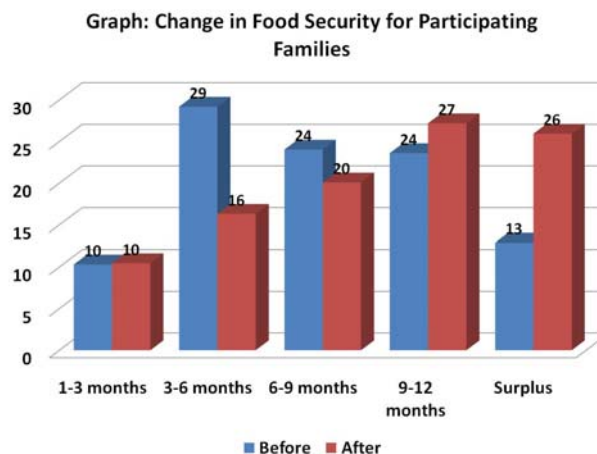


Table: District-wise change in food security amongst participating families

Figures in %	Gaya		Muzaffarpur		Purnea		Total	
	Before	After	Before	After	Before	After	Before	After
1-3 months	4	4	19	16	8	11	10	10
3-6 months	23	5	29	18	36	26	29	16
6-9 months	25	20	26	24	21	16	24	20
9-12 months	29	30	17	23	25	29	24	27
Surplus	20	41	9	19	9	18	13	26

In addition to the enhanced food security for participating families, the adoption of methodology has also provided a source of income for some families. About 23% participating families sold a part of the produce in the market. The maximum number of families doing so are from Gaya (30%) followed by Purnea (19%) and Muzaffarpur (13%).

The selling price per quintal of wheat ranged between Rs. 1100/- per quintal and Rs. 1500/- per quintal.

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3.4 Institutional Arrangement and Performance

The following section discusses the institutional arrangement for the SWI program, inputs given and performance of each of the player in ensuring the outputs.

a. Village Resource Person

i. Process of Selection and nurturing of VRPs

In general, the process of selection of VRPs across the three districts was found to be almost the same. The process comprised of nomination of individuals with following criteria;

- Basic educational qualification
- Good rapport at the village level
- Time availability at individual's hand
- Personality suited to undertake extension work
- Interested in the methodology

This was followed by a review and selection by the VO.

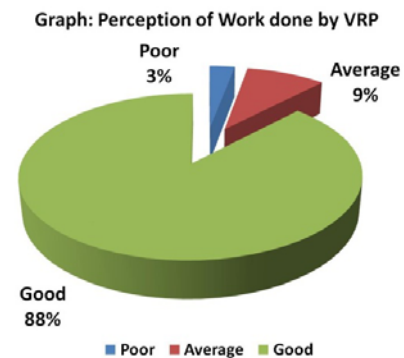
In terms of training, in general, the VRPs have passed through at least two trainings in the methodology by the respective organizations. All the VRPs interviewed mentioned that the trainings provided on the SWI methodology was sufficient for them to work effectively in the field.

ii. Perception of Quality of VRP

Overall Performance

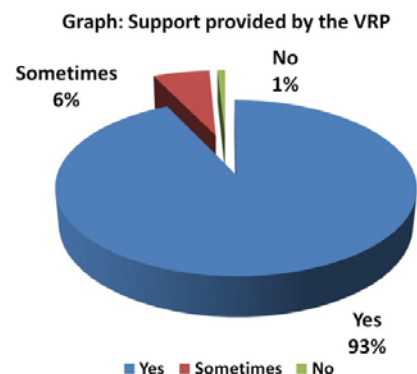
The perception of participating families of the overall work done by the VRP has been adjudged good by 88% of the families.

The district-wise variation has been presented in the annexure.



Support Provided to Individual Families

In term of regular support to individual families by the VRP, 93% families said that they have been provided regular support by the VRP.



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Overall, it can be inferred that participating families perceive that VRPs performance in terms of its role has been good.

iii. System of VRP Management and issues

The system of VRP management is detailed under the sub-section on Village Organization. The following views were laid out by the VRPs from the 3 districts.

- The VRPs were satisfied with the system of payments and there were no conflicts between the VRPs and the V.O. with respect to the calculation of remuneration for the VRPs.
- The payments have not been made to the VRPs in some blocks due to want of submission of data.
- There was mention for increasing rates per family for the VRPs given the inflation.

b. Participating Farmers

i. Process of mobilization and Inclusion of marginalized groups

The process of mobilization has been more or less the same across the three districts studied. The VRP after getting trained in SWI methodology raised awareness about the same during meetings (SHG and V.O.) and through individual contacts with the families.

As the system of payments encourages the VRPs to promote the methodology amongst the most marginalized groups in the village, the output has a strong reflection of the same.

- a. In terms of inclusion of the most marginalized groups (Social Category), it can be inferred that the inclusion has been representative of the population size in the village. Please refer to the section 3.1.a. The district-wise situation has been presented below.

Social Group	GAYA		MUZAFFARPUR		PURNIA	
	Control	Target	Control	Target	Control	Target
SC	8	4	25	24	18	24
ST	0	2	3	1	10	10
OBC	70	68	53	54	73	65
General	22	26	20	21	0	1

- b. In terms of inclusion of the most marginalized groups (Economic Situation), here also it can be inferred that the inclusion has been representative of the population in the village. Please refer to the section 3.1.b. The district-wise situation has been presented below.

Economic Condition	GAYA		MUZAFFARPUR		PURNIA	
	Control	Target	Control	Target	Control	Target
Figures in %						

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Very poor	2	1	10	9	5	5
BPL	45	40	63	65	60	69
APL	53	59	28	26	35	26

- c. In terms of inclusion of the most marginalized groups (Farmer Profile), it can be inferred that a greater proportion of marginal farmers have taken up the methodology while proportionately lesser landless farmers have ventured in to the activity. Please refer to the section 3.1.c. The district-wise situation has been presented below.

Land Holding	GAYA		MUZAFFARPUR		PURNIA	
	Control	Target	Control	Target	Control	Target
Landless	23	5	40	11	20	18
Marginal 0-1 Ha	73	89	60	89	80	83
Small 1-2 Ha	5	5	0	0	0	0
Medium 2-4 Ha	0	1	0	0	0	0
Large >4 Ha	0	0	0	0	0	0

The factor that has affected participation of most marginalized groups in taking up the methodology has been delay in procurement and availability of inputs (seeds). Most of the farmers who did not practice the methodology did not want to risk production as a result of delay in sowing.

ii. Quality of Capacity Building Programs

The capacity building program for farmers comprised mainly of trainings undertaken by the VRP on a regular basis during meetings and on- field demonstrations for each critical steps. The quality of capacity building programs can be gauged by the level of understanding and adoption of the methodology by the farmers.

In terms of understanding, 75% farmers were found to be completely aware of the concept behind the methodology and another 24% were partially aware of the same. More than 90% farmers were found to be aware of the more than 2 steps in the methodology.

In terms of adoption, the same has been presented in the sub-sections from 3.2.a to 3.2.e. A brief of the same is presented below;

- In case of type of seed utilized in SWI, more than 96% farmers utilized improved varieties.
- All the farmers undertook seed treatment, however, only 78% said to have followed the steps completely.
- Almost all the farmers followed the steps in seed sowing and maintained the plant to plant distance. However, about one-sixth of the same did not follow the guideline completely.
- About 66% families undertook weeding/hoeing more than once.
- About 86% families provided more than 2 irrigations to the crop.

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This suggests towards good quality of capacity building programs for the participating families.

iii. Coverage and Spillover Effects

The average coverage of SWI participating families in a village across the three districts ranged between 20 and 70%. The coverage is high in areas where paddy cultivation through SRI has been taken before.

In terms of awareness about SWI methodology, about 69% of non participating families said that they were aware of the methodology. The reasons outlined for not adopting the methodology comprised of the following;

- Non availability of irrigation facility (Primarily in Gaya)
- Poor quality land
- Non availability of seed and fertilizer
- Requires hard work
- No land (Primarily in Muzaffarpur)
- Adoption fear due to leased land
- Single member/ Non availability of labor
- Not an SHG member (Purnia)
- No information

About 97% farmers said that they have seen the result of SWI methodology and 95% farmers said that they would like to take up the methodology during the coming season.

c. Village Organization

i. Procurement and Distribution of Inputs

Across the three districts, the system of procurement and distribution of inputs was found to be almost the same. The demand for inputs was generated and compiled by the VRP in each village. This list was then passed on to the village organization which then passed it on to the nodal VO/ BRLPS for funds and sanction for the same. After the funds were received at the nodal V.O. level, the procurement committee along with the VRP and a BRLPS representative scanned the market and placed the order.

On receipt of the inputs, the same was distributed amongst the VOs in the area by the nodal VO. The VOs then distributed the inputs to the participating members in presence of the VRP.

The following key points have been noted;

- The process of procurement is very lengthy and as a result, there is delay of receipts of inputs at the farmer's level.
- For VO members, this was the first time for procurement at such a large scale. In fact, for a large number of VO members this was the first time when they have

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moved around the markets negotiating for prices. The delay in procurement is also to be attributed to this initial inhibition at their end. However, the members were found to be quite confident to take up the same activity during the next season.

- The system of listing participating families and providing inputs was found to be effective with VO, VRP and representative of the facilitating organization taking part in the same. It was also observed that system of monitoring was well established in the program and was being very well implemented.
- There was just one major concern raised by the position holders of the nodal VOs. The concern was related to lack of any remuneration to the said group even though they have to spend substantial number of days in procurement, distribution and monitoring. This was raised with a view that all the other participants in the activity like VRP, committee members are remunerated for their work.

ii. Timely availability of Inputs and quality of inputs

94% of the participating families said that they received inputs on time. With regards to quality of the inputs, 85% families were totally satisfied with the quality while 2% were totally dissatisfied with the same. In terms of inputs, mainly seed, fertilizer and chemicals were provided to the farmers.

iii. Service Charge Model for VRP

In terms of understanding of the service charge model for the VRP, it was found that there were no major issues with respect to the same. Across the three districts, the process was being followed very well. This comprised of the VRP creating a list of participating farmers supported by him/ her. Based on this list, the VO would do a cross check at the SHG level and as well as at the field level, thereby ensuring the correctness of the details provided. This cross-check is also done by the representative of the facilitating organization as well as BRLPS. The payments are then calculated and finalized.

The service charge model can be very well taken care of by VO but it would require a couple of more seasons to establish the practice.

iv. Capacity of VO

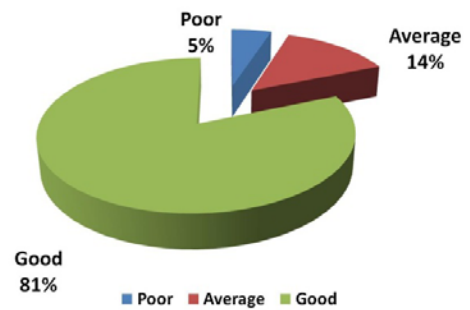
In terms of capacity of VOs to manage the program, the following key points have been noted;

- The VO members were found to be gaining confidence in each activity of the program. Broadly, it can be said that after undertaking the key activities with support for a couple of seasons, the VOs would be capable to undertake the same on their own.

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- In general, the participating families have shown confidence in the functioning of the VO in terms of support provided.
- On the flipside, the VOs mentioned that they already have a lot of responsibilities being a VO and therefore, this would be an added burden on them.

Graph: Perception of Work done by Village Committee



4. Conclusions and Recommendations

The implementation of the SWI methodology has, in general, been successful. The methodology in itself shows a lot of potential with participating families achieving much higher productivity as compared to traditional methods. Though the potential of the methodology has been reflected, the impact has been diminished primarily by poor productivity in Purnia due to sudden temperature change during the milking stage.

The institutional arrangement at the field level for implementation of the program was also found to be very effective and is expected to be sustainable in the long run. The institutional arrangement for the program is being rated as successful based on the level of understanding and adoption of the methodology by the target families. In addition, the processes have been decentralized and have been transferred to the community. Though, it is expected that complete take-over of the processes by the community would require some more time and support. The remuneration model for VRPs is also expected to continue after the program withdrawal. The same can be utilized to extend other program in these target communities. The major institution at the grass roots, the VO, also seems to be developing capacities and getting ready to take larger responsibilities in the future. With majorly women members, it is also expected to sustain itself beyond the program period.

The key issues, though, that the program needs to address are work load on the VO, remuneration concerns of the VO members and the VRP and shortening the process for demand generation and receipt of inputs. For the last component, the technical organization at Purnia, ASA, has started the process of forming a Producers' Company for the same. This model should be further studied and piloted, and if found effective, should be replicated across the field.

The delay in receipt of inputs have been attributed to two major reasons; firstly, the process from demand generation to sanction and fund release to procurement and distribution is very long and secondly, the VO was not confident about how to go about procurement. The latter case is more or less rectified with VOs getting hands on experience in procurement. This can be complemented with a training program before the next procurement season so that the members are more prepared for the same. For the former case, it was suggested by one of the VOs that they be given sanction and permission to utilize funds lying with the SHGs. The same can be at a later stage refunded to them. This would give a head start to the VOs in their procurement process.