

# Innovations

## Impact of National Food Security Mission (NFSM) in Improving Agriculture Productivity of Selected Crops in Andhra Pradesh

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### Abstract:

**Problem:** Food production is the base for food security. The Food and Agricultural Organization (FAO) defines it as: "Food Security as a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life." **Methodology:** The study is based on primary data from two districts viz Srikakulam and Ananthapur from both NFSM and non-NFSM beneficiaries in Andhra Pradesh state with standard questionnaire. The study multi-stage sample design was used. The two districts were selected based on highest and lowest production of paddy crop. In the second stage 2 mandals from each district, total 4 mandals selected. Finally 30 NFSM beneficiary and 15 non beneficiary farmers were selected from each mandal, total 45\*4=180 samples were selected in two districts in Andhra Pradesh according methodology. The main objectives are 1. Describe the sample household characteristics of NFSM and Non-NFSM farmers cultivating maize and Bengal Gram. 2. To assess the effect of NFSM scheme on usage of inputs, output and income of the beneficiary farmers of selected crops in selected Districts of Andhra Pradesh. **Findings:** Agriculturists had much break even with share in possessions and region around 23 to 20 per cent whereas little ranchers possessed 26.33 per cent share in property and developed as it were 11 per cent land area among the beneficiary sample households. Out of the full advance profited of Rs 1.5 lakh by beneficiaries and Rs. 86300 by the non beneficiary family units. **Conclusion:** The food security is increased after the intervention of the NFSM scheme in India. the beneficiaries developed after the scheme benefits comparatively non beneficiaries. So the government must extend the scope of the scheme under different ways.

**Key words:** Food Security, irrigation, intensity (crop and irrigation), cost and returns, NFSM interventions and credit facility.

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### Introduction

The concept of food security concerns itself with the situation of current availability of food at different levels, household, state and nation levels. This is not a concept of recent origin as the evidences of granaries in ancient China and Egypt have been discovered. These granaries were used to provide food at the time of famines ensuring food security during the distress times. However, it was not until 1974 World Food Congress (held in the wake of the devastating famine in Bangladesh in the preceding two years) that the term of 'food security' became a formal concept. Then also, the concept of food security was applied only at the national level. A state was considered food secure when there was sufficient quantity of food to sustain a steady expansion of food consumption and to offset fluctuations in production and prices.

Food production is the base for food security. The FAO defined "Food Security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life".

According to report of Food and Agriculture Organization on 'The State of Food insecurity in World' brought out during the year 2019, 820 million people did not have enough to eat in 2018, up from 811 million in the previous year, which is the third year of increase in a row, or around one in eight people in world, were estimated to be suffering from chronic hunger, regularly not getting enough food to conduct an active life. This figure is lower than the 842 million people reported with reference to 2011-13. This underscores the immense challenge of achieving the Sustainable Development Goal of Zero Hunger by 2030.

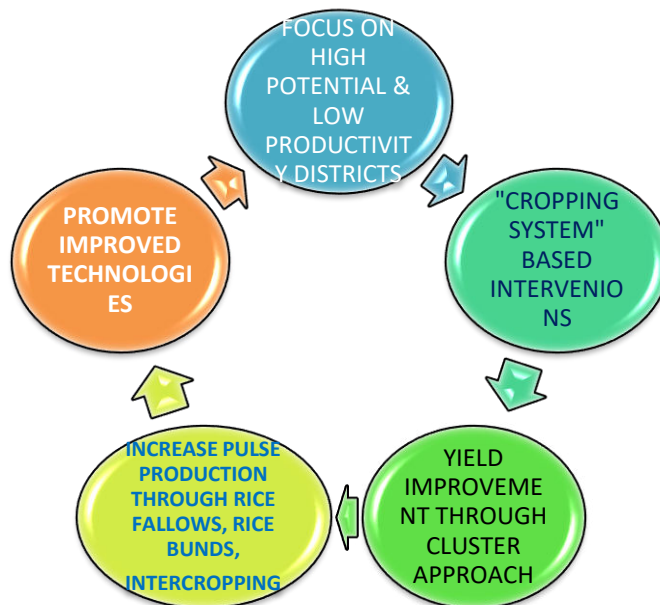
Agriculture sector is enormously important for Indian economy, as the sector is contributing 14.39 per cent of the Nation's GDP, 11 per cent of its exports and about half of the population still depends on agriculture. Agriculture income

considered as a primary source of income, while it provides raw material for a large member of industries (Government of India 2018-19). The experience of last three decades that the growth rate of food grain production decreased from 2.93 per cent during the period 1986-97 to 0.93 per cent during 1996-2008. The declining growth of food grains production was partly contributed by the decline in area but largely by the decline in yield rate. The yield growth rate of food grains decreased from 3.21 per cent to 1.04 per cent during the same time period. There was also decline in growth in the production of other agricultural commodities. This is clearly reflected in the decelerated agricultural growth from 3.5 per cent during the period in 1980-81 to 1996-97 to around 2 per cent during 1997-98 to 2004-05. Nevertheless, there have been signs of improvement during the recent years. (Devand Sharma 2010, Kumar 2013 and GOI 2012-13). Further the 'U'-Turn in agricultural production occurred mainly due to launching of several agricultural schemes such as Rashtriya Krishi Vikas Yojana (RKVY), National Food Security Mission (NFSM), National Horticultural Mission (NHM) and various sub schemes (GOI 2010-13 Kumar).

**NFSM in INDIA:**

The Government of India had launched National Food Security Mission (NFSM) in 2007. It is a Central Scheme for five years to increase production and productivity of Wheat, Rice and Pulses on a sustainable basis, so as to ensure food security of the country. The aim is to bridge the yield gap in respect of these crops through dissemination of improved technology and farm management practices at the beginning of 11<sup>th</sup> Five Year Plan. This is a crop development scheme aims at restoring soil health and achieving additional production, and extend improved technologies i.e. HYV seed, micro nutrients', soil amendment, integrated pest Management, Farm machinery and resource conservation technologies along with capacity building of farmers. The major interventions covered under NFSM include cluster demonstration of rice, wheat and pulses, distribution of improved varieties/hybrid seeds, need based plant and soil management resource conservation techniques/energy management, efficient water/application tools, cropping system based training and local initiatives award for best performing districts.

As stated above, NFSM aimed to escalate production of rice, wheat and pulses, the main target was to enhance farm productivity. So that the farming community retains its confidence in farming activity. During XI plan, NFSM rice was implemented in 144 districts of 16 states. NFSM-wheat was implemented in 142 districts of 9 states and NFSM pulse production programme (A3P) was implemented in 468 districts of 16 states in the country. With these strategy and goals, NFSM was implemented in 561 districts in 27 states in the country (GOI 2013). Along with the NFSM, RKVY and ATMA programmes were also launched during the same period. In addition there were several other state and centrally sponsored programmes running of parallel with the NFSM programme. Aided by all the above efforts of the Central and State governments rice production during the end of 11<sup>th</sup> Five Year Plan increased by 12.1 million tonnes, wheat production by 19.1 Million tonnes and pulses production by 3 million tonnes as compared the production during the base year of 2006-07. A total amount of Rs.4500 crores have been spent under NFSM during the 11<sup>th</sup> Five Year Plan (GOI 2014).



### Review of Literature

FAO (1970) analyzed the problems of agriculture as a priority with the aim of improving the food grain situation. Masfield (1963) and John (1975) observed that acute food shortages lead to starvation in a limited geographic area of the world, causing disease and death.

Dr. MS Swaminathan (2004) defined food security as the provision of livelihood for the household and all its members, which ensures physical and economic access to a balanced diet, safe drinking water and environmental sanitation, basic education and basic health care. For him, food safety is a complex function of many aspects. These aspects can be categorized as social, institutional relations; access to resources (natural, financial, social, human); livelihood and services; quality of soil and other resources; size of plots; national policies; international trade policy etc

Agricultural Finance Corporation Limited (AFCL) conducted mid-term evaluation of NFSM by selecting 17 states, 136 districts and 232 blocks common to all 3 components i.e. rice, wheat and pulses. The study concluded that NFSM-Rice districts recorded about two and five times more profit than non-NFSM districts in 2007-09 and 2008-09, respectively. Wheat productivity in non-NFSM districts had better yield by 3.91 percent in 2007-08 compared to 3 percent increase in NFSM districts. Wheat productivity in NFSM districts improved to 7.91 percent and 12.87 percent during 2003-09 and 2009-10, respectively, while the corresponding figures were 7.09 percent and zero percent in non-NFSM districts. In 2007-08, the non-NFSM pulse districts recorded a better return of 1.14 per cent over the base year 2006-07 compared to an increase of 0.99 per cent in the NFSM districts. In the consecutive year 2008-09, NFSM districts have shown improved performance by registering a return of 8.26 per cent against the corresponding figure of 6.99 per cent in non-NFSM districts.

Deepak Shah (2012) conducted a study on the impact of NFSM program on pulses cultivation in the state of Maharashtra. According to him, the net profit margins in pulses cultivation in NFSM districts were substantially higher in 2008-09 as compared to 2006-07 and 2007-08 due to increase in yields, higher prices in supply of pulses, adoption of improved varieties of seed cultivation in pulses, area under improved varieties, higher adoption of recommended practices like sowing, seed and other practices including application of organic manure, chemical fertilizers etc., assistance received under the NFSM pulse programme.

Recently, AFC (2014) conducted an impact assessment of the NFSM program for the 11th Plan using primary data of 9600 farmers (7680 beneficiaries and 1920 beneficiaries) in 17 states of India. The sample households consisted of 80 beneficiary and 20 non-beneficiary farmers from 30 NFSM districts from 14 rice-growing states, 28 NFSM districts from 9 wheat-growing states, and 38 NFSM districts from 14 pulse-growing states. The results clearly demonstrated a significant increase in productivity and job creation due to NFSM interventions in all three crops compared to non-NFSM beneficiaries.

### Main Objectives of the Study:

- To describe the sample household characteristics of NFSM and Non-NFSM farmers cultivating maize and Bengal Gram.
- To assess the effect of NFSM scheme on usage of inputs, output and income of the beneficiary farmers of selected crops in selected Districts of Andhra Pradesh.

### Methodology:

The present study is based on both primary and secondary data from selected two crops for Maize and Bengal Gram in the state of Andhra Pradesh. For the selection of beneficiary and non-beneficiary of NFSM (maize & Bengal gram) a multi-stage sampling design was used. The study covered total 4 districts, two NFSM (Maize) districts viz. Guntur and Chittoor and , two NFSM (Bengal gram) districts viz. Kurnool and Nellore of Andhra Pradesh state according to highest and lowest production of maize & Bengal gram among the NFSM districts in the first stage as per methodology of the study. From each district two mandals total 8 mandals were selected from 4 districts at the second stage and at the third stage 30 beneficiaries (NFSM- Maize & Bengal gram) and 15 non-beneficiaries were selected purposefully from each mandal totaling to a sample size of 90 households in each NFSM district. Altogether 360 households were selected for the study (240 beneficiary and 120 non-beneficiaries). For the selection of beneficiary households in each mandal, the beneficiary lists were collected from the Mandal Agriculture Offices. After obtaining the beneficiary list, the households were selected who have obtained benefits of various components under NFSM programme.

The primary data on households were collected mainly for the agricultural year 2018-19.

### Results and Discussion:

Land is the basic input that provides food, employment and income for farming communities. Land resources play an important role in determining the economic and social progress of people. The economic upswing of rural areas is highly dependent on the availability of suitable land resources.

**Characteristics of Operational Holdings of Maize Farmers**

The characteristics of operational holdings of sample HHs (NFSM and Non-NFSM) described about total owned land, uncultivated land/fallow land, cultivated land (own), leased in land, leased out land, net operated area, cropping intensity, irrigation intensity, net operated area per HHs & total owned land per HHs and presented in the table 1. The data shows that the total owned land and cultivated land per HHs of maize farmers were found to be 3.96 and 4.21 acres in case of NFSM and Non-NFSM respectively, out of which the leased in land was found to be 0.40 and 1.01 acres per HHs. The leased out land was not found in practice in the area under study area. The cropping and irrigation intensity was found to be higher in case of NFSM HHs (104.15 & 109.25 percent) as compared to Non-NFSM HHs (100.00 & 105.89 percent). Cultivation intensity and irrigation intensity were found to be the same for NFSM and non-NFSM HH. This is likely due to the farmer growing once-a-year crop, net acreage, and available irrigation throughout the year.

**Table 1: Characteristics of operational holdings of selected Maize farmers sample HH (Acres per HH)**

S.No	Land Details	NFSM	Non-NFSM
1	Total Owned Land	3.96	4.21
2	Un-Cultivated Land	0.03	0.01
3	Cultivated (Own)	3.93	4.20
4	Leased-in land	0.40	1.01
5	Leased-Out land	0.00	0.00
6	Net Operated Area (1-2+4-5)	4.34	5.21
7	Gross Cropped Area	4.52	5.21
8	Gross Irrigated Area	4.25	5.21
9	Net Irrigated Area	3.89	4.92
10	Cropping Intensity (%)	104.15	100.00
11	Irrigation Intensity (%)	109.25	105.89

\*Cropping Intensity= (Gross Cropped Area/Net Cropped Area)\*100

\*\*Irrigation Intensity= (Gross Irrigated Area/Net Irrigated Area)\*100

Source: Field Survey

**Table 2: Characteristics of operational holdings of selected Bengal Gram farmers sample HH (Acres per HH)**

S.No	Land Details	NFSM	Non-NFSM
1	Total Owned Land	3.45	2.89
2	Un-Cultivated Land	0.17	0.18
3	Cultivated (Own)	3.28	2.71
4	Leased-in land	0.67	0.42
5	Leased-Out land	0.05	0.02
6	Net Operated Area (1-2+4-5)	3.90	3.11
7	Gross Cropped Area	5.42	4.10
8	Gross Irrigated Area	4.89	3.64
9	Net Irrigated Area	2.78	1.91
10	Cropping Intensity (%)	138.97	131.83
11	Irrigation Intensity (%)	175.90	190.58

\*Cropping Intensity= (Gross Cropped Area/Net Cropped Area)\*100

\*\*Irrigation Intensity= (Gross Irrigated Area/Net Irrigated Area)\*100

Source: Field Survey

The Characteristics of operational holdings of sample households in the study area are presented in Table-2. It is seen from the Table that per HH total owned land of Bengal gram farmers was 3.45 acres in NFSM and 2.89 acres in non-NFSM households, respectively. Per household uncultivated land was found at 0.17 acres and 0.18 acres in NFSM and non-NFSM districts, respectively. Per household own cultivated land stood at 3.28 acres and 2.71 acres in NFSM and non-NFSM area, respectively. Per household leased-in land was found at 0.67 acres in NFSM and 0.42 acres in Non-NFSM farm families. There noticed land per household was 0.05 and 0.02 acres for NFSM and non-NFSM, respectively. In NFSM, net agricultural land per household was 3.90 acres, cultivation intensity was 138.97 percent and irrigation intensity was 175.90 percent. On non-

NFSM farms, net agricultural land per household was 3.11 acres, cultivation intensity was 13.83 percent, and irrigation intensity was 190.58 percent. Irrigation intensity was found to be higher on non-NFSM farms than on NFSM farms.

### Cropping Pattern of Selected NFSM and Non-NFSM Farmers

Cultivation patterns indicate the percentage of area used by different crops at a given time. This is a dynamic concept as not all patterns are ideal in a given region all the time. It varies spatially and temporally to meet requirements and is determined primarily by physical and cultural factors, technological factors, and market forces. Changes in cropping patterns from one year to the next occur due to changes in the relative acreage of existing crops and/or introduction of new crops and/or cultivation of existing crops due to changes in agricultural development. There is a possibility these changes are driven by socio-economic impacts.

### Cropping Pattern of Maize Farmers

As for as cropping pattern of NFSM HHs is concerned, it is dominated by Maize 40.70 percent followed by paddy 28.87 percent, cotton 23.48 percent, ground nut 3.30 percent, green gram 1.60 percent and black gram 0.80 percent, while in case of Non-NFSM HHs the maximum area was covered by maize 38.20 percent followed by paddy 29.15 percent, cotton 21.00 percent, ground nut 5.75 percent, green gram 2.30 percent and black gram 1.20 percent. It is clear from the cropping pattern of NFSM and Non-NFSM HHs that was expected as the targeted sample has been drawn from area where maize dominates and that is also the reason that maize share is higher among farmers who have been benefitted from NFSM programme. (Table 3)

**Table -3: Cropping pattern of selected maize sample households (% of GCA)**

S. No	Name of the Crop	NFSM	Non-NFSM
	Cereals		
1	Paddy	28.87	29.15
2	Maize	40.70	38.20
3	Jowar		
4	Ragi		
	Pulses		
5	Bengal gram		
6	Red gram		
7	Green gram	1.60	2.30
8	Black gram	0.80	1.20
9	Other pulses		
	Oilseeds		
10	Groundnut	3.30	5.75
11	Sunflower		
12	Sesamum		
13	Castor		
14	Other oilseeds		
	Others		
15	Cotton	23.48	21.00
16	Sugarcane		
17	Vegetables	1.25	2.40
18	Fruits		

Source: Field Survey data

### Cropping Pattern of Bengal Gram Farmers

Cropping pattern reflects the relative dominance of individual crops to total cropped area. The cropping pattern of the sample household is presented in Table-4 Total pulses crop, Bengal gram covered 54.50 percent area under NFSM and red gram covered 2.10. Under cereals cultivation, paddy covered 25.80 percent. Under oil seeds cultivation, groundnut covered 1.40 percent area. Under other crop cultivation, cotton covered 14.20 percent area, sugarcane covered 1.20 percent and Vegetables covered 0.80 percent of the gross cropped area.

**Table -4: Cropping pattern of selected Bengal gram sample households (% of GCA)**

S. No	Name of the Crop	NFSM	Non-NFSM
	Cereals		
1	Paddy	25.80	36.81
2	Maize		
3	Jowar		
4	Ragi		
	Pulses		
5	Bengal gram	54.50	45.00
6	Red gram	2.10	2.85
7	Green gram		
8	Black gram		
9	Other pulses		
	Oilseeds		
10	Groundnut	1.40	2.00
11	Sunflower		
12	Sesamum		
13	Castor		
14	Other oilseeds		
	Others		
15	Cotton	14.20	11.50
16	Sugarcane	1.20	1.64
17	Vegetables	0.80	0.20
18	Fruits		

Source: Field Survey

In non-NFSM farms out of the total gross cropped area, paddy covered 36.81 percent area. Under pulse cultivation, Bengal gram covered 45.00 percent and red gram covered 2.85 percent area. Under oil seeds cultivation groundnut 2.00 percent and under other crop cultivation cotton covered 11.50 percent area, sugarcane covered 1.64 percent and Vegetables covered 0.20 percent of the gross cropped area.

### Crop wise per acre costs and returns of Selected NFSM and Non-NFSM Farmers

#### Crop wise per acre costs and returns of Selected Maize Farmers

Table 5 shows that paddy, maize, green gram, black gram groundnut, cotton and vegetables were the crops grown by NFSM and Non-NFSM HHs. In case of NFSM HHs, the yield (40 qt/acre.) and net returns (Rs. 23500/acre) were found maximum in case of maize, while minimum yield (6 qt/acre) was obtained in case of black gram. as well as net returns (Rs. 14078/acre) was found maximum in maize in case Non-NFSM HHs also, while minimum net returns (Rs. 4200/acre) was found in case of black gram under Non-NFSM HHs.

**Table -5: Crop wise per acre costs and returns**

S.No	Crops	NFSM				Non-NFSM			
		Yield per acre (qtls.)	Gross returns/acre	Total cost/acre	Net returns/acre	Yield per acre (qtls.)	Gross returns/acre	Total cost/acre	Net returns/acre
1	Cereals								
2	Paddy	22.66	30603	18488	12115	18.11	25804	16196	9609
3	Maize	40	44000	20500	23500	28	32000	17922	14078
4	Jowar								
5	Ragi								
6	Pulses								
7	Bengal gram								
8	Red gram								
9	Green gram	6	33000	17100	15900	4	16000	9700	6300
10	Black gram	6	24000	14800	9200	4	15000	10800	4200

11	Other pulses								
12	Oilseeds								
13	Groundnut	8	24000	15200	8800	5	18000	10500	7500
14	Sunflower								
15	Sesamum								
16	Castor								
17	Other oilseeds								
18	Others								
19	Cotton	12	52000	41200	10800	10	44000	35040	8960
20	Sugarcane								
21	Vegetables	60	60000	43200	16800	42	40000	26100	13900
22	Fruits								

Source: Field Survey

The cost of cultivation (Rs/acre) was found maximum in case of vegetables (Rs. 43200/acre) and minimum in case of groundnut (Rs. 8000/acre) under NFSM and Non-NFSM HHs, respectively. As for as choice of crop is concerned, it is clear from the above discussion that maize should be preferred for getting higher productivity and net return under NFSM and Non-NFSM HHs.

### Crop wise per acre costs and returns of Selected Bengal Gram Farmers

Crop wise per acre costs and return among the sample households are presented in Table-6. The per acre productivity, gross return, cost of cultivation and net return of NFSM Bengal gram were 10.00 qtl/acre, Rs 44500/acre, Rs 15.250/acre and Rs 29500/acre respectively. The per acre productivity, gross return, cost of cultivation and net return of non-NFSM Bengal gram were eight qtl/acre, Rs32800 /acre, Rs 16510 /acre and Rs 16290 /acre

**Table -6: Crop wise per acre costs and returns**

S.No	Crops	NFSM				Non-NFSM			
		Yield per acre (qtls.)	Gross returns/ acre	Total cost/acre	Net returns/acre	Yield per acre (qtls.)	Gross returns/ acre	Total cost/acre	Net return s/acre
1	Cereals								
2	Paddy	18	20700	12500	8200	15	17250	10400	6850
3	Maize								
4	Jowar								
5	Ragi								
6	Pulses								
7	Bengal gram	10	44500	15250	29500	8	32800	16510	16290
8	Red gram	5	19000	10300	8700	4	15200	8700	6500
9	Green gram								
10	Black gram								
11	Other pulses								
12	Oilseeds								
13	Groundnut	4	12400	6650	5750	4	13000	9850	3150
14	Sunflower								
15	Sesamum								
16	Castor								
17	Other oilseeds								
18	Others								
19	Cotton	7	24500	14400	10100	6	24000	16900	7100
20	Sugarcane	30	81000	66200	14800	25	67500	50200	17300
21	Vegetables	25	25000	16100	8900	23	23000	15800	7200
22	Fruits								

Source: Field Survey

**Assets Holdings of Selected Maize Farmers**

The holdings of assets make a person an efficient one in performing different operations on time which ultimately reflect the level of production and income. The value of tractor was found to be Rs. 54970 & Rs. 45600/HH, Trolley/trailer and other tractor Rs. 49720 & Rs. 38520/HH) under land development, tillage and seed bed preparation equipment owned by NFSM and Non-NFSM HHs, respectively. In case of NFSM an average HHs was found to have sowing and sprayers, plant protection equipments, cutters, threshers & others, pump sets sprinklers and other(bullock) equipment of Rs. 2895, Rs. 670, Rs. 220, Rs. 3080, Rs. 24525, Rs. 17500, Rs. 50630 and as for as Non-NFSM HHs are concerned on average HHs have sprayers, plant protection, pump sets sprinklers and other(bullock) equipment assets of Rs. 3400, Rs. 1250, Rs. 26000, Rs. 18000 and Rs. 43070, respectively. The total assets per HHs were found to be Rs 185065 and Rs 206912 in case of NFSM and Non-NFSM HHs respectively. As far as assets holding situation is concerned, Non-NFSM HHs were found to have better situation as compared to NFSM HHs. (Table 7)

**Table -7: Household Income from Agriculture and Non-Agriculture Sources of Maize Farmers**

S.No	Implements	NFSM		Non-NFSM	
		No/hh	Value/hh	No/hh	Value/hh
A	Land development, tillage, seed bed preparation, sowing/planning equipments				
1	Tractor/mini tractor	0.22	54970	0.12	45600
2	Trolley/trailer and other tractor drawn implements*(including land development & sowing/planting)	0.28	49720	0.18	38520
3	Others(Bullock cart)	0.10	4850	0.12	4750
B	Plant protection equipments				
4	Sprayers	0.72	2895	0.51	3400
5	Other Plant protection equipments (Weeder)	0.11	670	0.05	1250
C	Harvesting and threshing equipments				
6	Cutters	0.05	220	0.00	0.00
7	Thresher	0.05	680	0.00	0.00
8	Others(mills)	0.08	2400	0.00	0.00
D	Water lifting implements				
9	Pump set(Diesel/Electric)	0.15	24525	0.15	26000
10	Sprinkler	0.86	17500	0.94	18000
E	Others				
11	Others(incl. farm house)	0.80	45780	0.85	38320

Source: Field Survey

**Assets Holdings of Selected Bengal Gram Farmers**

Asset holding reflects the economic condition of the farm family. From the assets position it is possible to know how much they are economically sound. So, it is necessary to analyse the assets holding of the farm family. Table-8 shows the farm assets holding in possession of the sample households. In NFSM farms, rotary tillers account for Rs.54970 per household in land development, tillage and nursery preparation equipment, tractors/tillers Rs. 49720 and others (bullock carts) Rs. 2850 per household. Non-NFSM trial households had Rs 45600 for tractors and for trolleys/cultivators per household Rs.38520 others (bullock cart) Rs 2750 per household. Among crop protection equipment, sprayer ranks first atRs.2895for NFSM farms and Rs. 3400 for non-NFSM farms and weeder ranks second at Rs. 670 for NFSM and Rs. 1250 for non-NFSM households Ranked. The NFSM and non-NFSM sample households reported no equipment used for harvesting, threshing, residue management, post-harvest management, and processing activities. Among the pumping equipment there was only a pump unit. The value of pump set per household was Rs 224525 in NFSM and Rs 26000 in non-NFSM farms. The value of other assets per household stood at Rs 6,478.71 in NFSM and Rs 4,933.90 in non-NFSM farms. Total value of all the farm assets stood at Rs 27,880.99 in NFSM and Rs 12,259.00 in non-NFSM farms. Thus it may be concluded that the economic condition of the sample farmers under NFSM are better than that of non-NFSM farmers.



**Table -8: Household Income from Agriculture and Non-Agriculture Sources of Bengal Gram Farmers**

S. No	Implements	NFSM		Non-NFSM	
		No/hh	Value/hh	No/hh	Value/hh
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B	Plant protection equipments				
4	Sprayers	0.72	2895	0.51	3400
5	Other Plant protection equipments (Weeder)	0.11	670	0.05	1250
C	Harvesting and threshing equipments				
6	Cutters	0.00	0.00	0.00	0.00
7	Thresher	0.00	0.00	0.00	0.00
8	Others(mills)	0.00	0.00	0.00	0.00
D	Water lifting implements				
9	Pump set(Diesel/Electric)	0.15	24525	0.15	26000
10	Sprinkler	0.00	0.00	0.00	0.00
E	Others				
11	Others(incl. farm house)	0.00	0.00	0.00	0.00

Source: Field Survey

**Conclusion of the study:**

About 96 per cent beneficiaries and 95 per cent non-beneficiaries depended on cultivating as a primary occupation and consequently for this reason almost 90 per cent of the wage of the beneficiaries and non-beneficiaries was contributed by the rural exercises. The skewed conveyance of land can be clearly seen from the information shown in table. Among the beneficiaries, minimal ranchers working less than a hectare land possessed 23 per cent share in possessions and less than 5 per cent share in range. The medium agriculturists, on the other hand, involved around 23.00 per cent share in possessions but they developed 64.36 per cent share of the worked zone. Expansive agriculturists had much break even with share in possessions and region around 23 to 20 per cent whereas little ranchers possessed 26.33 per cent share in property and developed as it were 11 per cent land area among the beneficiary sample households.

In case of maize NFSM and Non-NFSM HHs, the per cent of the head, male and female were found to be 97.50 & 2.50 and 98.33 & 1.67 per cent individually. As for as composition of age group of the family individuals of the HHs is concerned, beneath NFSM 48.56, 40.66 and 10.78 per cent and beneath Non- NFSM 40.06, 38.46 and 21.47 per cent were found to be grown-up guys (>15 a long time), grown-up female (>15 a long time) and children (As for as normal measure of property is concerned, it was found 4.34 and 5.21acres in case of NFSM and Non-NFSM HHs, individually. The holding and region worked beneath NFSM HHs were found to be 10.35 & 10.36 percent (minimal), 46.00 & 38.82 percent (little), 38.33 & 28.97 percent(media) and 20.00 & 21.85 percent(expansive), whereas in case of Non-NFSM HHs it was 12.66 & 12.86, 43.50 & 29.54, 35.50 & 35.39 and 12.50 & 22.21 per cent individually.

The normal family estimate of Bengal gram was found at 6 and 5.83 family estimates per family of beneficiary and non-beneficiary test families. The normal number of family individuals locked in cultivating was found at 98.06 per cent and 98.86 per cent individually in NFSM and non-NFSM cultivates families. The rate of male respondents was found to be 99.17 per cent and 100 per cent in NFSM and non-NFSM test family units, separately. The rate of grown-up male over 15 a long time of age was 40.42 per cent in NFSM and 46.86 per cent in non-NFSM cultivate families. The rate of grown-up female over 15 a long time of age was 39.58 per cent and 37.71 per cent in NFSM and non- NFSM, individually. Once more, the rate of population underneath 15 a long time of age was 20.00 per cent and 15.43 per cent in Bengal gram NFSM and non-NFSM. The full yearly wage per family from farming was found at Rs 95985, Rs 4958 from commerce, Rs 12400 from salaried work, Rs.3325 from wage workers and Rs 3465 from other sources like dairy, poultry. The normal yearly wage from all sources stood at Rs 120133 in NFSM families. In case of non-NFSM family units wage from horticulture was found at Rs 61700, Rs 2591 from trade, Rs 9918from salaried work, Rs 2975 from wage workers and Rs 2190 from other sources. The normal yearly pay from all sources stood at Rs 79734.

Out of the full advance profited of Rs 1.5 lakh by beneficiaries and Rs. 86300 by the non beneficiary family units. Around 80 per cent within the case of beneficiaries and 77 per cent within the case of non beneficiaries were from the regulation sources. It can be seen from the table 5.23 that both categories of ranchers had taken major share of credit for profitable reason as compared to non-productive reason. Around 83.4 per cent and 78.97 per cent of the entire credit was taken for as it were horticulture related exercises by the beneficiary and non-beneficiary paddy families.

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