# Evaluation of National Food Security Mission Scheme in Karnataka

External Evaluation

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**STUDY CONDUCTED FOR**

**Karnataka Evaluation Authority**

**AND**

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# PREFACE

In view of the stagnating food grain production and an increasing consumption need of the growing population, Government of India has launched National Food Security Mission in 2007-08 to increase the production of rice, wheat and pulses by 10, 8 and 2 million tones, respectively by the end of 11$^{th}$ Plan through area expansion and productivity enhancement; restoring soil fertility and productivity; creating employment opportunities; and enhancing farm level economy.

The NFSM is launched in Karnataka during 2007-08 under two components namely, NFSM (Rice) and NFSM(Pulses). This is a centrally sponsored scheme implemented in the state from 11$^{th}$ plan period i.e., 2007-08 to 2011-12 and is continued during 12$^{th}$ plan for increasing production of rice and pulses through area and yield enhancement to achieve food security. The Mission has been in implementation in 7 districts under rice and all 30 districts under pulses.

The Karnataka Evaluation Authority (KEA) has taken up Evaluation of the "National Food Security Mission Scheme (NFSM) in Karnataka" implemented by State Agriculture Management Agency in Department of Agriculture. The KEA assigned this evaluation study to M/s. Institute of Public Enterprises (IPE). The Evaluation Study by Evaluation Consultant Organisation is approved by 31$^{st}$ Technical Committee meeting.

The Evaluation of the scheme has made various findings like there is significant increase in the productivity of rice and pulses and also income of the farmers is increased due to NFSM intervention. It also generated more employment opportunities due to increase in production. I am sure that evaluation study and its findings and recommendations will be useful to the State Agriculture Management Agency and Department of Agriculture for better intervention in implementation of the scheme and to achieve the envisaged objectives.

The study received constant support and guidance of the Principal Secretary, and the Secretary Planning, Programme Monitoring and Statistics, Government of

Karnataka. The Evaluation study was actively supported by the Mission Director and Director of Agriculture Department and other officers providing useful data and information for this evaluation study. The evaluation report has been reviewed by members of the Technical Committee of KEA, and an Independent Assessor, who provided suggestions and inputs to improve it from its draft form. I duly acknowledge the contribution of all who were involved in the study and contributed directly or indirectly.

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## Acronyms and Abbreviations

| | | |
|---|---|---|
| ATMA | : | Agricultural Technology Management Agency |
| APMC | : | Agricultural Produce Market Committees |
| DES | : | Directorate of Economics and Statistics |
| DFSMEC | : | District level Food Security Mission Executive Committees |
| FFS | : | Farmer Field Schools |
| HYV | : | High Yielding Varieties |
| INM | : | Integrated Nutrient Management |
| IPE | : | Institute of Public Enterprise |
| IPM | : | Integrated Pest Management |
| KEA | : | Karnataka Evaluation Authority |
| KSCMF | : | Karnataka State Cooperative Marketing Federation |
| KSSC | : | Karnataka State Seeds Corporation |
| MSP | : | Minimum Support Price |
| NDC | : | National Development Council |
| NFSM | : | National Food Security Mission |
| OC | : | Other Caste |
| PMT | : | Project Management Team |
| RKVY | : | Rashtriya Krishi Vikas Yojana |
| RTGS | : | Real-Time Gross Settlement systems |
| SAMA | : | State Agriculture Management Agency |
| SFSMEC | : | State Food Security Mission Executive Committee |

# EXECUTIVE SUMMARY

## Introduction

The Government of India has launched National Food Security Mission (NFSM) during 2007-08 under two components in Karnataka State namely, NFSM (Rice) and NFSM (Pulses) is a centrally sponsored scheme being implemented in the state from 11th plan period (2007-2008 to 2011-2012). The program is continued during 12th plan to achieve additional production of 10 lakh tones of rice and 2 lakh tones of pulses through area and yield enhancement to achieve food security. The Mission has been in implementation in 7 districts under rice and all 30 districts under pulses. An impact evaluation study of the programme for the period of 2007-08 to 2013-14 has been carried out by the Institute of Public Enterprise (IPE) at the instance of the Karnataka Evaluation Authority (KEA), Government of Karnataka. The study was conducted in 11 districts that is 4 for rice and 7 for pulses. A sample size of 1100 respondents from 110 villages at the rate of 10 farmers per village inclusive of both beneficiaries (9) and non-beneficiaries (1) were taken for primary study. The sample included different categories of farmers like OC/SC/ST/BC/Women/Minority/Small/Medium/Big to assess the benefits of NFSM scheme to all the interested groups of the farmers. The data was collected from the implementing agencies, farmers - both beneficiary and non-beneficiary using various questionnaires and other participatory methods. The data was analyzed using appropriate analytical tools.

## Implementation of the Scheme

An autonomous agency named State Agriculture Management Agency (SAMA) is implementing the scheme under the guidance of the State Food Security Mission Executive Committee (SFSMEC). In all sample districts, District level Food Security Mission Executive Committees (DFSMEC) were constituted for NFSM implementation and monitoring through the department of agriculture. The systems and procedures devised in the transfer of funds are reported to be simple and efficient. Separate accounts for the scheme are maintained by the State and the District level and the funds are transferred through 'electronic banking/RTGS'. The annual accounts are duly audited by a chartered accountant on time. There were no complaints at district level on the receipt of funds.

A State level Project Management Team (PMT) is constituted and is functioning under the leadership of the State Mission Director and district level teams under the respective district Joint Directors of Agriculture. PMTs have been constituted in all the sample districts with consultants and technical assistants as and when the approval of the same is accorded by the Government of India (GOI).

**State Level Area, Production and Yield**

**A. Rice**: The production during base year was 36.45 lakh tones and it increased to 40.52 lakh tones in 2013-14. The productivity levels have increased to 15.78 percent. The area under rice cultivation decreased from 13.95 lakh hectares (2006-07) to 13.40 lakh hectares (2013-14) that is by 3.99% over base year. The decline in area is due to conversion of area under rice to crops like maize and ginger and plantations like coconut and areca nut. These alternative crops/plantations fetch remunerative price and require lower level of water and labor. The Government of Karnataka has declared drought affected during the year 2012-13 and it has an impact on the area, production and productivity of rice. There would have been higher production if all districts were covered under NFSM.

- **NFSM Districts**: The area has remained almost same but production and productivity levels have increased in NFSM districts. In Non-NFSM districts area decreased but production and productivity under rice increased marginally.

**B. Pulses**: The production and productivity levels of the pulses have increased significantly with about 58.66% and 95.53% respectively. The increase in area was only 8.21% over the base year. The average yield obtained during 2013-14 was 745 kg per ha as compared to 381 kg per ha yield in the base year 2006-07 shows a positive growth. The production during base year was 8.38 lakh tones and it increased to 13.31 lakh tones during 2013-14. An increase of 4.93 lakh tons production over the base year in pulses was more than double the targeted 2 lakh tones.

- **NFSM Districts**: All the 30 districts were covered under NFSM-Pulses and recorded an increase 58.66 percent production and 95.53 percent productivity over the base year 2006-07.

**Targets and Achievements**

- Funds **utilized** are Rs. 305.07 crore against the budget allotted Rs 376.74 crore to rice and pulses for the study period (2007-08 to 2013-14) that is an achievement of 80.97%.
- **Funds** allotted for rice are Rs 101.55 crore and utilize Rs 67.57 crore (66.53%).
- Funds **allotted** for pulses are Rs 275.19 crore and utilized Rs 237.50 crore ( 86.30%).
- **Sample Districts**: The overall position in the utilization of funds was Rs 208.49 crore against the released Rs 246.58 crore that works out to be 84.95 percent achievement.
- **Main Interventions**: A total amount of Rs.204.11 crore released to sampled 11 districts during the period of 2007-08 to 2013-14 for the major interventions against which an amount of Rs 175.76 crore (86.11%) was utilized.
- **Other interventions**: An amount of Rs 32.73 crore spent against the released Rs 42.47 crore to other miscellaneous expenses for components like project management teams,

award for best performing district, capacity building, Accelerated Pulses Production Programme (APPP) etc. The performance of Gadag district with 100% utilization of the funds can be rated as excellent, Dharwad (99.32%), Gulbarga (91.58%) and Yadgir (90.83%) with more than 90% achievements rated 'very good', Bidar, Bijapur, Raichur, Shimoga with above 80% rated as 'good', Belgaum (57.81%), Udipi (54.98%) and Hassan (49.09%) performance was average.

**Primary Survey Report**

**A. Demographic Details**

- **Gender and Age**: The proportion of male among the sampled respondents is 90 percent. The **majority** of the respondents (45.40%) are in the age group of 40 years and above.
- **Social Group**: About 63% of the respondents selected for the present study are from OC/General category, followed by 14.90% BC, 10.40% SC, 6.90% ST and 4% minorities.
- **Education**: The study reports 31.50% respondents are secondary school educated, followed by 30.90% primary school educated, 17.50% illiterate, 13.40% intermediate educated, and the remaining 6.90% are graduates.

**B. Execution**

- **Selection of the Area and Beneficiaries**: A large number of respondents reported selection of fields were as per the needs and suitability. The selection of beneficiaries was on participatory mode.
- **Inputs supply**: The inputs supply was mostly on time with proper planning and advanced tie-up with manufacturers and suppliers.
- **Transfer of Technology**: Almost all respondents were very happy with the technical support extended by the department. The involvement of subject experts in the transfer of technology was good.

**C. Impact:**

- **Sustainability**: Continuity of improved package of practices is an indication of its sustainability for any developmental program. The survey reveals 52.70% will continue all practices recommended under the mission, followed by 36.10% continue Top two essential practices, 10.40% continue Top one main practice.
- **Impact on Area-Increase*:*** One of the major objectives of the scheme is that the area under rice and pulses should increase. There was slight increase in area due to NFSM interventions in surveyed villages. About 56.80% sample respondents have reported increase as 'little more area" under rice and pulses due to NFSM interventions.

- **Impact on Yield**: The major objective of the mission is to increase the yields of rice and pulses with the NFSM interventions. The survey findings revealed that there was a significant increase in the productivity of rice and pulses. From the survey, 49.39% respondent's yields have increased by 10-15%, 36.06% respondents yields increase was 5-10% and 15.66% respondents yields were more than 15% due to NFSM interventions.
- **Non-beneficiaries yields:** The study found 46.36% non-beneficiaries yields were less than NFSM beneficiaries. However 32.73% non-beneficiary farmers felt their yields were at par with the yields of NFSM beneficiaries.
- **Impact on Income:** NFSM has greatly helped the farming community in the overall economic upliftment. The majority (57.88%) respondents reported 5-10% increase in their income, followed by 27.67% with more than 10% increase and 13.33% respondent's income increased marginally.
- **Social Impact:** The survey report found 54.24% respondents used higher income for better education and 35.05% used for better nutritive food to their children.
- **Major Contributors for Higher Income**

The seed treatment has significantly contributed for higher yields in four surveyed districts such as Bidar, Gadag, Raichur and Yadgir. The next best intervention in the enhancement of yields was the use of improved variety seeds in pulses and hybrid seeds in rice.

Integrated Nutrients Management (INM) with the use of micronutrients like zinc, boron and soil ameliorate gypsum and lime have contributed considerably in the improvement of soil fertility and to attain high yields in several surveyed districts. Farm equipments (FE) role is also substantial in the enhancement of income.

**D. Intervention Specific Findings**

There were mainly 7 interventions such as Demonstrations, Seed Supplies, Integrated Nutrient Management (INM), Integrated Pest Management (IPM), Farm Equipments, Water Application Tools and Trainings during the study period 2007-08 to 2013-14. The overall financial performance of all the study districts put together, farm equipments with the distribution of knapsack sprayers, cono-weeders, rotavators, power weeders, multi-crop threshers and seed drills was quite good with 96% achievement. The performance of water application tools in the distribution of irrigation pump sets, sprinklers, pipes etc. with 82% and demonstrations with 81% against targets was also good.

- **Demonstrations:** The improved technical practices in rice demonstrations such as transplanting of young seedlings of 12-15 days on singly in a space of 25x25 cm, using of

green manure has been largely contributed for better yields in rice. Seed treatment with *Trichoderma* contribution was significant in the enhancement of yields in pulses.

- **Seed supplies**: The yield obtained by the use of high yielding variety seeds in pulses and hybrid seeds in rice recorded a significant 10-15% increase in 53% respondent's fields, followed by 5 to 10% increase in 37% beneficiaries fields over the traditional/old varieties. Hybrid KRG-4 replaced traditional varieties of rice to the extent of 15-20% area in Shimoga district.
- **Integrated Nutrient Management (INM**): Application of lime in acidic soils gave tremendous response in the correction of soil pH and improvement of soil fertility. The yield obtained from the gypsum treated plots under NFSM-pulses recorded a considerable increase.
- **Integrated Pest Management (IPM**): As many as 97% respondents reported yield gain of 5 to 15% with IPM over non-treated plots. Many respondents reported of good results with *Emamectin benzoate* application in pest control as compared to other pesticides.
- **Water Application Tools**: The pump sets and pipes supplied to the rice and pulse growing farmers have created considerable additional irrigation facilities. The water use efficiency improved with sprinkler sets, drip system and other water application tools.
- **Supply of Farm Equipments**: The use of farm equipments had brought savings both in time and money to the beneficiary farmers over the traditional methods. Apart from savings in time and expenditure, the use of farm equipments has also ensured timely farming operations. Tillers, mechanical sprayers, weeders, transplanters have contributed significantly in all districts in general in the mechanization of farming and it was more particular in labor scarcity districts like Shimoga, Udipi, Belgaum and Hassan.
- **Trainings**: Overwhelming majority (90%) respondents expressed their satisfaction with the quality of training. Every respondent informed that the training programs were useful and it has contributed for higher yields.

**Selected District and Crop Wise Findings**

1. **Rice**

The overall physical and financial achievements were 70.12 and 63.77 percent respectively. The extent of achievements however varied among different districts.

- **Udipi**: Majority of the respondents (96%) reported 5 to 15% yield increase in rice under NFSM as compared to control. The increased productivity and income of 43% respondents used for better nutritive food. Majority of the respondents felt that the best gain from NFSM was the lime application to improve soil fertility. A large number of non-beneficiaries (70%)

were not aware of NFSM. Labor shortage, wild animals menace mainly with monkeys, bison and peacocks are serious problems in Udipi district.

- **Shimoga (Shivamogga):** The survey reported with 73.30% sample respondents rating on increase in area as "little more', 82.20% respondent's yields increase was 5-15% and 65.60% reported 5-10% increase in their income. About 55.60% respondents could afford better education to their children due to increased income with NFSM interventions. Hybrid paddy, line planting, machine transplantation, green manure has contributed significantly for higher yields. Problems are *Bacterial Leaf Blight* disease and lack of remunerative market price to rice.
- **Hassan**: The survey findings revealed that there was marginal increase in the productivity and income due to NFSM interventions. Majority of the respondents used the extra income for better nutritive food. Machine transplantation, zinc, lime application are major contributors for higher productivity and income. Area under rice has come down due to delay in the release of water under Command Area and shifting of a large area under rice to other remunerative crops like ginger.
- **Belgaum (Belagavi)** : Majority of respondents reported increased area under rice as 'little more', production increased to the extent of 10-15%, and income increased to 5-10%. Majority of the respondents used extra income for better medical treatment and children education. Major contributors for higher income are hybrid paddy seed, intercultivator, rotavator, diesel engine and micronutrients.

**2. PULSES**

The levels of physical achievements aginst targets for the period 2007-08 to 2013-14 for pulses were reasonably good. District wise details are given under:

- **Bidar**: The study reported significant increase in area under pulses, 10-15% increase in yields and 5-10% increase in income. Beneficiaries have used extra income for better nutritive food and children education. *Trichoderma viridi* was the major contributor in maintaining appropriate plant population with decreased seedlings mortality at the initial stages of crop and resulting into higher productivity. Major problem is the less than 10 year old varieties seed distribution norm. A portion of area under pulse crops has been shifting to soyabean cultivation because of better market price for soyabean. About 80 percent of the non-beneficiary respondents revealed that their yields were less than NFSM beneficiaries and the balance 20% expressed that their yields were at par with NFSM beneficiaries.
- **Gulbarga**: Majority respondents got 5-10% increased yields and income. The extra income was used for the better education of their children. Major intervention that has contributed for

higher productivity is Integrated Nutrition Management (INM). A part of the area under pulses has been converted to cotton.

- **Bijapur (Vijayapura)**: The majority of NFSM beneficiaries reported 5-10% increase in production and income and it was used for the better education of their children. The non-beneficiaries were not adopting the improved technologies due to lack of awareness and 84.4% of them felt that their yields were less than NFSM beneficiaries.
- **Gadag**: The yield increase of 10-15% was reported by 72.20% respondents. About 86.70% reported 5-10% increase in their income and it was used for better education of their children. The major contributors for higher yields are *Trichoderma* seed treatment followed by Integrated Nutrient Management (INM) component with the application of boron, zinc and gypsum. The non-beneficiary farmers, 60% indicated that their yields were less than NFSM beneficiaries, 30% farmers yields were at par. The balance 10% felt it was far less yields than the NFSM fields.
- **Dharwad**: **T**he increase in the yields due to NFSM interventions was 10-15% for 68.10% of the sample respondents, followed by 5-10% increase for 21.80% beneficiaries. About 47.80% respondents reported more than 10% increase in their income followed by 31.10% reported 5 to 10% increase. The increased income was used for better nutritive food and education. Jaki variety of bengal gram contributed for 10% increase in yields and it has replaced A1 variety. Seed treatment and micronutrients have also contributed significantly in the productivity enhancement of pulses in Dharwad district.
- **Yadgir**: As many as 85.60% reported that the increase in yields due to NFSM interventions was 10-15% and the remaining 14.40% opined 5-10% increase. The majority 84.40% respondents reported 5-10% increase in their income and the balance 15.60% reported more than 10% increase in their income. Majority respondents used higher income for the better education of their children. The *Trichoderma* seed treatment and micronutrients have contributed significantly for the higher yields.
- **Raichur**: There was a significant increase in the productivity and 50% beneficiaries believe that the increase was 5-10% followed by 31.10% beneficiaries 10-15% increase, and 18.90% view more than 15% increase in yields. The majority (60%) respondents have reported 5-10% increase in their income. As many as 76.70% respondents used higher income for better education of their children. Seed treatment with *Trichoderma* contributed significantly in the enhancement of yields.

**Employment**

The implementation of NFSM scheme in the different districts generated more employment opportunities mainly due to increase in production which requires more of the labor for different operations. Farm equipments and water application tools supplied under NFSM are being used not only for rice and pulse crops but also for all crops and plantations. The year round field work with the cultivation of different crops has generated more employment in villages. On the other hand, mechanization in agriculture provided indirect employment to skilled and unskilled persons engaged in operation, repair and maintenance of farm equipments.

**Convergence**

All the districts have reported convergence of Mission interventions with different schemes of the State level programmes. Most of the selected districts have converged with Boochetana, ATMA, Farm Mechanization, Rashtriya Krishi Vikas Yojana with NFSM Scheme.

**Forward and Backward Linkages**

Government Input supply Agencies like Karnataka State Seeds Corporation Ltd (KSSC), Karnataka State Cooperative Marketing Federation Ltd (KSCMF) and Private Farm Machinery and Micro Irrigation system agencies have been associated in backend operations for the supply of high quality agricultural inputs to farmers.

The department of agriculture has been providing marketing information to farmers and linking up with established Market Yards through Agricultural Produce Market Committees to ensure remunerative price for farm products including procurement under Minimum Support Price (MSP).

## Suggestions and Recommendations

### (A) Short Term practicable recommendations

1. Age limit of seeds of varieties of pulses, hybrids of rice released within 10 years for demonstrations and seed distribution components may be relaxed beyond 10 years.
2. May take necessary steps to have same amount of subsidies for farm equipments and water application tools under different schemes.
3. Timely release of rate contract agreements may be ensured for timely procurement and distribution of inputs to farmers.
4. The beneficiary of one intervention may not be given another intervention benefit in the same season to reach the benefits of NFSM to large number of farmers.

5. There may be a relaxation on conducting of 100 hectares extent of demonstrations in contiguous blocks in a village as it is difficulty in certain districts like Hassan, Udipi etc.

**(B) Long Term practicable recommendations**

1. While fixing the targets, it is suggested to consider the opinions of field level implementing officers for need based components.
2. Integrated farming may be encouraged.
3. Agricultural Universities and Research Institutes have to play an important role in bring out high yielding hybrids and varieties suitable to local conditions. Also make sure enough quantities of seeds are made available in association of State Seeds Corporation.

**(C) Recommendations requiring change in policy**

1. It is essential to work out area wise need based assessment and prepare district-wise requirements specific to those regions needs instead of general allocation of funds for common component-wise allotment to all districts.
2. May use an appropriate Technology (IT/MIS/GIS) for better monitoring of the project implementation.
3. It is suggested that the provisions may be made in future for concurrent monitoring and evaluation of such schemes.

# 1. INTRODUCTION

Karnataka state forms the South Western part of the Deccan Peninsula and lies between 11.5°and 18.6° North latitude and 74.0° and 78.4° East longitudes. It is the 8th largest state in the country having an area of 1,91,791 Sq. Kms (6.25% of India's total area of 3,065,027 Sq.Kms). The State is divided into 10 Agro Climatic zones and has six major soil types. On account of this varied agro-climatic features almost all cereals, pulses, oilseeds and commercial crops (fruits, vegetables, spices etc) are cultivated in different parts of the State. The State receives normal annual rainfall of 1139 mm, mainly through southwest monsoon (June to September – 806 mm) and Northeast monsoon (October to December – 195 mm). The rainfall during post monsoon period i.e January- March is about 14 mm and in pre-monsoon period (April to May) it is 124mm. Accordingly, the state has three agricultural seasons – KHARIF (April to September), RABI (October to December) and SUMMER (January to March).

Agriculture is considered to be one of the primary occupations of the people in Karnataka and around 123.10 lakh hectares of land is under cultivation. Agricultural crops are cultivated in an area of about 107 lakh hectares annually. Out of this, in Kharif season it is about 69 lakh hectares (64%), in Rabi season it is about 32 lakh hectares (30%) and the rest 6 lakh hectares (6%) come in summer season. Out of gross cultivated area of agricultural crops an area of about 22 lakh hectares (20.5%) comes under irrigation.

The Kharif crops are millets, rice, maize, pulses, groundnut, chilies, cotton, soybean, sugarcane, and turmeric. The major Rabi crops are wheat, barley, mustard, sesame, and peas. Other cash crops are cashew, cardamom, areca nut and grapes. The cool slopes of Western Ghats are well-known for coffee and tea plantations whereas the eastern regions are widely known for the production of sugarcane, rubber plants, and fruits such as oranges and bananas. The North-Western region of Karnataka has black soils which support oilseeds, cotton, and groundnut. Karnataka is one of the major producers of rice and pulses among all other states in India.

Karnataka State with a food grains production of about 100 lakh tones contributes nearly 5 per cent to the national food grains production. During 2013-14 the State has produced 112.32 Lakh MT of Cereals, 13.31 Lakh MT of Pulses, 9.59 Lakh MT of Oil Seeds, 23.12 Lakh Bales of Cotton and 437.76 Lakh MT of Sugarcane.

## 1.1. Agricultural Policy of Karnataka

The Karnataka State announced its Agricultural Policy in its budget 2006-07 for accelerated growth in agriculture with the concept of ***'Pancha Sutra'.*** The five components of Sutra are: (i) To protect and improve soil health, (ii) Conservation of natural resources, with special

emphasis on water and micro irrigation, (iii) Timely availability of credit and other inputs to the farmers, (iv) Integrate post harvest processing with the production process, and (v) Reducing the distance between 'Lab to Land' in transfer of technology.

This is a **'Farmer Centric'** policy and therefore addresses more to the farmers' problems than to the technology per se. This policy envisages achieving a growth rate of 4.5 per cent per annum. It is expected that this growth rate will help to increase the net income of the farmer. It will also help to bridge the income differentials between the agricultural sector and the non agricultural sectors.

**(i) To protect and improve soil health:**

Karnataka has seven major types of soils. Presently, soil erosion is noted in 60 per cent of the area under crops. Water logging, salinity and alkalinity are also major problems. A planned programme of conjuring soil health will be taken up by covering 35,000 hectares per year. This will be called **"Bhumi-Tayiya Arogya"** programme and its operational core will be public private partnership. This will be achieved with the help of 20 percent contribution from the land owner and 80 percent of the expenditure coming from the State. In addition to manual intervention to restore soil health, agronomic conservation (reduced tillage, residue management and crop cover), integrated plant nutrient system, bio inoculums and application of green manure will be encouraged.

**(ii) Conservation of natural resources, with special emphasis on water and micro irrigation:**

A large portion of the land falls under semi-arid conditions facing severe agro-climatic and resource constraints. Karnataka is one of the few States with the lowest proportion of their area under irrigation.

Food security of the State will be of prime importance, and the State's food basket really comes from the rainfed region and that will be the area on which the future growth depends. The yields per hectare are quite low, and the crops grown are largely minor millets and pulses. It is necessary to sketch out a clear programme of inclusive development for rainfed agriculture in the State with integrated farming etc. Location specific recommendations for soil and moisture conservation and crop production practice for dry lands are available, but these are not fully adopted by the farmers due to various constraints including technical, supply and services, marketing and low profit margins. There is need for more vigorous efforts for development of dry lands on a watershed basis with wider adoption of the recommended practice to enhance crop yields.

**(iii) Timely availability of credit and other inputs to the farmers:**

Credit is one of the major inputs used by the farmers but it won't ensure assured returns leading to largely indebtedness. Keeping in view the decline in the profitability of agriculture and increasing distress and indebtedness of the farmers, the government will consider providing support to the banking system.

The availability of required quantity as well as quality of the inputs like seeds, fertilizers and pesticides is a problem at accessible distance from the village. It will be essential to remedy this problem.

**(IV) Integrate post harvest processing with the production process:**

Stagnation in the real net income of the farmer is one of the focused issues addressed in this policy document. The increase in net income is possible either through reduction in the cost of cultivation or increasing the returns from the market and post- harvest value addition.

Food Processing Industry has enormous growth potential and will bring immense benefits to the economy, raising agricultural & horticultural yields, meeting productivity, creating employment and raising the standard of very large number of people in the State and the country.

**(V) Reducing the distance between 'Lab to Land' in transfer of technology:**

A State level Agriculture Research Review Committee intensively reviewed the research system in terms of quantum and quality of research and transfer of research findings from laboratory to the field of the farmer. One of the most important points emerged out of the report is the dichotomy between 'demand driven' research and 'project-oriented research'. The research scientists need to incorporate 'Farmer Centric' criteria that will go a long way in helping the farmers. Understanding the 'Farmers Need' has to be institutionalized in the University setup, so that their research caters directly to clientele. But at the same time, the goals of basic research should not be lost.

The extension system has to undergo a change in its outlook with a view to have 'target oriented' and 'result oriented' programmes with more emphasis on increasing the productivity of crops through method and result demonstrations. These will be 'demand driven' rather than 'supply generated'. The training of extension staff will extend beyond crop production to cover tree cropping, animal husbandry, sericulture etc. in order that they may follow the whole farm approach in dry land areas.

### 1.2. Objectives of the NFSM Programme

i) Increasing production of rice and pulses through area expansion and productivity enhancement in a sustainable manner.

ii) Restoring soil fertility and productivity at the individual farm level.

iii) Creation of employment opportunities.

iv) Enhancing farm level economy and to restore confidence amongst the farmers.

### 1.3. The Assignment

The Karnataka Evaluation Authority (KEA), assigned the evaluation study of "National Food Security Mission (Rice) and National Food Security Mission (Pulses) Schemes in Karnataka" to the Institute of Public Enterprise (IPE) to access the impact of the programme on the increase of area, productivity, income of the beneficiaries.

## 2. LOG FRAME/TEORY OF CHANGE/PROGRAM THEORY

The agriculture's share in India's economy has progressively declined to less than 15% due to the high growth rates of the services and industrial sector, but three-quarters of India's families still depend on agriculture and its allied activities. With a population crossing almost 1.2 billion, India is likely to be the most populous country on this planet. Ensuring food and nutrition security is thus the greatest challenge. India's food security depends on the increased area, production and productivity of cereal and pulse crops.

The National Development Council (NDC) in its 53rd meeting held on 29th May, 2007 adopted a resolution to launch a Food Security Mission comprising rice and pulses to increase the production of rice by 10 million tons, wheat by 8 million tons and pulses by 2 million tons by the end of the Eleventh Plan (2011-12). Accordingly, A Central Sector Scheme, 'National Food Security Mission (NFSM)' was launched from 2007-08 to operationalize the above mentioned resolution. The NDC resolved that agricultural development strategies must be reoriented to meet the needs of farmers and called upon the Central and State governments to evolve a strategy to rejuvenate agriculture. The NDC reaffirmed its commitment to achieve 4 per cent annual growth in the agricultural sector during the 11th plan.

The growth in food grains production is marginal during recent past while the consumption need of the growing population is increasing. In order to bridge the gap between food grain availability and requirement, Karnataka state has to achieve additional Production of 10 lakh tones of Rice and 2 lakh tones of Pulses in the State under National Food Security Mission.

### 2.1. Purpose

A substantial amount is being spent on these schemes and several components viz., Certified Seeds, Plant Protection Equipments, Plant Protection Chemicals, Lime, Gypsum, Micronutrients, Agricultural farm implements, Water conveying pipes, Pump sets were distributed to the farmers at subsidized rates for improvement of economic status of farmers and to improve the farm income. The purpose of the concurrent study is to assess the extent of increase in production of rice and pulses, improvement in economic status of the farmers and to suggest midcourse corrections, if any for better interventions in implementation so that the objectives are met fully.

## 2.2.Objectives of the Study

1. To study the effect of NFSM (Rice) and NFSM (Pulses) schemes implemented in the State during the year 2013-14
2. To ascertain proportion of SC, ST and women farmers who were benefited from the programme.
3. To evaluate the forward and backward linkages of the scheme and institutional arrangements to support these linkages.
4. To suggest measures for improvement of programme and to identify the constraints in implementing scheme.

## 3. PROGRESS REVIEW

The Government of India has launched National Food Security Mission during 2007-08 under two components in Karnataka State namely, NFSM (Rice) and NFSM (Pulses) is a centrally sponsored scheme being implemented in the state form 11th plan period (2007-2008 to 2011-2012) and it is continued during 12th plan for increasing production of rice and pulses through area and yield enhancement to achieve food security. The achievement in enhancement of pulses & rice is 62% and 8% respectively during the 11the plan. The total amount allocated under NFSM scheme since inception was Rs.554.31 Crores of which Rs.440.48 Crores is the expenditure up to March 2014.

### 3.1. MISSION STRUCTURE REVIEW

The State Food Security Mission Executive Committee (SFSMEC) is constituted by the State Government under the Chairmanship of the Chief Secretary to oversee the activities of the mission. The State Mission Director is the Member-Secretary. An autonomous agency named State Agriculture Management Agency (SAMA) is the implementing agency. The District level Food Security Mission Executive Committee (DFSMEC) under the Chairmanship of the Chief Executive Officer, Zilla Panchayat and the Joint Director of Agriculture of respective district as Member Secretary is constituted for NFSM implementation and monitoring through the department of agriculture.

**Exiting Mission Structure**

**State Level**

1. Mission Director
2. Additional Director of Agriculture
   (Crop Development & Planning)
3. Joint Director of Agriculture (Central Sponsored Schemes)
4. Deputy Director of Agriculture (Central Sponsored Schemes)
5. Assistant Director of Agriculture
6. Agricultural Officers

**Project Management Team (State Level)**

1. State Consultant
2. Technical Assistants
3. Financial Assistant

**District Level**

1. Joint Director of Agriculture
2. Agricultural Officer

**Project Management Team (District Level)**

1. Consultant
2. Technical Assistants

**Taluk Level**

1. Assistant Director of Agriculture
2. Agricultural Officer at Raita Samparka kendra-Hobli level

## 4. PROBLEM STATEMENT

The progress was studied on the basis of evaluation objectives covering the following aspects and suggestions made wherever there is a scope for improvement.

1. How is planning and existing administrative and technical setup with the Food Security Mission in the State and its effectiveness in administering the scheme at the district and Panchayath levels?
2. How is Fund Flow and Delivery Mechanism in the State?
3. To what extent area, production and productivity of rice and pulses increased over the base year?
4. What are the reasons for declining/stagnated area under rice and not achieving targeted production of rice in the State?
5. Why NFSM-Pulses to be continued?
6. What is the impact of Agricultural prices on the area, production and productivity of rice and pulses?
7. What are financial achievements against targets?
8. What is the proportion of SC,ST and women farmers who were benefited from the programme? What is age groups and educational background?
9. Is the planning and execution is effective and adequate for enhancing the productivity of rice and pulses in the State? How the selection of area, beneficiaries, distribution of inputs takes place in the State? What is the extent of technical support extending with the involvement of subject experts and farmers participation?
10. Is the technology sustainable, to what extent the area, production and productivity of rice and pulses increased due to NFSM in the past five years as compared to non - NFSM districts/non-beneficiaries? Is there any improvement in economic status of farmers with the Scheme?
11. Which components are in demand by the farmers?
12. What is the intervention specific contribution of change in yield?
13. What is the impact of demonstrations in terms of yields?
14. What is the Impact of Improved Seeds on yield?
15. What is the Impact on Soil Fertility Improvement with Integrated Nutrient Management (INM)?
16. What is the impact of Integrated Pest Management (IPM) on the pest control and yields?
17. Is there any Cost Saving with Water Application Tools usage?

18. What is the impact of Farm Equipments on cost saving in NFSM beneficiaries?
19. Is there any impact of Trainings on yields?
20. The study evaluated the district wise progress on the following aspects.
    - What are physical and financial achievements against targets?
    - What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?
    - What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?
    - What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?
    - What are major contributors for enhanced production and income in the District?
    - What is the extent of convergence NFSM had with other schemes?
    - What are Forward and Backward Linkages of the Scheme?
    - What are constraints in implementing scheme and suggestions for improvement of programme?

## 5. SCOPE, OBJECTIVES AND EVALUATION QUESTIONS

### 5.1. Scope of Work

The scheme was implemented in 7 districts namely Belgaum, Dakshina Kannada, Hassan, Raichur, Shimoga, Udupi and Uttara Kannada for rice and in all the 30 districts for pulses.

The study on concurrent evaluation of NFSM Programme was to know what extent this scheme has become popular, how the distribution of inputs takes place in the State, which component is in demand by the farmers, and what is the impact on Agricultural Productivity; and what problems the beneficiaries are facing in the process of implementation and later etc.

Analysis of the District-wise, Taluk-wise beneficiaries covered under the NFSM Scheme will help to arrive at conclusion on the following points.

a. Extent of Technical support provided to farmers
b. Effect of Trainings and Demonstrations
c. Improvement of economic status of the farmers
d. Analysis of current status of the programme

### 5.2. Purpose

A substantial amount is being spent on these schemes and several components viz., Certified seeds, Plant Protection equipments, Plant Protection Chemicals, lime, Gypsum, Micronutrients, Agricultural farm implements, Water Conveying Pipes, Pump sets were distributed to the farmers at subsidized rates for improvement of economic status of farmers and to improve the farm income. The purpose of the concurrent study is to assess the extent of increase in production of rice and pulses, improvement in economic status of the farmers and to suggest midcourse corrections, if any for better interventions in implementation so that the objectives are met fully.

### 5.3. Evaluation Questions

A detailed survey of farmers (both beneficiaries and non-beneficiaries) through a structured questionnaire were used for in-depth personal interviews of the beneficiaries along with non-beneficiaries in the collection of data on the increased area, increase in production, productivity, income, employment etc. under rice and pulses. Evaluation teams also had participatory discussions with different stakeholders. Randomized sampling method was adopted with the balanced representation of the society such as small and marginal farmers, SC/ST farmers, minority farmers, women folk etc.

**Implementing agencies and officials** were solicited to provide details on the open ended questionnaires to assess the efficiency and efficacy of implementation of the scheme on planning, administration, funds flow, implementation, transfer of technology, convergence with other schemes, monitoring, backward and forward linkages, capacity building etc.

## 6. EVALUATION DESIGN

### 6.1. Selection of Location and Beneficiaries

Keeping in view the scope of work, given Terms of Reference and objectives of the mission, the Evaluation Study conducted in 11 selected districts that is 4 for rice and 7 for pulses (Table and Figure 1). The study was conducted in 11 districts comprising of 110 villages and 1100 respondents @ 10 farmers per village inclusive of both beneficiaries (9) and non-beneficiaries(1). As far as selected farmers are concerned, they were NFSM beneficiaries during 2013-14 cropping season.

**Table 1: Sample Districts and Villages**

| S. No | District | Selected Villages |
|---|---|---|
| **Rice** | | |
| 1 | Belgaum | Rakaskoppa/Belgundi, Turmuri, Uchagaon, Nandihalli, Kandroli/ M.K. Hubli, Daddi, Ramewadi/Shettihalli, Bailur, Thirthkunde, Girlganji and Neelawade. |
| 2 | Hassan | Ajadavalli, Basavanapalli, Siridanapalli, Hosahalli, Madlapura, Nelakonda, Hongaravalli, Magodu, Biligahalli, Kadadaravalli/ Bamuranalli, Halebelur, Bandishettyhalli, Kumiganahalli, Aaladahalli, Chowdahalli. |
| 3 | Shimoga | Belavantana koppa, Harohithalu, DN Pura, Antharagange/Maruthi nagara/Gowrapura, Hosbeedu, Padavagadu, Koodi, Rechikoppa, Churchugundi, Hitla (Churchugundi) and Suragihalli. |
| 4 | Udupi | Kirimanjeshwera, Nitte, Heggunje, Kundabarandadi, Ellare, Manipura, Perdur, Byndoor and Manur. |
| **Pulses** | | |
| 1 | Bidar | Betbalkunda, Soralli, Belur (N), Amerabad, Dubalagundi, Partapur, Rekulgi, Manhalli/Yakatpur, Lakhangaon and Chalkapur/Nelwad. |
| 2 | Bijapur | Tikota, Ingaleshwar, Mavinahalli, Gundakarjagi, Nidoni, Managuli, Inchageri, Budihal Dona, Chandakavate and Bidarakundi. |
| 3 | Dharwad | Hirenarthi, Dhummavad, Saunshi, Kabbenur, Hirehonnihalli, Amminabhavi, Amargol, Ballarwad, Majjigudda, Chabbi and Gamanagatti. |
| 4 | Gadag | Narayanapur, Hombal, Petalur, Doni, Hadli, Surakoda, Holealur, Sudi, Yattanahalli and Tarikoppa. |
| 5 | Gulbarga | Narona, Bebballi, Gundgurathi, Kanasur, Shadipur, Chowdapur, Sedam, Honna Kiranagi, Ravanur and Mandrawad. |
| 6 | Raichur | Jalahalli/Mudugot, Veergota/Hosursiddapur/Lingadalli, Kavital/ Hirehanigi/Husenapur, Pamanakallur/Amingad/Vatagal, Sindhanur, RH Colony, Ganadhal, Raghunathanahalli, Gudadanal and Honnahalli. |
| 7 | Yadgiri | Naganoor, Chattanalli, Khanapur SK, Hosalli, Shirwal, Hoskera, Ramasamudra, Rachanalli, Madvar and Dornahalli. |
| 110 villages in 11 districts | | |

**Figure 1: Selected Districts**


**Note: Not to scale**

## 7. EVALUATION METHODOLOGY

In case of rice and pulses, though NFSM is implemented in all districts of the state for pulses and is confined to the districts of Belgaum, Dakshina Kannada, Raichur, Shimoga, Udupi, Uttar Kannada and Hassan for rice. But all the districts in case of pulses are not uniform. But for South Karnataka, the extent of agricultural lands under pulses is too scattered and thin. Since the objective of the study is to evaluate the impact of NFSM measures, it was felt that taking district having very rare (in fact pulses may be grown only if all other crops are not doing well or merely as an experiment) or less area under pulses may be draining the study resources. Thus, the sample districts for rice – Belgaum, Shimoga, Udupi and Hassan. For pulses – Gulbarga, Bidar, Bijapur, Yadagir, Raichur, Dharwad and Gadag.

Evaluation was based on interviews with program beneficiaries and with officials responsible for the implementation. Multi-stakeholder consultations, discussions and personal interviews with all the concerned from supply side and receiving side under NFSM was held. The methodology of the study included an intensive, participatory and on-the-field study and series of consultations and discussions at local, taluk, district and state level.

Principal Investigator along the Team Members met the concerned officers at the Directorate of Agriculture, Karnataka and the Joint Directors of Dharwad, Gadag, Raichur, Yadgir, Udipi, Shimoga, Hassan, Bidar, Gulbarga, Belgaum and Bijapur. Questionnaires prepared for different components were submitted to the Department of Agriculture, Karnataka and Karnataka Evaluation Authority. Schedule of visits of evaluation team planned in consultation with the officers concerned for the collection of primary and secondary data. Unemployed youth were engaged for the village level primary data collection. Project based research coordinator was recruited and used his services in data compilation and analysis.

### 7.1. Primary Data

The primary data from beneficiaries collected from village level with the simple questionnaires. It covered mainly on the technical and input supplies and its impact on the productivity of rice and pulses. The focus group discussions with open ended questionnaires collected for socio-economic impact of the program and for broad understanding of the results of the scheme at village level.

The feedback from village, taluk, district and state level officers of the implementing agency on its planning, implementation, monitoring, significant results and observations were collected with open ended questionnaires.

### 7.2. Secondary Data

The secondary data collected from the department of agriculture with regard to the present structure of the implementing agency- State Agriculture Management Agency **(SAMA)**, guidelines to implement the scheme, delivery of services, record keeping, funds disbursal mechanism, report and monitoring systems, physical and financial achievements against targets (district wise and intervention wise), budget allotted and used so far etc.

This type of evaluation is the treatment effects model *impact evaluations*, which quantify the effects of programs on individuals, households, and communities.

### 7.3. Time Lines

**30 days** –Work plan (preparation of questionnaires for the collection of primary and secondary data and meeting of state level officers, agencies and finalization of team visits to districts, talukss, villages);

**90 days** -collection of primary and secondary data from state, districts, taluks and farmers;

**15 days** -verification and compilation of data, data analysis and preparation of draft report;

**15 days** -submission of draft report with charts, tables, photos etc. and presentation;

**30 days** -final report preparation with the incorporation of suggestions and modifications wherever necessary.

### 7.4. Limitations of the Study

Like any study based on sampling method, the findings of the response of respondents have been extrapolated to the entire scheme for the purpose of studying the achievements and objectives of the scheme.

## 8. DATA COLLECTION AND ANALYSIS

### 8.1. Field Research and Primary Data

In depth field study has been carried out to find out stakeholders' perception and impact assessment of the scheme. Field study included two segments.

i. A detailed survey of **farmers (both beneficiaries and non-beneficiaries)** through a structured questionnaire were used for in-depth personal interviews of the beneficiaries along with non-beneficiaries in the collection of data on the increased area, increase in production, productivity, income, employment etc. under rice and pulses. Evaluation teams also had participatory discussions with different stakeholders. Randomized sampling method was adopted with the balanced representation of the society such as small and marginal farmers, SC/ST farmers, minority farmers, women folk etc.

ii. **Implementing agencies and officials** to assess the efficiency and efficacy of implementation of the scheme on planning, administration, funds flow, implementation, transfer of technology, convergence with other schemes, monitoring, backward and forward linkages, capacity building etc.

**Table 2: Methodology**

| Sl. No | Description of the Method | Description of the Units Covered |
|---|---|---|
| 1 | **Survey Method** | |
| | a. Sample Survey (close ended) | Selected beneficiary and non-beneficiary households |
| 2 | **Rapid Appraisal Method** | |
| | Focus group Discussions (open ended) | Beneficiary, non-beneficiary households, Village elders, community leaders, officers of the dept. of agriculture. |
| | Semi- Structured Interviews with key Informants | Various level officers at state, district and block levels |

### 8.2. Sources of Secondary Data Collection

Secondary data collected from officers and other representatives working in the department of agriculture who were involved in the planning and implementation of the "National Food Security Mission in Karnataka". This includes delivery of services, record keeping, report and

monitoring systems and institutional capacity building, physical and financial achievements, budget allotted and used.

**8.3 Validation of Sampling Plan, Questionnaires and Survey Plan**

Field research has been carried out on the basis of TORs and questionnaires were circulated to the Department of Agriculture. The final questionnaires and field survey plans have been informed to the Joint Directors of Agriculture of selected districts. A pilot survey was undertaken visiting all 11 districts before the actual primary data collection to familiarize to the areas and to collect the village wise details.

**8.4 Data Processing and Data Preparation**

The quantitative data obtained from field was tabulated and verified at two levels, first at field level and finally at head quarters by the evaluation team. After this, data was structured and prepared in the Statistical Package for Social Sciences (SPSS) 15.0 to study the impact. The data analysis was done focusing on the benefits accrued to the farmers due to NFSM interventions.

**8.5 Review of Secondary Information**

A desk review of secondary data was done regarding overall area, production and yield pattern of rice and pulses from 2007-08 to 2013-14. Similarly, physical and financial performance relating to selected districts and intervention-wise of the Mission has been collected from Department of Agriculture. The information collected has thereafter been analyzed for reaching to conclusions.

**8.6 Data Entry, Analysis of Secondary and Primary Data and Report Writing**

Both primary and secondary data was collected, compiled and tabulated and analyzed to arrive at appropriate conclusions.

# 9 FINDINGS AND DISCUSSION

## 9.1 How is planning and existing administrative and technical setup with the Food Security Mission in the State and its effectiveness in administering the scheme at the district and Panchayath levels?

The Project Management Teams are consisting of Consultants and Technical Assistants at state and district level. The State level Project Management Team constituted and is functioning under the leadership of the State Mission Director and district level teams under the respective district Joint Directors of Agriculture. Their appointments are on contract basis with the terms of reference laid down for the purpose by NFSMEC. The PMT are providing the technical services, implementation and monitoring the project. PMTs have been constituted in all the sampled districts with consultants and technical assistants as and when the approval of the same is accorded by the GOI (Table 3).

**Table 3: Status of Project Management Team**

| **I** | **State Level** | **Provision** | **Appointed** |
|---|---|---|---|
| 1 | Consultants | 2 | 2 |
| 2 | Technical Assistants | 4 | 2 |
| **II** | **District Level** | | |
| 1 | Consultants | 27 | 8 |
| 2 | Technical Assistants | 54 | 38 |

## 9.2 How is Fund Flow and Delivery Mechanism in the State?

The systems and procedures devised in the transfer of funds are reported to be simple and efficient. The project funds had been released to the respective agencies as per the budgeted cost of the approved activity plan. Separate accounts for the scheme are maintained by the State and the District level and the funds are transferred through 'electronic banking/RTGS'. The annual accounts are duly audited by a chartered accountant on time.

## 9.3 To what extent area, production and productivity of rice and pulses increased over the base year?

**Rice**

- **State level Area, Production and Yield**:

Table 4 and Figure 2 illustrate an area of 13.95 lakh ha was under rice cultivation during the base year 2006-07 and it has decreased to 13.40 lakh ha during 2013-14 with 3.99% decrease over base year. The production and productivity levels have increased to the extent of 11.17% and 15.78% respectively. The base year 2006-07 production was 36.45 lakh tons as compared

to 2013-14 year production of 40.52 lakh tones. The increase was 4.07 lakh tones against the targeted 10 lakh tones. The decrease in area was due to diversion of certain areas under rice to other crops like maize, plantations like areca nut etc. The rationale for going to these alternative crops/plantations is less water requirement, less labor requirement, better market price etc.

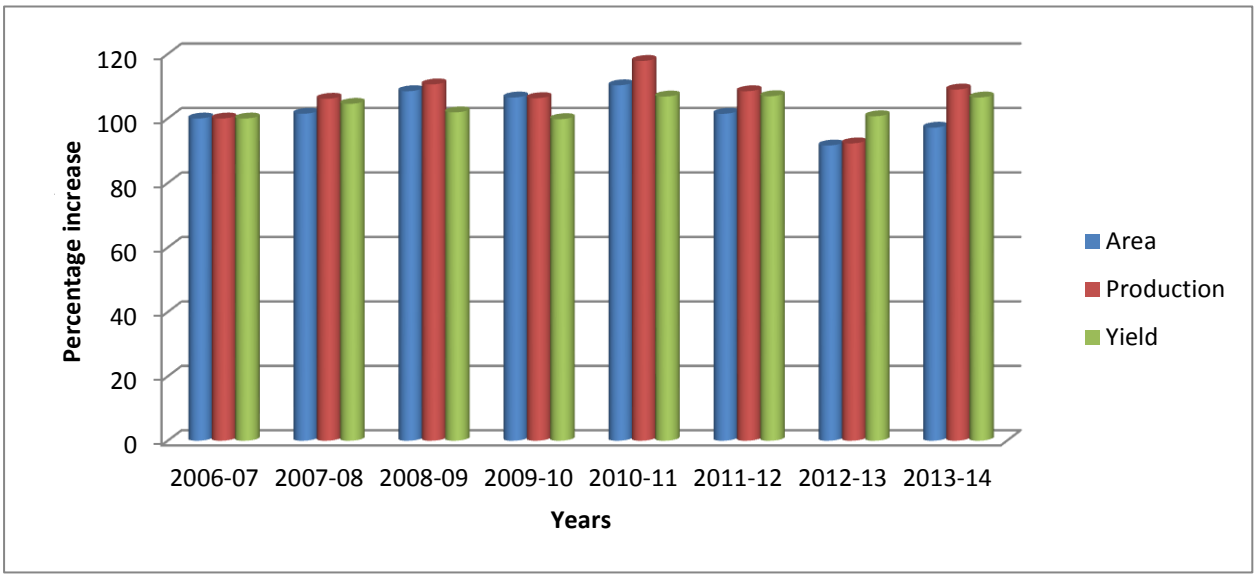
**Table 4: Rice-Area, Production and Yield**

| Year | Area (Ha) | Production (Tons) | Yield (Kgs) |
|---|---|---|---|
| 2006-07 | 13,95,676 | 36,45,526 | 2750 |
| Trend % | 100 | 100 | 100 |
| 2007-08 | 14,16,316 | 38,68,515 | 2875.15 |
| Trend % | 101.48 | 106.12 | 104.55 |
| 2008-09 | 15,13,987 | 40,31,348 | 2802.88 |
| Trend % | 108.48 | 110.58 | 101.92 |
| 2009-10 | 14,86,478 | 38,75,770 | 2745 |
| Trend % | 106.51 | 106.32 | 99.80 |
| 2010-11 | 15,39,466 | 42,96,331 | 2938 |
| Trend % | 110.3 | 117.85 | 106.82 |
| 2011-12 | 14,16,134 | 39,54,370 | 2940 |
| Trend % | 101.47 | 108.47 | 106.91 |
| 2012-13 | 12,78,915 | 33,64,379 | 2769 |
| Trend % | 91.63 | 92.29 | 100.69 |
| 2013-14 | 13,40,056 | 40,52,962 | 3184 |
| *Trend %* | *96.01* | *111.17* | *115.78* |

**Source: Directorate of Economics and Statistics (DES), Bangalore**

The highest production (42.91 lakh tones) with largest area (15.39 lakh tones) under rice crop was recorded during the year 2010-11. An increased production is possible by bring more districts under NFSM.

**Figure 2: State Level Area, Production and Yield-Rice**




Source: Directorate of Economics and Statistics (DES), Bangalore

(i) **NFSM Districts**: The area, production and productivity levels in NFSM districts increased as given in Table 5.

**Area**: All the 7 NFSM districts had a total area of 5.89 lakh ha under rice cultivation during the base year 2006-07 and recorded slight increase with 5.90 lakh ha in 2013-14 that is only 0.06% over the base year. Cultivated area under rice showed declining trend during 2011-12 and 2012-13 over base year due to drought.

**Production**: The total rice production of 7 NFSM districts was 14.11 lakh tons during the base year 2006-07 and it has increased to 16.89 lakh tons in the year 2013-14 due to NFSM interventions.

**Yields**: The average productivity in relation to the NFSM districts worked out to 2520 kg per ha during the base year 2006-07 with wide across the districts variations and it has increased to 2862 kg per ha in the year 2013-14. The productivity enhancement was 13.57% over the base year with the NFSM interventions.

**Table 5: Rice –NFSM Districts Area, Production and Yield**

| Year | Area (Ha) | Production (Tons) | Yield (Kg) |
|---|---|---|---|
| 2006-07 | 589621 | 1411280 | 2520 |
| Trend % | 100 | 100 | 100 |
| 2007-08 | 610975 | 1453486 | 2504 |
| Trend % | 103.62 | 102.99 | 99.36 |
| 2008-09 | 617754 | 1464924 | 2496 |
| Trend % | 104.77 | 103.80 | 99.04 |
| 2009-10 | 621926 | 1441661 | 24401 |
| Trend % | 105.48 | 102.15 | 96.83 |
| 2010-11 | 617356 | 1556261 | 2653.50 |
| Trend % | 104.70 | 1102 | 105.30 |
| 2011-12 | 575099 | 1461777 | 2676 |
| Trend % | 97.54 | 103.57 | 106.19 |
| 2012-13 | 568103 | 1421439 | 2634 |
| Trend % | 96.15 | 100.72 | 104.52 |
| 2013-14 | 5,90,000 | 16,89,000 | 2862 |
| *Trend %* | *100.06* | *119.67* | *113.57* |

Source: Directorate of Economics and Statistics (DES), Bangalore

**9.4 What are the reasons for declining/stagnated area under rice and not achieving targeted production of rice in the State**?

**Hassan**: Area under rice cultivation has been decreasing due to reduced and uneven distribution of rainfall in the region. Rice farmers are converting some of their fields to maize and ginger crops that require less water but gives better market price. Ginger crop has been getting popular under bore well irrigated fields. Command area rice yields are coming down due to untimely release of water. Some farmers are still preferring local varieties like 'Rajamudi' because of their better quality even though their yield levels are far below the high yielding varieties and hybrids. Mono-cropping of paddy is also one of the reasons for stagnated yields.

**Shimoga**: Rice farmers have been shifting to maize crop in low land areas and for areca nut plantations in upland areas that require less water and labour but fetch better market price.

**Belgaum:** Low and uneven distribution of rainfall is one of the main reasons for decreased area and production of rice in Belgaum district. Some upland rice fields have been converting to maize, groundnut, soyabean crops and low land areas to sugarcane. Degraded soil fertility with micronutrients deficiency is a root cause for stagnated yields.

**Udupi:** Labour availability has been a serious problem and the young generation has no interest in farming. Rural migrations to towns for alternative employment opportunities in small scale industries like cashew processing units are widespread. A large number of rice farmers are converting their fields to plantations like coconut and areca nut that does not require regular supervision.

**9.5 Non-NFSM Districts**: The area decreased but production and productivity under rice increased marginally in non-NFSM districts as can be seen in Table 6.

**Area:** All the 23 non-NFSM districts had a total area of 8.06 lakh ha under rice cultivation during the base year 2006-07 which decreased to 7.50 lakh ha in 2013-14 and registered decreased rate of 7.02% over the base year.

**Production**: The non-NFSM districts had a total rice production of 22.34 lakh tons during the base year 2006-07 which increased to 23.64 lakh tons in 2013-14 recording an increased rate of 5.80%.

**Table 6: Rice-Non-NFSM- Area, Production and Yield**

| Year | Area (Ha) | Production (Tons) | Yield (Kgs) |
|---|---|---|---|
| 2006-07 | 8,06,555 | 22,34,246 | 2918 |
| Trend % | 100 | 100 | 100 |
| 2007-08 | 8,05,341 | 24,15,029 | 3156.60 |
| Trend % | 99.91 | 108 | 108.18 |
| 2008-09 | 8,96,233 | 25,66,424 | 3014.3 |
| Trend % | 111.19 | 115 | 103.30 |
| 2009-10 | 8,64,552 | 24,34,109 | 2964 |
| Trend % | 107.26 | 109 | 101.56 |
| 2010-11 | 9,22,110 | 27,40,070 | 3128 |
| Trend % | 114.39 | 123 | 107.19 |
| 2011-12 | 8,41,035 | 24,92,593 | 3120 |
| Trend % | 104.34 | 112 | 106.91 |
| 2012-13 | 7,10,812 | 19,42,940 | 2877 |
| Trend % | 88.18 | 87 | 98.60 |
| 2013-14 | 7,50,000 | 23,64,000 | 3152 |
| *Trend %* | *92.98* | *105.80* | *108.01* |

Source: Directorate of Economics and Statistics (DES), Bangalore

**Yields:** The average productivity in non-NFSM districts was 2918 kg per ha during the base year 2006-07 and it has increased to 3152 kg per ha in the year 2013-14. The productivity increase was 8.01% over the base year.

The productivity enhancement was 13.57% over the base year with the NFSM interventions as compared Non-NFSM districts 8.01% and it is an indication of positive impact of NFSM even though there was no increase in area.

**Pulse**

**9.6 State Level Area, Production and Yield (NFSM Districts)**:

NFSM is covering all districts in the state and it can be seen in Table 7 and Figure 3, the production and productivity levels of the state have increased significantly with 58.66% and 95.53% respectively. The average yield obtained during 2013-14 was 745 kg per ha as compared to 381 kg per ha yield of base year 2006-07 shows an encouraging growth. The production during base year was 8.38 lakh tons and it increased to 13.31 lakh tons. An increase of 4.93 lakh tons production against the targeted 2 lakh tones and 364 kg per ha in yield over base year in pulses is commendable. A total area of 23.15 lakh ha under pulses cultivation during the base year 2006-07 increased to 25.06 lakh ha during 2013-14 and recorded 8.21% increase over base year.

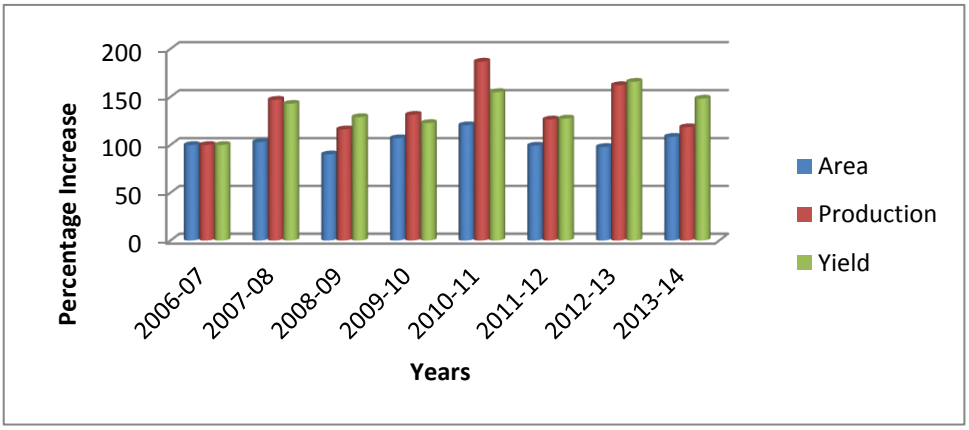
**Table 7: State level Area, Production and Yield – Pulses**

| Year | Area (Ha) | Production (Tons) | Yield (Kg) |
|---|---|---|---|
| 2006-07 | 23,15,690 | 8,38,855 | 381 |
| Trend % | 100 | 100 | 100 |
| 2007-08 | 23,85,586 | 12,33,384 | 544.23 |
| Trend % | 103.01 | 147.03 | 142.84 |
| 2008-09 | 20,88,471 | 9,75,470 | 491.66 |
| Trend % | 90.18 | 116.28 | 129.04 |
| 2009-10 | 24,79,503 | 11,02,452 | 468 |
| Trend % | 107.07 | 131.42 | 122.84 |
| 2010-11 | 27,91,621 | 15,66,642 | 591 |
| Trend % | 120.55 | 186.75 | 155.04 |
| 2011-12 | 22,99,854 | 10,61,624 | 486 |
| Trend % | 99.31 | 126.55 | 127.53 |
| 2012-13 | 22,67,900 | 13,61,067 | 632 |
| Trend % | 97.93 | 162.25 | 165.80 |
| 2013-14 | 25,06,000 | 13,31,000 | 745 |
| *Trend %* | *108.21* | *158.66* | *195.53* |

***Source: Directorate of Economics and Statistics (DES), Bangalore***

The maximum area with 27.91 lakh ha and highest production of 15.66 lakh tons under pulses recorded during the year 2010-11.

**Figure 3: State Level Area, Production and Yield-Pulses**




**Source: Directorate of Economics and Statistics (DES), Bangalore**

## 9.7 Why NFSM-Pulses to be continued?

More than 92 per cent of the area under pulses in the country is confined to unirrigated areas and in future also the bulk of pulse production will continue to come from unirrigated areas. The present production of pulses in the country is hovering around 19 million tones with year on year fluctuation depending on the rainfall and its distribution. The present domestic requirement is around 21 million tones. The import of 2-3 million tonnes of pulses every year fill the gap between the demand and supply. The pulse requirement in the country is projected at 39 million tones by the year 2050 (Source: Indian Institute of Pulses Research).

The production of pulses in Karnataka during base year was 8.38 lakh tones and it increased to 13.31 lakh tones during 2013-14. An increase of 4.93 lakh tones production over the base year in pulses was more than double the targeted 2 lakh tones. But the production target of pulses for the year 2014-15 was 15.87 lakh tones but estimated production was 15.24 lakh tones. Hence, it is suggested to continue the scheme in all districts of Karnataka.

## 9.8 What is the impact of Agricultural prices on the area, production and productivity of rice and pulses?

Agricultural price policy is basically aimed at intervention in the agricultural produce markets with a view to influencing the level of fluctuations in prices and price-spread from farm-gate to the retail level. Agricultural prices are important economic variables in a market economy. The price fixation is undertaken by the government on the advice of Agricultural Prices Commission to fix minimum support prices and procurement prices. Price relationships have a significant influence on decisions relating to the type of crops to be grown and the production

activity. The productive resources and technical inputs are channeled into production of those crops which fetch better market price such that they get enough income.

Table 8 shows the Minimum Support Price (MSP) fixed by the Government of India from base year 2006-07 to 2013-14 for rice and pulses. The price increase is Rs.730 per quintal for rice, where as the price increase for pulses ranging from Rs.1655 to Rs.2980 per quintal over the base year. It demonstrates that the price increase for pulses is far more than rice.

**Table 8: Prices of Rice and Pulses**

| Crop | Year wise MSP per Quintal (in Rs.) | | | | | | | | | Trend in % |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | Increase over 2006-07 | |
| Paddy | 580 | 6455 | 850 | 950 | 1000 | 1080 | 1250 | 1310 | 730 | 125 |
| Tur | 1410 | 1550 | 2000 | 2300 | 3000 | 3200 | 3850 | 4300 | 2890 | 205 |
| Moong | 1520 | 1700 | 2520 | 2760 | 3170 | 3500 | 4400 | 4500 | 2980 | 196 |
| Urd | 1520 | 1700 | 2520 | 2520 | 2900 | 3300 | 4300 | 4300 | 2780 | 183 |
| Gram | 1445 | 1600 | 1730 | 1760 | 2100 | 2800 | 3000 | 3100 | 1655 | 115 |

(Source: http://agricoop.nic.in/)

**Table 9: Area and Production of Rice and Pulses in India**

| Crop | Year wise Area (in million ha) and Production (in million tones) | | | | | | | | | Trend in % |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | Increase over 2006-07 | |
| **Paddy** | | | | | | | | | | |
| Area | 43.66 | 43.91 | 45.54 | 41.85 | 36.95 | 39.47 | 42.75 | 43.95 | 0.29 | 0.66 |
| Production | 93.36 | 96.69 | 99.18 | 89.09 | 95.98 | 105.30 | 105.24 | 106.65 | 13.29 | 14.23 |
| **Pulses** | | | | | | | | | | |
| Area | 23.19 | 23.63 | 22.09 | 23.28 | 26.40 | 24.46 | 23.26 | 25.23 | 2.04 | 8.79 |
| Production | 14.20 | 14.76 | 14.57 | 14.66 | 18.24 | 17.09 | 18.34 | 19.27 | 5.07 | 35.70 |

Table 9 illustrate the area and production details of the country from 2006-07 to 2013-14. It indicates the increased production is about 14.23% and 35.70% for rice and pulses respectively. It is corresponding to the kind of increase in market prices.

The Karnataka State area and production details of rice and pulses are given in the table 10. The data signifies same as the national level trend with 11.16% and 58.83% increase over base year for rice and pulses respectively. The area under rice slightly reduced but pulses area increased to the extent of 8.25%. It indicates that the policies and prices have an impact on area, production and productivity of crops.

**Table 10: Area and Production of Rice and Pulses in Karnataka**

| Crop | Year wise Area (Lakh ha) and Production (Lakh tones) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | Increase/ decrease over 2006-07 | Trend in % |
| **Paddy** | | | | | | | | | | |
| Area | 13.95 | 14.16 | 15.13 | 14.86 | 15.39 | 14.16 | 12.78 | 13.40 | -0.55 | -3.94 |
| Production | 36.45 | 38.68 | 40.31 | 38.75 | 42.96 | 39.54 | 33.64 | 40.52 | +4.07 | +11.16 |
| **Pulses** | | | | | | | | | | |
| Area | 23.15 | 23.85 | 20.88 | 24.79 | 27.91 | 22.99 | 22.67 | 25.06 | +1.91 | +8.25 |
| Production | 8.38 | 12.33 | 9.75 | 11.02 | 15.66 | 10.61 | 13.61 | 13.31 | +4.93 | +58.83 |

### 9.9 What are financial achievements against targets?

**State Targets and Achievements**: The Karnataka state has been implementing NFSM (Rice) and NFSM (Pulses) a centrally sponsored scheme from 2007-2008 for increasing production of rice and pulses through area and yield enhancement to achieve food security.

The budget allotted for **rice and pulses** for the state of Karnataka for the period of 2007-08 to 2013-14 was Rs 376.74 crore. Funds utilized were Rs.305.07 crore that is 80.97 percent achievement (Table 11).

The budget allocation and utilization under NFSM-rice were Rs 101.55 crore and Rs 67.57 crore respectively that is 66.53% achievement.

The budget allocation and utilization under NFSM-pulses were Rs 275.19 crore and Rs 237.50 crore respectively that is an achievement of 86.30%.

**Table 11: Year wise budget allocation and utilization of grants under NFSM**

**(Rs. In Lakhs)**

| Year | NFSM –Rice | | NFSM-Pulse | | NFSM -Additional Rabi Pulse Production | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Budget allocation | Progress | Budget allocation | Progress | Budget allocation | Progress | Budget allocation | Progress |
| 2007-08 | 241.69 | 76.34 | 511.00 | 110.60 | 0.00 | 0.00 | 752.69 | 186.94 |
| 2008-09 | 1464.54 | 707.04 | 1118.40 | 1118.40 | 0.00 | 0.00 | 2582.94 | 1825.44 |
| 2009-10 | 2339.52 | 1772.44 | 3681.03 | 3678.23 | 0.00 | 0.00 | 6020.55 | 5450.67 |
| 2010-11 | 1952.99 | 1353.58 | 4181.68 | 3412.12 | 0.00 | 0.00 | 6134.67 | 4765.70 |
| 2011-12 | 1738.47 | 996.81 | 3646.81 | 3578.55 | 0.00 | 0.00 | 5385.28 | 4575.36 |
| 2012-13 | 1207.99 | 904.20 | 5054.70 | 4859.97 | 835.00 | 692.31 | 7097.69 | 6456.48 |
| 2013-14 | 1209.98 | 947.00 | 5868.50 | 4765.42 | 2622.00 | 1534.58 | 9700.48 | 7247.00 |
| Total | **10155.18** | **6757.41** | **24062.12** | **21523.29** | **3457.00** | **2226.89** | **37674.3** | **30507.59** |

Note: Total pulses progress was Rs 23750.18 lakhs against the budgeted Rs 27519.12 lakhs that is 86.30%.

(Source: Directorate of Agriculture, Bangalore)

The financial achievements were not encouraging in the beginning of the mission but it has improved from year to year and it can be considered as reasonably good mainly with pulses.

### 9.9 Selected Districts-Targets and Achievements

The overall funds utilization was Rs 208.49 Crore against the targeted 246.58 Crore for all interventions that works out to be 84.55 percent in the selected districts.

**Main Interventions**:

A total amount of Rs 204.11 Crore released to sampled 11 districts for the major interventions against which an amount of Rs 175.76 Crore (86.11%) was utilized (Table 12 and Fig 4).

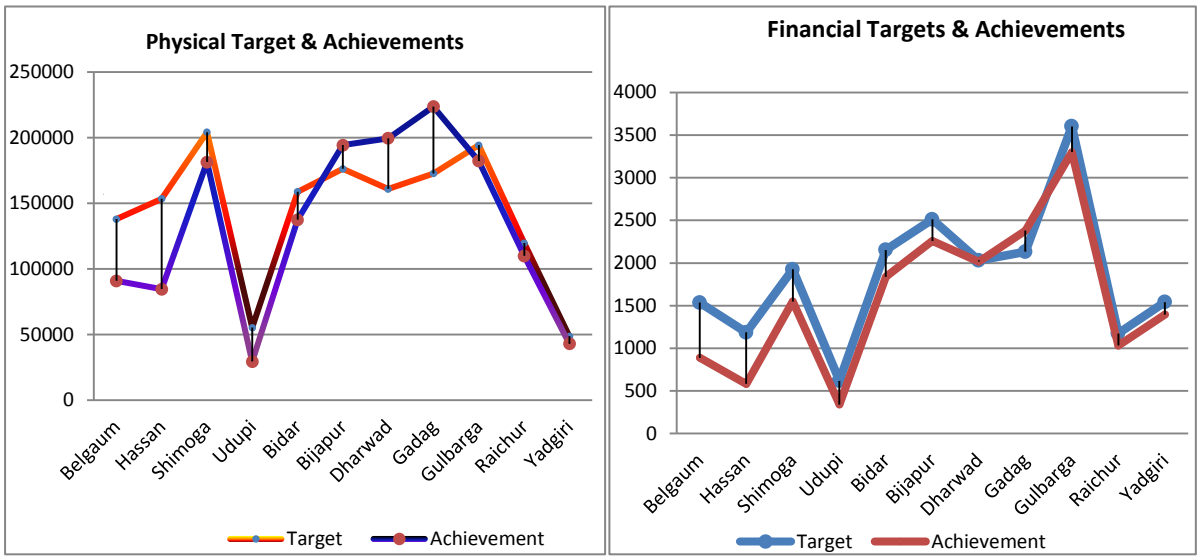
**Table 12: Selected Districts Target & Achievement**

| Districts | Physical (Units) | | Percentage | Financial (Rs in Lakh ) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievement | | Target | Achievement | |
| Belgaum | 137965 | 90909.97 | 65.89 | 1536.05 | 888.06 | 57.81 |
| Hassan | 153449 | 84592.08 | 55.13 | 1186.21 | 582.27 | 49.09 |
| Shimoga | 204231 | 181428 | 88.83 | 1925.26 | 1547.97 | 80.40 |
| Udupi | 55297 | 29416 | 53.19 | 619.03 | 340.32 | 54.98 |
| **Rice Total** | **550942** | **386346.05** | **70.12** | **5266.55** | **3358.63** | **63.77** |
| Bidar | 158862 | 137526 | 86.57 | 2152.51 | 1837.10 | 85.35 |
| Bijapur | 176291 | 194335 | 110.24 | 2510.85 | 2258.58 | 89.95 |
| Dharwad | 160950 | 199643 | 124.04 | 2030.33 | 2016.52 | 99.32 |
| Gadag | 172800 | 223794 | 129.51 | 2132.90 | 2379.63 | 111.57 |
| Gulbarga | 194365 | 182241 | 93.76 | 3602.18 | 3298.74 | 91.58 |
| Raichur | 119695 | 109894 | 91.81 | 1174.10 | 1032.54 | 87.94 |
| Yadgiri | 48648 | 42929 | 88.24 | 1541.83 | 1394.30 | 90.43 |
| **Pulses Total** | **1031611.15** | **1090362** | **105.69** | **15144.70** | **14217.41** | **93.88** |
| **Grand Total** | **1582553** | **1476708** | **93.31** | **20411.26** | **17576.05** | **86.11** |

Source: Department of Agriculture, Karnataka

The overall position in the utilization of funds against releases was satisfactory. The funds utilization of Rs 33.58 Crore against the targeted Rs 52.66 Crore under selected 4 district of rice (63.77%) was an average accomplishment. However, it was very good in case of pulses with an achievement rate of 93.88%. The performance of Gadag district with 111.57% utilization of the funds can be rated as ‘excellent’, Dharwad (99.32%), Gulbarga (91.58%) and Yadgir (90.83%) with more than 90% achievements rated ‘very good’, Bidar, Bijapur, Raichur, Shimoga with more than 80% rated as ‘good’, Belgaum (57.81%), Udipi (54.98%) and Hassan (49.09%) performance was average. As far as physical targets are concerned Sigmoga performed very well in the implementation of the rice crop. The physical achievements of Gadag, Dharwad and Bijapur were more than 100 percent.

**Figure 4: Selected Districts Physical and Financial Targets & Achievements**




## 9.10 Miscellaneous Interventions:

An amount of Rs 32.73 Crore spent against the released Rs 42.47 Crore to other miscellaneous expenses for components like project management teams, award for best performing district, capacity building, Accelerated Pulses Production Programme etc. (Table 13 and Fig 5).

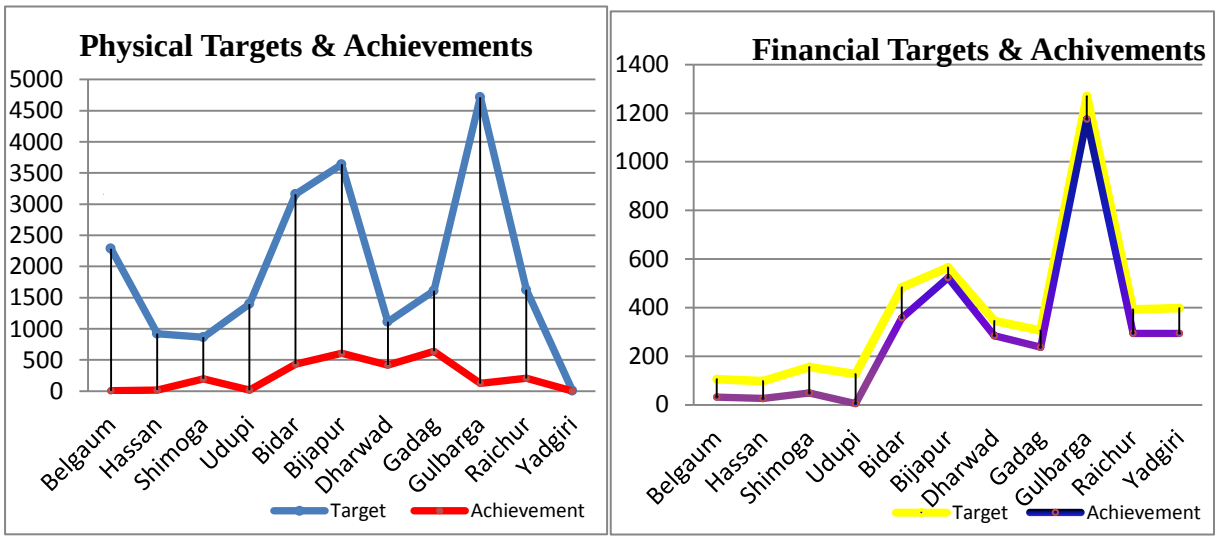
**Table 13: Targets and Achievements-Miscellaneous Interventions**

| Districts | Physical (Units) | | Financial (Rs in Lakh) | |
|---|---|---|---|---|
| | Target | Achievement | Target | Achievement |
| Belgaum | 2285.2 | 4 | 105.58 | 31.85 |
| Hassan | 921.7 | 17 | 97.82 | 25.76 |
| Shimoga | 866 | 199 | 156.44 | 48.23 |
| Udupi | 1398 | 15 | 126.575 | 4.848 |
| **Rice Total** | **5470.90** | **235** | **486.41** | **110.68** |
| Bidar | 3158 | 434 | 483.4 | 357.03 |
| Bijapur | 3640 | 605 | 565.31 | 522.81 |
| Dharwad | 1111 | 419 | 344.95 | 284.08 |
| Gadag | 1611 | 639 | 306.33 | 236.42 |
| Gulbarga | 4715 | 124 | 1270.11 | 1174.83 |
| Raichur | 1625 | 205 | 392.74 | 293.68 |
| Yadgiri | 5 | 3 | 397.74 | 293.68 |
| **Pulses Total** | **15865.00** | **2429** | **3760.58** | **3162.54** |
| **Grand Total** | **21335.90** | **2664** | **4247.00** | **3273.23** |

Source: Department of Agriculture, Karnataka

Bijapur, Gulbarga and Dharwad performance is good and Udipi performed poor in achieving set targets.

**Figure 5: Physical Financial Targets & Achievements-Miscellaneous Interventions**




Source: Department of Agriculture, Karnataka

## 10 REFLECTIONS AND CONCLUSIONS
## (PRIMARY SURVEY REPORT-RESPONDENTS PROFILE AND FINDINGS)

### 10.1 What is the proportion of SC, ST and women farmers who were benefited from the programme? What are age groups and educational background?

Primary survey of 1100 farmers was conducted in 11 districts as per the sampling plan details given. The purpose of analyzing the profiles of different respondents and deriving the findings was to evaluate the overall impact created by the mission and outcome after the execution of the scheme.

### 10.2 Demographic profile of the Sampled Farmers

**Gender**: The role of the women in agriculture is significant in conducting different farm activities like sowings, weeding, harvesting, winnowing, tending of animals and other farm activities. The coverage of number of male and female beneficiaries in the survey is presented in the following Table 14 & Fig 6. The proportion of male among the sampled respondents is 90 percent and the balance 10 percent are female. The female respondents are more in Udipi with 30% followed by Gadag (15%), Shimoga (13%). Women respondents are few in Belgaum district with 2% followed by Bidar (3%).

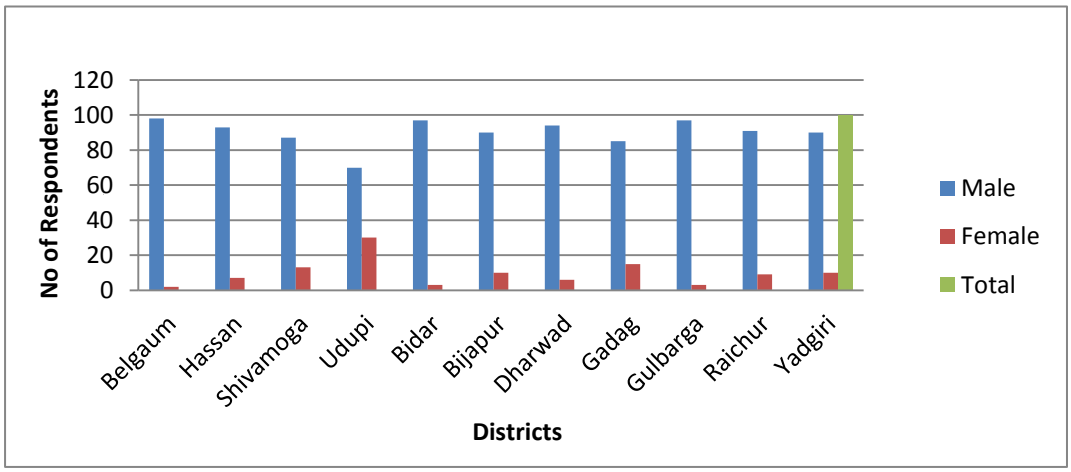
**Table 14: Gender Status of Respondents**

| Districts | Gender | | Total number of Respondents |
|---|---|---|---|
| | Male | Female | |
| **Rice** | | | |
| Belgaum | 98 | 2 | 100 |
| Hassan | 93 | 7 | 100 |
| Shivamoga | 87 | 13 | 100 |
| Udupi | 70 | 30 | 100 |
| **Pulses** | | | |
| Bidar | 97 | 3 | 100 |
| Bijapur | 90 | 10 | 100 |
| Dharwad | 94 | 6 | 100 |
| Gadag | 85 | 15 | 100 |
| Gulbarga | 97 | 3 | 100 |
| Raichur | 91 | 9 | 100 |
| Yadgiri | 90 | 10 | 100 |
| Total Number of Respondents | 992 (90.2) | 108 (9.9) | 1100 |

***Source: Primary Data***

The proportion of male among the entire sampled respondents is higher than 85 percent in all districts except Udipi. This may be due to the fact that in most cases, the land is generally in the name of male in a family.

**Figure 6*:* Gender Status of Respondents**




**Age**: The majority of the respondents 45.40% are in the age group of 40 years and above, followed by 28.60% under the age group 35-40 years, 16.90% in the age group 30-35 years. Further, 7.20% are 25-30 years and the remaining 2% in 18-25 age group. It is clear from the Table 15 that the young generations are not taking farming as their profession.

**Table 15: Age of the Respondents**

| Districts | Age (Years) | | | | | Total |
|---|---|---|---|---|---|---|
| | 18-25 | 25-30 | 30-35 | 35-40 | 40 & Above | |
| Rice | | | | | | |
| Belgaum | 11 | 22 | 26 | 9 | 32 | 100 |
| Hassan | 1 | 4 | 7 | 33 | 55 | 100 |
| Shivamoga | 1 | 4 | 11 | 43 | 41 | 100 |
| Udupi | 0 | 3 | 2 | 6 | 89 | 100 |
| Pulses | | | | | | |
| Bidar | 1 | 8 | 16 | 36 | 39 | 100 |
| Bijapur | 0 | 2 | 18 | 17 | 63 | 100 |
| Dharwad | 4 | 16 | 21 | 27 | 32 | 100 |
| Gadag | 2 | 3 | 18 | 27 | 50 | 100 |
| Gulbarga | 2 | 6 | 18 | 27 | 47 | 100 |
| Raichur | 0 | 8 | 8 | 43 | 41 | 100 |
| Yadgiri | 0 | 3 | 41 | 46 | 10 | 100 |
| Total Number of Respondents | 22 (2) | 79 (7.2) | 186 (16.9) | 314 (28.6) | 499 (45.4) | 1100 (100) |

***Source: Primary Data***

**Social Group**: The NFSM scheme is extended to all the categories of the farmers and 63% of the respondents selected for the present study are from OC/General category, followed by 14.90% BC, 10.40% SC, 6.90% ST and 4% minorities. It shows, the coverage of different categories of farmers selected for primary survey in various villages study were able to provide the benefits of NFSM scheme to all the categories of farmers (Table 16).

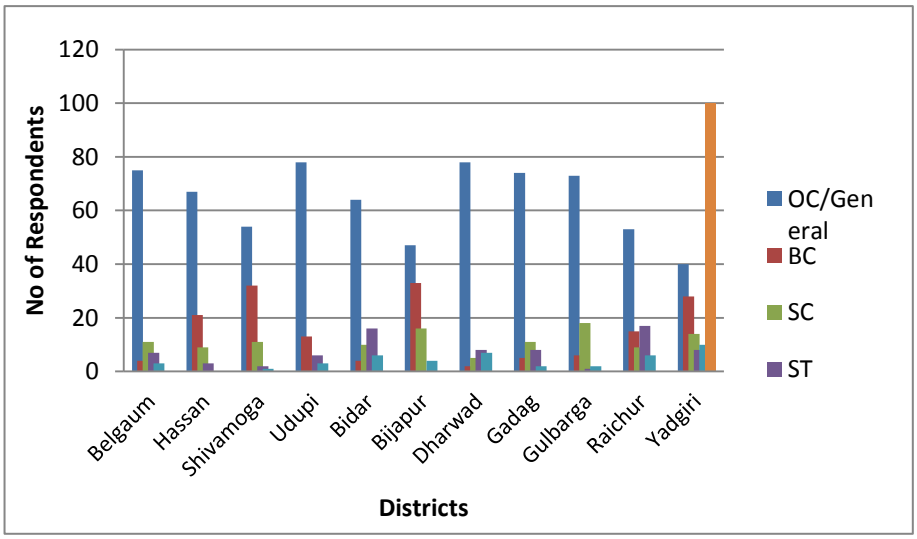
**Table 16: Categories of Respondents**

| Districts | Social Group | | | | | Total |
|---|---|---|---|---|---|---|
| | OC/General | BC | SC | ST | Minorities | |
| Rice | | | | | | |
| Belgaum | 75 | 4 | 11 | 7 | 3 | 100 |
| Hassan | 67 | 21 | 9 | 3 | 0 | 100 |
| Shivamoga | 54 | 32 | 11 | 2 | 1 | 100 |
| Udupi | 78 | 13 | 0 | 6 | 3 | 100 |
| Pulses | | | | | | |
| Bidar | 64 | 4 | 10 | 16 | 6 | 100 |
| Bijapur | 47 | 33 | 16 | 0 | 4 | 100 |
| Dharwad | 78 | 2 | 5 | 8 | 7 | 100 |
| Gadag | 74 | 5 | 11 | 8 | 2 | 100 |
| Gulbarga | 73 | 6 | 18 | 1 | 2 | 100 |
| Raichur | 53 | 15 | 9 | 17 | 6 | 100 |
| Yadgiri | 40 | 28 | 14 | 8 | 10 | 100 |
| Total Number of Respondents | 703 (63.9) | 163 (14.9) | 114 (10.4) | 76 (6.9) | 44 (4) | 1100 (100) |

***Source: Primary Data***

About 30 percent respondents from Bijapur, Shimoga and Yadgir districts are Backward Class. Around 15 percent farmers from Gulbarga, Bijapur and Yadgir districts are Schedules Castes and about the same percent representation had for Scheduled Tribe from Bidar and Raichur (Fig 7).

***Figure 7:*** **Categories of Respondents**




**Educational Qualification**: Education plays an important role in the development and the same is true for the NFSM scheme. Therefore, the education status of sampled farmers both

beneficiaries and non-beneficiaries was enquired. This information is summarized in Table 17 and Fig 8 below.

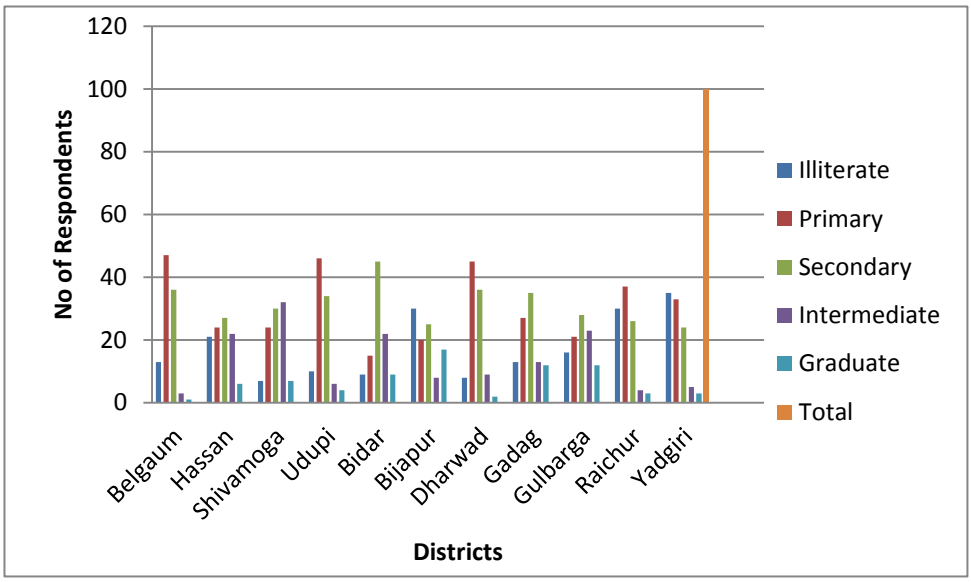
**Table 17: Educational background of respondents**

| Districts | Educational Qualification | | | | | Total |
|---|---|---|---|---|---|---|
| | Illiterate | Primary | Secondary | Intermediate | Graduate | |
| Rice | | | | | | |
| Belgaum | 13 | 47 | 36 | 3 | 1 | 100 |
| Hassan | 21 | 24 | 27 | 22 | 6 | 100 |
| Shivamoga | 7 | 24 | 30 | 32 | 7 | 100 |
| Udupi | 10 | 46 | 34 | 6 | 4 | 100 |
| **Pulses** | | | | | | |
| Bidar | 9 | 15 | 45 | 22 | 9 | 100 |
| Bijapur | 30 | 20 | 25 | 8 | 17 | 100 |
| Dharwad | 8 | 45 | 36 | 9 | 2 | 100 |
| Gadag | 13 | 27 | 35 | 13 | 12 | 100 |
| Gulbarga | 16 | 21 | 28 | 23 | 12 | 100 |
| Raichur | 30 | 37 | 26 | 4 | 3 | 100 |
| Yadgiri | 35 | 33 | 24 | 5 | 3 | 100 |
| Total Number of Respondents | 192 (17.5) | 339 (30.9) | 346 (31.5) | 147 (13.4) | 76 (6.9) | 1100 (100%) |

***Source: Primary Data***

The study reports 31.50% respondents are secondary school educated, followed by 30.90% primary school educated, 17.50% illiterate, 13.40% intermediate educated, and the remaining 6.90% are graduates. Respondents with graduation are highest with 17% from Bijapur district and lowest with 1% from Belgaum. District Yadgir with 35% illiterate respondents stands uppermost and Shimoga with 7% illiterate respondents lowest.

**Figure 8*:* Educational background of respondents**




**Dry & Irrigated Land:** Water is one of the most critical inputs for agriculture and the majority of the cropped area comes under rain fed conditions. The survey reports 76.50% respondents' area under rain fed and also had 46.20% area under irrigation. Majority of the respondent's area (72%) in Belgaum district under irrigation followed by Yadgir district with 62% irrigated area. The lowest area under irrigation (15%) is in Dharwad district followed by Gadag district with 25% irrigated area (Table 18).

**Table 18: Irrigated and Rainfed land holdings of beneficiaries**

| Districts | Land Holding (Ha) | | Total number of Respondents |
|---|---|---|---|
| | Irrigated | Rain fed | |
| **Rice** | | | |
| Belgaum | 72 | 44 | 100 |
| Hassan | 36 | 87 | 100 |
| Shivamoga | 56 | 59 | 100 |
| Udupi | 43 | 86 | 100 |
| | 207(51.75) | | 400 |
| **Pulses** | | | |
| Bidar | 56 | 80 | 100 |
| Bijapur | 55 | 60 | 100 |
| Dharwad | 15 | 97 | 100 |
| Gadag | 25 | 89 | 100 |
| Gulbarga | 33 | 92 | 100 |
| Raichur | 55 | 58 | 100 |
| Yadgiri | 62 | 89 | 100 |
| | 301(43) | | |
| Total Number of Respondents | 508 (46.2) | 841 (76.5) | 1100 (100) |

***Source: Primary Data***

**10.3 Is the planning and execution effective and adequate for enhancing the productivity of rice and pulses in the State? How the selection of area, beneficiaries, distribution of inputs took place in the State? What is the extent of technical support extending with the involvement of subject experts and farmers participation?**

**Selection of the Area**: A large majority 69.20% of the respondents reported selection of fields were as per the needs and suitability for different interventions. About 5.60% respondents felt that the selection was not satisfactory (Table 19).

**Table 19: Area Suitability for Interventions**

| Districts | Selection of the Area for Suitability to Interventions | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | Highly Suitable | Suitable | Satisfactory | Not Satisfactory | Bad | Not Responded | |
| **Rice** | | | | | | | |
| Belgaum | 5 (5.6) | 82(91.2) | 3 (3.4) | 0 | 0 | 0 | 90 (100) |
| Hassan | 12 (13.4) | 42 (46.7) | 10 (11.2) | 0 | 0 | 26 (28.9) | 90 (100) |
| Shivamoga | 14 (15.6) | 50 (55.6) | 10 (11.2) | 0 | 0 | 16 (17.8) | 90 (100) |
| Udupi | 4 (4.5) | 64 (71.2) | 22 (24.5) | 0 | | | 90 (100) |
| **Pulses** | | | | | | | |
| Bidar | 17 (18.9) | 61 (67.8) | 12 (13.4) | 0 | 0 | 0 | 90 (100) |
| Bijapur | 0 | 76 (84.5) | 12 (13.4) | 0 | 0 | 2 (2.3) | 90 (100) |
| Dharwad | 2 (2.3) | 53 (58.9) | 30 (33.4) | 5 (5.6) | 0 | 0 | 90 (100) |
| Gadag | 15 (16.7) | 65 (72.3) | 10 (11.2) | 0 | 0 | 0 | 90 (100) |
| Gulbarga | 18 (20) | 53 (58.9) | 19 (21.2) | 0 | 0 | 0 | 90 (100) |
| Raichur | 6 (6.7) | 58 (64.5) | 3 (3.4) | 0 | 0 | 23 (25.6) | 90 (100) |
| Yadgiri | 0 | 81 (90) | 0 | 0 | 0 | 9 (10) | 90 (100) |
| Total Number of Respondents | 93 (9.4) | 685 (69.2) | 131 (13.3) | 5 (5.6) | 0 | 76 (7.7) | 990 (100) |

***Source: Primary Data***

**Beneficiary Selection Process**

The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in all villages. The majority 72% respondents opined that the selection process was participatory, 10.20% reported of highly participatory, 12.10% felt it was discussed with majority of farmers. Further, 5.80% reported it was decided by officers or Village Sarpach or some influential persons (Table 20).

**Table 20: Selection Process of Beneficiaries**

| Districts | Beneficiary Selection Process | | | | | Total |
|---|---|---|---|---|---|---|
| | Highly Participatory | Participatory | Discussed with Majority Farmers | Decided by Officers | Decided by Village Sarpanch & Some influential Persons | |
| Rice | | | | | | |
| Belgaum | 1 (1.2) | 58 (64.5) | 27 (30) | 3 (3.4) | 1 (1.2) | 90 (100) |
| Hassan | 8 (8.9) | 70 (77.8) | 2 (2.3) | 10 (11.2) | 0 | 90 (100) |
| Shivamoga | 25 (27.8) | 57 (63.4) | 5 (5.6) | 2 (2.3) | 1 (1.2) | 90 (100) |
| Udupi | 12 (13.4) | 55 (61.2) | 15 (16.7) | 4 (4.5) | 4 (4.5) | 90 (100) |
| **Pulses** | | | | | | |
| Bidar | 26 (28.9) | 40 (44.5) | 15 (16.7) | 7 (7.8) | 2 (2.3) | 90 (100) |
| Bijapur | 0 | 90 (100) | 0 | 0 | 0 | 90 (100) |
| Dharwad | 1 (1.2) | 51 (56.7) | 33 (36.7) | 5 (5.6) | 0 | 90 (100) |
| Gadag | 17 (18.9) | 61 (67.8) | 7 (7.8) | 5 (5.6) | 0 | 90 (100) |
| Gulbarga | 1 (1.2) | 69 (76.7) | 9 (10) | 11 (12.3) | 0 | 90 (100) |
| Raichur | 10 (11.2) | 73 (81.2) | 6 (6.7) | 1 (1.2) | 0 | 90 (100) |
| Yadgiri | 0 | 88 (97.8) | 0 | 2 (2.3) | 0 | 90 (100) |
| Total Number of Respondents | 101 (10.2) | 712 (72) | 119 (12.1) | 50 (5) | 8 (0.8) | 990 (100) |

***Source: Primary Data***

**Inputs Supply**

The timely availability of inputs like seeds, fertilizers, pesticides etc. to the farmers is one of the critical aspects for enhancing the productivity. Proper planning for timely availability of inputs and advance tie-up with manufacturers and suppliers is essential for facilitating early procurement and supply. The survey reveals 70.50% respondents experience was that the inputs supplied on time, 18.60% response was ‘well in advance’, 9.10% reported of ‘just delayed’ and 1.90% informed that the supplies were ‘badly delayed’ (Table 21 & Fig 9).

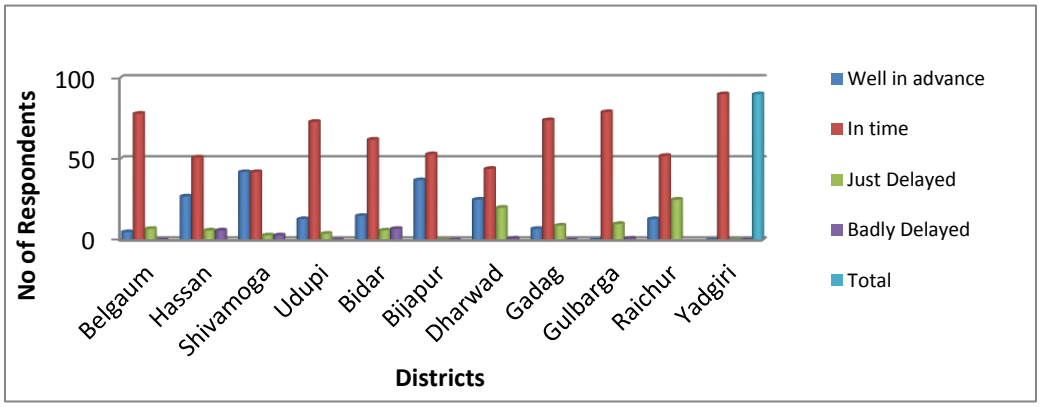
**Table 21: Supply of Inputs**

| Districts | Supply of Inputs | | | | Total |
|---|---|---|---|---|---|
| | Well in advance | In time | Just Delayed | Badly Delayed | |
| Rice | | | | | |
| Belgaum | 5 (5.6) | 78 (86.7) | 7 (7.8) | 0 | 90 (100) |
| Hassan | 27 (30) | 51 (56.7) | 6 (6.7) | 6 (6.7) | 90 (100) |
| Shivamoga | 42 (46.7) | 42 (46.7) | 3 (3.4) | 3 (3.4) | 90 (100) |
| Udupi | 13 (14.5) | 73 (81.2) | 4 (4.5) | 0 | 90 (100) |
| Pulses | | | | | |
| Bidar | 15 (16.7) | 62 (68.9) | 6 (6.7) | 7 (7.8) | 90 (100) |
| Bijapur | 37 (41.2) | 53 (58.9) | 0 | 0 | 90 (100) |
| Dharwad | 25 (27.8) | 44 (48.9) | 20 (22.3) | 1 (1.2) | 90 (100) |
| Gadag | 7 (7.8) | 74 (82.3) | 9 (10) | 0 | 90 (100) |
| Gulbarga | 0 | 79 (87.8) | 10 (11.2) | 1 (1.2) | 90 (100) |
| Raichur | 13 (14.5) | 52 (57.8) | 25 (27.8) | | 90 (100) |
| Yadgiri | 0 | 90 (100) | 0 | 0 | 90 (100) |
| Total Respondents | 184 (18.6) | 698 (70.5) | 90 (9.1) | 18 (1.9) | 990 (100) |

***Source: Primary Data***

A large number opined on the supply of inputs well in advance in Shimoga, Bijapur and Hassan districts. Every respondent from Yadgir reported that the supply of inputs were in time. More than 20 percent respondents from Raichur and Dharwad have indicated of 'just delayed'. More than 80 percent from Belgaum, Udipi, Gadag, and Gulbarga districts felt that the supplies were on time.

***Figure 9: Supply of Inputs***



**Technical Support**

The study reveals 44.70% of the total respondents rated 'good' in the technical support received from the department of agriculture, followed by 38.20% rated 'very good', 8.40% rated 'excellent' and the balance 6.70% rated 'satisfactory'. Only one respondent reported that the technical support was bad (Table 22).

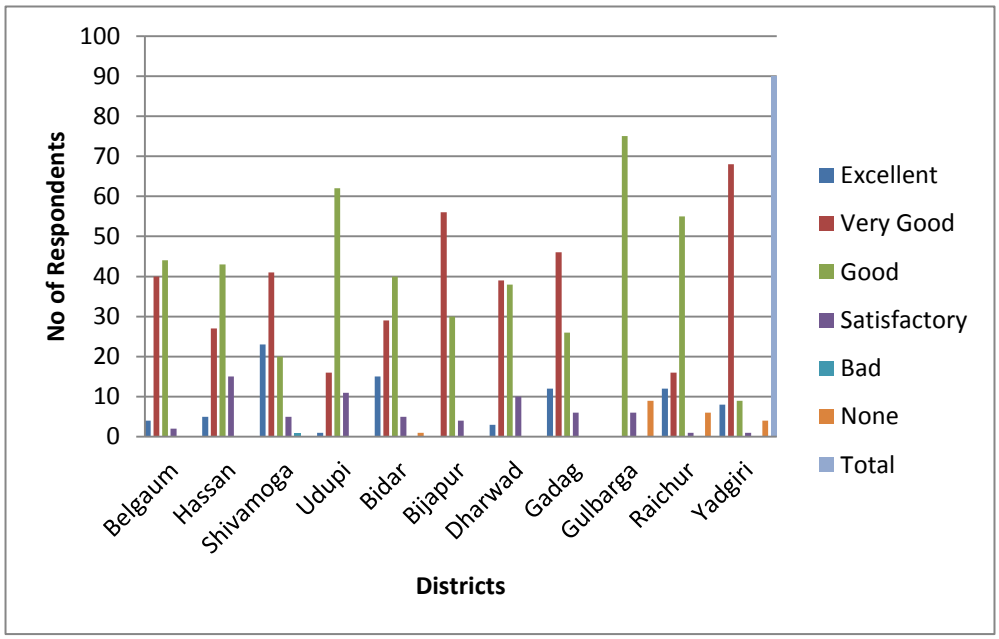
**Table 22: Response of Farmers on Technical Support**

| Districts | Technical Support | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | Excellent | Very Good | Good | Satisfactory | Bad | None | |
| **Rice** | | | | | | | |
| Belgaum | 4 (4.5) | 40 (44.5) | 44 (48.9) | 2 (2.3) | 0 | 0 | 90 (100) |
| Hassan | 5 (5.6) | 27 (30) | 43 (47.8) | 15 (16.7) | 0 | 0 | 90 (100) |
| Shivamoga | 23 (25.6) | 41 (45.6) | 20 (22.3) | 5 (5.6) | 1 (1.2) | 0 | 90 (100) |
| Udupi | 1 (1.2) | 16 (17.8) | 62 (68.9) | 11 (12.3) | | 0 | 90 (100) |
| **Pulses** | | | | | | | |
| Bidar | 15 (16.7) | 29 (32.3) | 40 (44.5) | 5 (5.6) | 0 | 1 (1.2) | 90 (100) |
| Bijapur | 0 | 56 (62.3) | 30 (33.4) | 4 (4.5) | 0 | 0 | 90 (100) |
| Dharwad | 3 (3.4) | 39 (43.4) | 38 (42.3) | 10 (11.2) | 0 | 0 | 90 (100) |
| Gadag | 12 (13.4) | 46 (51.2) | 26 (28.9) | 6 (6.7) | 0 | 0 | 90 (100) |
| Gulbarga | 0 | 0 | 75 (83.4) | 6 (6.7) | 0 | 9 (10) | 90 (100) |
| Raichur | 12 (13.4) | 16 (17.8) | 55 (61.2) | 1 (1.2) | 0 | 6 (6.7) | 90 (100) |
| Yadgiri | 8 (8.9) | 68 (75.6) | 9 (10) | 1 (1.2) | 0 | 4 (4.5) | 90 (100) |
| Total Number of Respondents | 83 (8.4) | 378 (38.2) | 442 (44.7) | 66 (6.7) | 1 (0.1) | 20 (2.1) | 990 (100) |

***Source: Primary Data***

More than 50 percent respondents from Bijapur, Gadag, and Yadgir felt that the technical support was very good. In case of Gulbarga, most of the respondents (83.40%) reported that the technical support was good. Only one respondent indicated of bad extension service that was from Shimoga. It was also recorded that about 2% not responded to the question on technical support. (Fig 10)

**Figure 10: Response of Farmers on Technical Support**




**Involvement of Subject Experts**:

The involvement of subject experts from Agriculture Research Institutes, Universities and other extension agencies is very important in the transfer of technology. Scientists can take the latest technological developments from lab to land for the benefit of farmers. It was recognized and the department of agriculture has given a major trust in the involvement of scientists in the identification of location specific package of practices and their transfer through demonstrations and training programs.

The study reveals 44.60% of the total respondents rated 'good' on the involvement of subject experts in the transfer of technology, followed by 30.30% rated 'very good', 5.20% rated 'excellent' and 18.80% rated 'satisfactory'. Only 1.30% respondents reported that the involvement of subject experts was bad (Table 23).

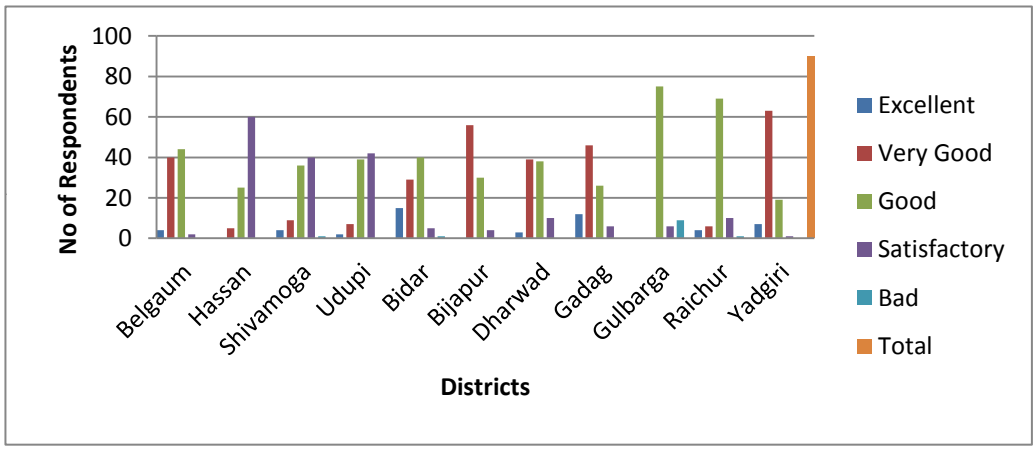
**Table 23: Subject Experts Involvement in the Transfer of Technology**

| Districts | Involvement of Subject Experts | | | | | Total |
|---|---|---|---|---|---|---|
| | Excellent | Very Good | Good | Satisfactory | Bad | |
| Rice | | | | | | |
| Belgaum | 4 (4.5) | 40 (44.5) | 44 (48.9) | 2 (2.3) | 0 | 90 (100) |
| Hassan | 0 | 5 (5.6) | 25 (27.8) | 60 (66.7) | 0 | 90 (100) |
| Shivamoga | 4 (4.5) | 9 (10) | 36 (40) | 40 (44.5) | 1 (1.2) | 90 (100) |
| Udupi | 2 (2.3) | 7 (7.8) | 39 (43.4) | 42 (46.7) | 0 | 90 (100) |
| Pulses | | | | | | |
| Bidar | 15 (16.7) | 29 (32.3) | 40 (44.5) | 5 (5.6) | 1 (1.2) | 90 (100) |
| Bijapur | 0 | 56 (62.3) | 30 (33.4) | 4 (4.5) | 0 | 90 (100) |
| Dharwad | 3 (3.4) | 39 (43.4) | 38 (42.3) | 10 (11.2) | 0 | 90 (100) |
| Gadag | 12 (13.4) | 46 (51.2) | 26 (28.9) | 6 (6.7) | 0 | 90 (100) |
| Gulbarga | 0 | 0 | 75 (83.4) | 6 (6.7) | 9 (10) | 90 (100) |
| Raichur | 4 (4.5) | 6 (6.7) | 69 (76.67) | 10 (11.2) | 1 (1.2) | 90 (100) |
| Yadgiri | 7 (7.8) | 63 (70) | 19 (21.2) | 1 (1.2) | 0 | 90 (100) |
| Total Number of Respondents | 51 (5.2) | 300 (30.3) | 441 (44.6) | 186 (18.8) | 12 (1.3) | 990 (100) |

***Source: Primary Data***

Except Belgaum, Farmers from all selected districts for rice crop except Belgaum felt it was only ‘satisfactory’ on the involvement of subject experts. However, majority of the farmers of pulse districts reported of ‘very good’ or ‘good’ on the involvement of subject experts in the transfer of technology or training programs (Fig 11).

**Figure 11: Subject Experts Involvement in the Transfer of Technology**




**10.4 Is the technology sustainable, to what extent the area, production and productivity of rice and pulses increased due to NFSM in the past five years as compared to non -NFSM districts/ non-beneficiaries? Is there any improvement in economic status of farmers with the Scheme?**

**Sustainability of technology**:

Development cannot be sustainable unless people accept the technologies and practice it for a long time. It should also increase productivity and incomes without compromising future generations' ability to do the same.

Continuity of practices is an indication of its sustainability and the survey reveals 52.70% will continue all practices, followed by 36.10% continue top two important practices, 10.30% continue top one practice which they feel the best. Insignificant number of (0.6%) respondents said that they don't follow any of the recommendations given under NFSM (Table 24 and Figure 12).

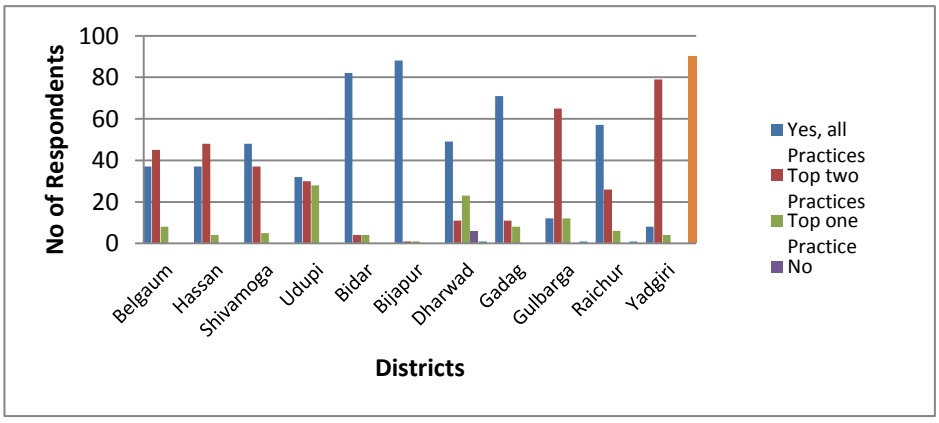
**Table 24: Sustainability of Technologies Adoption**

| Districts | Sustainability | | | | | Total |
|---|---|---|---|---|---|---|
| | Yes, all Practices | Top two Practices | Top one Practice | No | None | |
| Rice | | | | | | |
| Belgaum | 37 (41.2) | 45 (50) | 8 (8.9) | 0 | 0 | 90 (100) |
| Hassan | 37 (41.2) | 48 (53.4) | 4 (4.5) | 0 | 1(1.1) | 90 (100) |
| Shivamoga | 48 (53.4) | 37 (41.2) | 5 (5.6) | 0 | 0 | 90 (100) |
| Udupi | 32 (35.6) | 30 (33.4) | 28 (31.2) | 0 | 0 | 90 (100) |
| Pulses | | | | | | |
| Bidar | 82 (91.2) | 4 (4.5) | 4 (4.5) | 0 | 0 | 90 (100) |
| Bijapur | 88 (97.8) | 1 (1.2) | 1 (1.2) | 0 | 0 | 90 (100) |
| Dharwad | 49 (54.5) | 11 (12.3) | 23 (25.6) | 6 (6.7) | 1 (1.1) | 90 (100) |
| Gadag | 71 (78.9) | 11 (12.3) | 8 (8.9) | 0 | 0 | 90 (100) |
| Gulbarga | 12 (13.4) | 65 (72.3) | 12 (13.4) | 0 | 1 (1.1) | 90 (100) |
| Raichur | 57 (63.4) | 26 (28.9) | 6 (6.7) | 0 | 1 (1.1) | 90 (100) |
| Yadgiri | 8 (8.9) | 79 (87.8) | 3 (3.3) | 0 | 0 | 90 (100) |
| Total Number of Respondents | 521 (52.7) | 357 (36.1) | 102 (10.3) | 6 (0.6) | 4 (0.4) | 990 (100) |

***Source: Primary Data***

To the large extent all practices are going to be adopted by farmers of all sampled districts except in case of Yadgir, Gulbarga where they would continue to adopt top two recommended practices under NFSM. It was also reported that about 6 farmers of Dharwad won't practice the recommended practices.

**Figure 12: Sustainability of Technologies Adoption**



**Impact on Area**

One of the major objectives of the scheme is that the area under rice and pulses should increase with increased productivity through improved technology adoption. There was slight increase in area due to NFSM interventions in surveyed districts.

As large as 56.80% sample respondents reported that the increase was 'little more area" under rice and pulses due to NFSM interventions in NFSM implemented villages, followed by 28.60% opined the increase as "a lot" and 12% believe that the 'area may increase in future'. Further, 2.70% informed that there was no increase in area and one respondent felt of decrease in area (Table 25)

**Rice**

The survey indicates 60.30% sample respondents reported of 'little more area" brought under rice due to NFSM interventions in their villages, followed by 15.90% opined the increase was "a lot" and 19.20% believe that the 'area may increase in future'. Further, 4.50% informed that there was no increase in area and one respondent informed of decrease in area.

**Table 25: Impact on Area Expansion under Rice and Pulses**

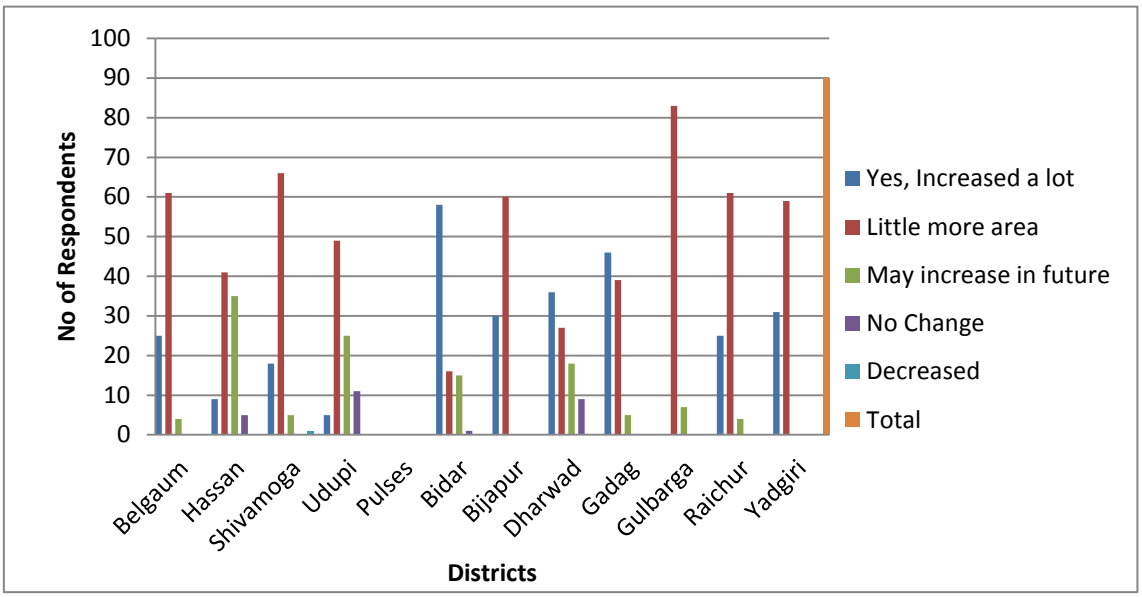
| Districts | Increase/Decrease in Area | | | | | Total |
|---|---|---|---|---|---|---|
| | Yes, Increased a lot | Little more area | May increase in future | No Change | Decreased | |
| **Rice** | | | | | | |
| Belgaum | 25 (27.8) | 61 (67.8) | 4 (4.5) | 0 | 0 | 90 (100) |
| Hassan | 9 (10) | 41 (45.6) | 35 (38.9) | 5 (5.6) | 0 | 90 (100) |
| Shivamoga | 18 (20) | 66 (73.4) | 5 (5.6) | 0 | 1 (1.2) | 90 (100) |
| Udupi | 5 (5.6) | 49 (54.5) | 25 (27.8) | 11 (12.3) | 0 | 90 (100) |
| **Total** | **57 (15.9)** | **217 (60.3)** | **69 (19.2)** | **16 (4.5)** | **1 (0.3)** | **360 (100)** |
| **Pulses** | | | | | | |
| Bidar | 58 (64.5) | 16 (17.8) | 15 (16.7) | 1 (1.2) | 0 | 90 (100) |
| Bijapur | 30 (33.4) | 60 (66.7) | 0 | 0 | 0 | 90 (100) |
| Dharwad | 36 (40) | 27 (30) | 18 (20) | 9 (10) | 0 | 90 (100) |
| Gadag | 46 (51.2) | 39 (43.4) | 5 (5.6) | 0 | 0 | 90 (100) |
| Gulbarga | 0 | 83 (92.3) | 7 (7.8) | 0 | 0 | 90 (100) |
| Raichur | 25 (27.8) | 61 (67.8) | 4 (4.5) | 0 | 0 | 90 (100) |
| Yadgiri | 31 (34.5) | 59 (65.6) | | 0 | 0 | 90 (100) |
| **Total** | **226 (35.9)** | **345 (54.8)** | **49 (7.8)** | **10 (1.6)** | **0** | **630 (100)** |
| **Total Number of Respondents** | **283 (28.6)** | **562 (56.8)** | **118 (12)** | **26 (2.7)** | **1 (0.1)** | **990 00)** |

***Source: Primary Data***

**Pulse**

The area increase under pulses reported as 'little more area" by 54.80% sample respondents due to NFSM interventions in their villages, followed by 35.90% farmers opined the increase was "a lot" and 7.80% believed that the 'area may increase in future'. A small segment of 1.60% respondents informed that there was no increase in area (Fig 13).

**Figure 13: Impact on Area Expansion under Rice and Pulses**




**Impact on Yield**

The major objective of the mission is to increase the yields of rice and pulses with the NFSM interventions. All the study districts of NFSM have generated benefits to the farmers in terms of enhancement of the productivity. The survey findings revealed that there was significant increase in the productivity of rice and pulses. From the survey, 49.39% respondent's yields have increased to 10-15%, 36.06% respondents yields increase was 5-10% and an increased yields of more than 15% for 15.66% respondents reported with NFSM interventions. About 1.82% respondents reported of no increase in their yields due to NFSM interventions (Table 26 and Figure 14).

**Table 26: Impact on productivity**

| Districts | Increase in the Yields | | | | | Total |
|---|---|---|---|---|---|---|
| | Increased by more than 15% | Between 10% to 15% | Between 5% to 10% | No Increase | Decreased | |
| Rice | | | | | | |
| Belgaum | 17 (18.9) | 70 (77.8) | 3 (3.4) | 0 | 0 | 90 (100) |
| Hassan | 6 (6.7) | 33 (36.7) | 48 (53.4) | 3 (3.4) | 0 | 90 (100) |
| Shivamoga | 16 (17.8) | 37 (41.2) | 37 (41.2) | 0 | 0 | 90 (100) |
| Udupi | 13 (14.5) | 22 (24.5) | 55 (61.1) | 0 | 0 | 90 (100) |
| Total | 52 (14.5) | 162 (45) | 143 (39.8) | 3 (0.9) | 0 | 360 (100) |
| Pulses | | | | | | |
| Bidar | 18 (20) | 38 (42.3) | 34 (37.8) | 0 | 0 | 90 (100) |
| Bijapur | 24 (26.7) | 32 (35.6) | 34 (37.8) | 0 | 0 | 90 (100) |
| Dharwad | 6 (6.7) | 75 (83.4) | 4 (26.7) | 5 (16.7) | 0 | 90 (100) |
| Gadag | 38 (42.3) | 28 (31.2) | 24 (26.7) | 0 | 0 | 90 (100) |
| Gulbarga | 0 | 50 (55.6) | 40 (44.5) | 0 | 0 | 90 (100) |
| Raichur | 17 (18.9) | 28 (31.2) | 45 (50) | 0 | 0 | 90 (100) |
| Yadgiri | 0 | 77 (85.6) | 13 (14.5) | 0 | 0 | 90 (100) |
| Total | 103 (16.35) | 328 (52.06) | 194 (30.79) | 5 (0.8) | 0 | 630 (100) |
| Total Number of Respondents | 155 (15.66) | 489 (49.39) | 357 (36.06) | 18 (1.82) | 0 | 990 (100) |

**Source: Primary Data**

**Rice**

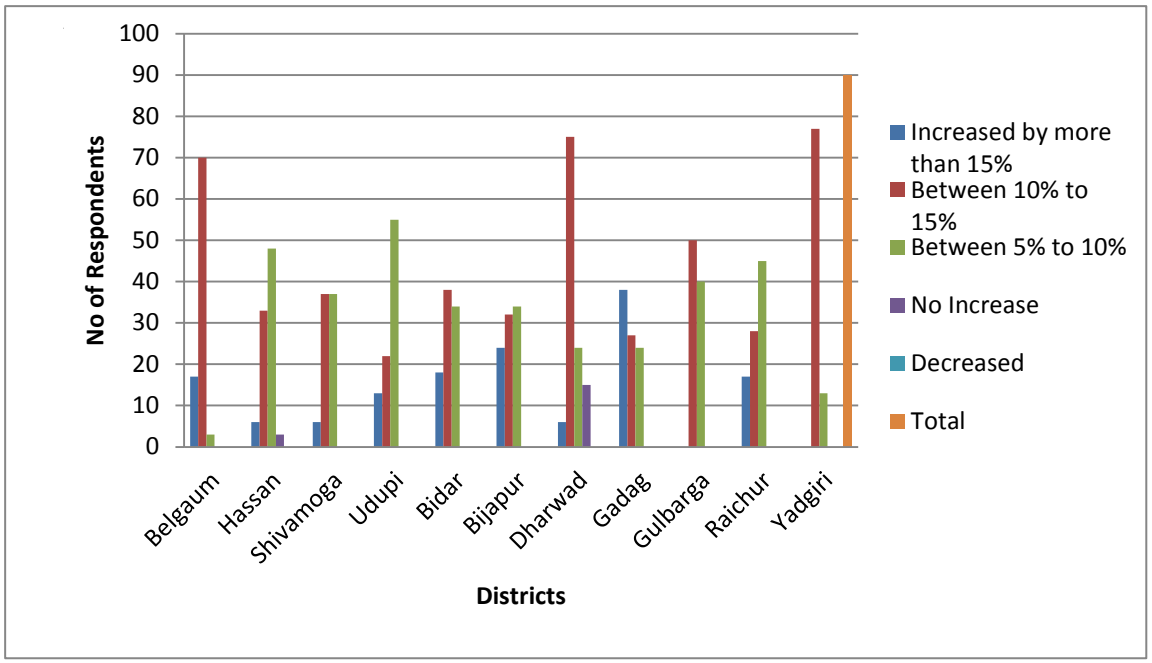
From the survey, 45% respondent's yields have increased to 10-15%, 39.80% respondents yields increase was 5-10% and an increased yields of more than 15% for 14.50% respondents reported due to NFSM interventions. Only 0.90% respondents reported that there was no increase in their yields due to NFSM interventions.

**Pulse**

The survey findings revealed that there was a significant increase in the productivity of pulses due to NFSM interventions. An increased yields of 10-15% recorded with 52.06% respondents,

followed by 5-10% increase in 30.79% respondents and more than 15% increased yields for 16.35% respondents due to NFSM interventions. There was no increase in the yields of 0.80% respondents due to NFSM interventions.

**Figure 14: Impact on productivity**




### 10.5 Yields of Non-beneficiaries as compared to NFSM Beneficiaries

As per primary survey (Table 27 & Fig 15 ), 46.36% non-beneficiaries yields were less than NFSM beneficiaries. However, 32.73% non-beneficiary farmers felt that their yields were at par with the yields of NFSM beneficiaries. A small number of non-beneficiaries (13.64%) felt that their yields were more than beneficiaries. On the other hand, 7.27% non-beneficiaries reported of far less yields as compared to NFSM beneficiaries.

**Table 27: Comparison Non-NFSM fields with NFSM beneficiaries yields**

| Districts | Yields Compared to NFSM Beneficiaries | | | | Total |
|---|---|---|---|---|---|
| | More | Less | At Par | Far Less/ Any Other | |
| Rice | | | | | |
| Belgaum | 1 | 7 | 1 | 1 | 10 |
| Hassan | 2 | 6 | 1 | 1 | 10 |
| Shivamoga | 0 | 3 | 6 | 1 | 10 |
| Udupi | 0 | 5 | 5 | 0 | 10 |
| **Total** | **3 (7.5)** | **21 (52.5)** | **13 (32.5)** | **3 (3.5)** | **40 (100)** |
| **Pulses** | | | | | |
| Bidar | 7 | 2 | 1 | 0 | 10 |
| Bijapur | 0 | 8 | 2 | 0 | 10 |
| Dharwad | 1 | 6 | 2 | 1 | 10 |
| Gadag | 0 | 6 | 3 | 1 | 10 |
| Gulbarga | 0 | 3 | 4 | 3 | 10 |
| Raichur | 3 | 4 | 3 | 0 | 10 |
| Yadgiri | 1 | 1 | 8 | 0 | 10 |
| **Total** | **12 (17.2)** | **30 (42.9)** | **23 (32.9)** | **5 (7.2)** | **70 (100)** |
| **Total Number of Respondents** | **15 (13.64)** | **51 (46.36)** | **36 (32.73)** | **8 (7.27)** | **110 (100)** |

***Source: Primary Data***

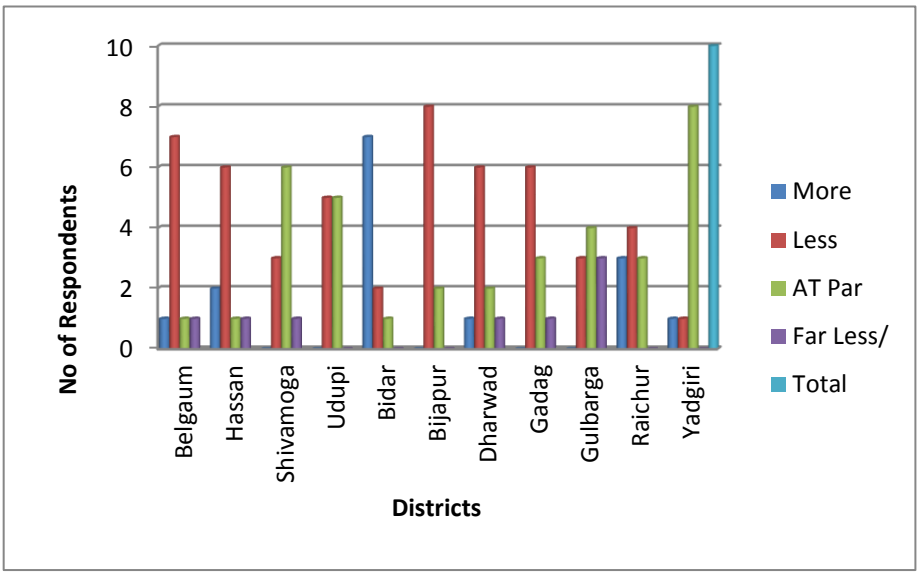
**Rice**

The study found that about 52.50% non-beneficiaries yields of rice were less than NFSM beneficiaries and it was at par for 32.50% non-beneficiary farmers. A small number of non-beneficiaries (7.50%) felt that their yields were more than beneficiaries. On the other hand, 3.50% non-beneficiaries reported of far less yields as compared to NFSM beneficiaries.

**Pulse**

The primary survey reported 42.90% non-beneficiaries yields of pulses less than NFSM beneficiaries and 32.90% non-beneficiary farmer's yields were at par. About 17.20% non-beneficiaries felt that their yields were more than the beneficiaries. In case of 7.20% non-beneficiaries, yields were far less as compared to NFSM beneficiaries.

**Figure 15: Comparison Non-NFSM fields with NFSM beneficiaries yields**




**Impact on Income**

NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income was higher for NFSM beneficiaries. The majority 57.88% respondents reported 5-10% increase in their income; followed by 27.67% farmers more than 10% increase and 13.33% respondent's reported marginal increase in income. A small percentage (1.82%) of respondents reported of no change in their income and 2.02% respondents informed of decrease in their income (Table 28 & Fig 16).

**Rice**

Table 28 shows, 57.50% of the respondents reported 5-10% increase in their income, followed by more than 10% increase income for 19.80% respondents and a marginal increase for 22.50% respondents. One respondent reported of no change in their income. Almost all farmers of Belgaum and Shimoga had maximum benefit with more than 5-10% increased income due to NFSM.

**Table 28: Change in Income due to NFSM Interventions**

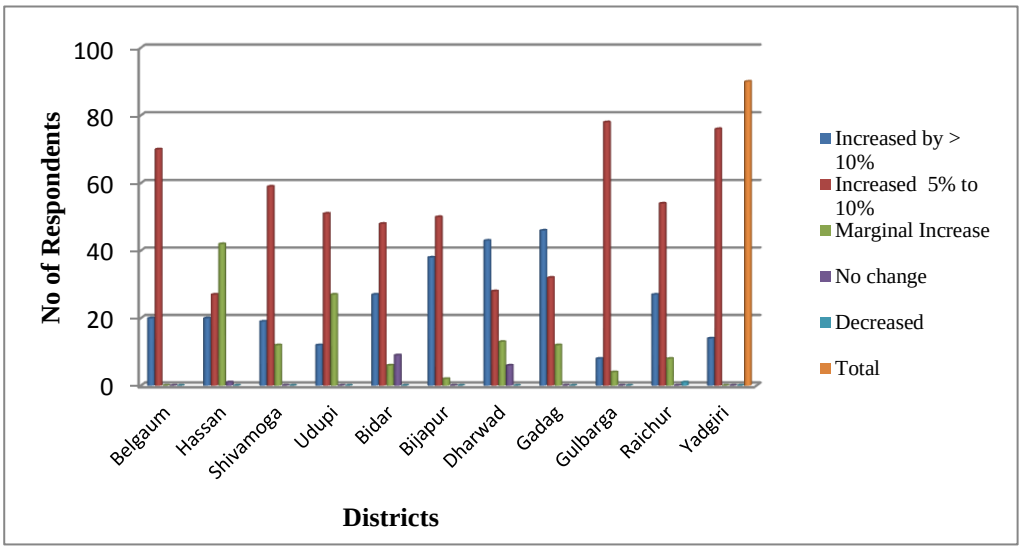
| Districts | Economic Impact | | | | | Total |
|---|---|---|---|---|---|---|
| | Increased by > 10% | Increased 5% to 10% | Marginal Increase | No change | Decreased | |
| Rice | | | | | | |
| Belgaum | 20 (22.3) | 70 (77.8) | 0 | 0 | 0 | 90 (100) |
| Hassan | 20 (22.3) | 27 (30) | 42 (46.7) | 1 (1.1) | 0 | 90 (100) |
| Shivamoga | 19 (21.2) | 59 (65.6) | 12 (13.4) | 0 | 0 | 90 (100) |
| Udupi | 12 (13.4) | 51 (56.7) | 27 (30.0) | 0 | 0 | 90 (100) |
| **Total** | **71 (19.8)** | **207 (57.5)** | **81 (22.5)** | **1 (0.3)** | **0** | **360 (100)** |
| Pulses | | | | | | |
| Bidar | 27 (30) | 48 (53.4) | 6 (6.7) | 9 (10) | 0 | 90 (100) |
| Bijapur | 38 (42.3) | 50 (55.6) | 2 (2.3) | 0 | 0 | 90 (100) |
| Dharwad | 43 (47.8) | 28 (31.2) | 13 (14.5) | 6 (6.7) | 0 | 90 (100) |
| Gadag | 46 (51.2) | 32 (35.6) | 12 (13.4) | 0 | 0 | 90 (100) |
| Gulbarga | 8 (8.9) | 78 (86.7) | 4 (4.5) | 0 | 0 | 90 (100) |
| Raichur | 27 (30) | 54 (60) | 8 (8.9) | 0 | 1 (1.1) | 90 (100) |
| Yadgiri | 14 (15.6) | 76 (84.5) | 0 | 0 | 0 | 90 (100) |
| **Total** | **203 (32.3)** | **366 (58.09)** | **45 (7.2)** | **15 (2.4)** | **1 (1.1)** | **630 (100)** |
| **Total Number of Respondents** | **274 (27.67)** | **573 (57.88)** | **126 (12.73)** | **16 (1.62)** | **1 (1.1)** | **990 (100)** |

***Source: Primary Data***

**Pulses**

The results show, 58% of the respondents had 5-10% increase in their income, followed by more than 10% income increase for 32.30% respondents and marginal increase for 7.20% respondents. About 2.40% respondents reported of no change in their income. The income benefit was about 10% more than normal due to NFSM in all districts of pulses except Gulbarga district (Table 28).

**Figure 16: Change in Income due to NFSM Interventions**




**Social Impact on the Families of NFSM Beneficiaries**:

Agriculture is the principal driving force of the Indian rural economy. The majority of the farmers are facing poverty, undernourishment, health and education problems due to low agricultural incomes. The survey findings reported that there was significant increase in the productivity of rice and pulses and consequential income level of farmers.

The survey report found 54.24% respondents gave better education with the higher income gain with the interventions of NFSM and 35.05% respondents preferred to use it for better nutritive food to their children. A segment of the beneficiaries found that the extra income has come to their rescue to meet medical expenses and also to purchase durables for better living standards. Only 5.25% farmers felt that there was no change in their livelihood (Table 29).

**Table 29: Social Impact with NFSM**

| Districts | Social Impact | | | | | Total Number of Respondents |
|---|---|---|---|---|---|---|
| | Better Education to Children | Better Medical Treatment | Better Nutritive Food | Purchased Durables | No Change | |
| **Rice** | | | | | | |
| Belgaum | 33 (36.7) | 47 (52.3) | 23 (25.6) | 5 (5.6) | 2 (2.3) | 90 (100) |
| Hassan | 15 (16.7) | 6 (6.7) | 31 (34.5) | 27 (30) | 15 (16.7) | 90 (100) |
| Shivamoga | 50 (55.6) | 19 (21.2) | 35 (38.9) | 2 (2.3) | 4 (4.5) | 90 (100) |
| Udupi | 11 (12.3) | 17 (18.9) | 42 (46.7) | 22 (24.5) | 25 (27.8) | 90 (100) |
| **Total** | **109 (30.3)** | **89 (24.8)** | **131(36.4)** | **56 (15.6)** | **46 (12.8)** | **360 (100)** |
| **Pulses** | | | | | | |
| Bidar | 42 (46.7) | 15 (16.7) | 46 (51.2) | 10 (11.2) | 0 | 90 (100) |
| Bijapur | 82 (91.2) | 1 (1.2) | 3 (3.4) | 3 (3.4) | 1 (1.2) | 90 (100) |
| Dharwad | 37 (41.2) | 14 (15.6) | 61 (67.8) | 6 (6.7) | 3 (3.4) | 90 (100) |
| Gadag | 77 (85.6) | 1 (1.2) | 9 (10) | 4 (4.5) | 0 | 90 (100) |
| Gulbarga | 37 (41.2) | 3 (3.4) | 23 (25.6) | 27 (30) | 0 | 90 (100) |
| Raichur | 69 (76.7) | 31 (34.5) | 54 (60) | 4 (4.5) | 2 (2.3) | 90 (100) |
| Yadgiri | 84 (93.4) | 13 (14.5) | 20 (22.3) | 43 (47.8) | 0 | 90 (100) |
| **Total** | **428 (68)** | **78 (12.4)** | **216(34.3)** | **97 (15.4)** | **6 (1)** | **630 (100)** |
| **Total Number of Respondents** | **537 (54.24)** | **167 (16.87)** | **347 (35.05)** | **153 (15.45)** | **52 (5.25)** | **990 (100)** |

***Source: Focus Group Discussions***

***Note: Respondents opted more than one option with regard to use of higher income and therefore the total comes to more than 90 respondents per district.***

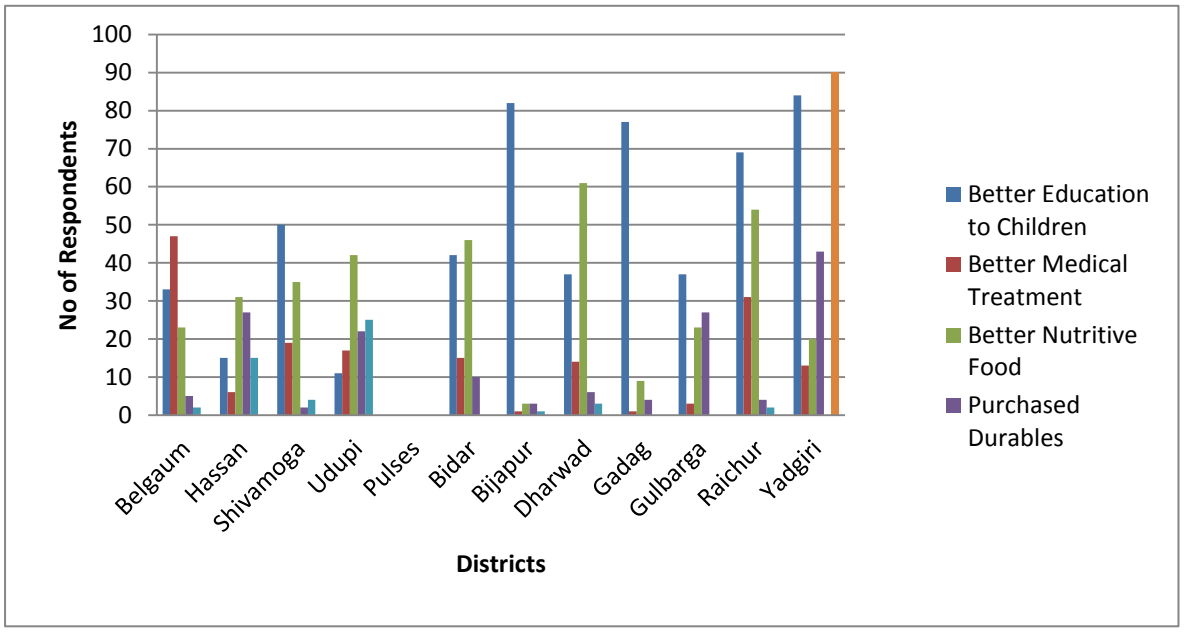
**NFSM-Rice Beneficiaries**:

The above Table 3.16 shows, 36.40% respondents used extra income for better nutritive food, followed by 30.30% used for better education and 24.80% had better medical treatments with the higher income generated with the interventions of NFSM-rice. Majority of Shimoga district farmers utilized extra income for children education and Belgaum district farmers made use of it for better medical treatment.

**Pulse Beneficiaries**:

Increased income of 68% respondents used for better education of their children followed by 34.30% for better nutritive food, 15.40% to purchase durables with the benefit of NFSM-Pulses. Most of the farmers of Bijapur, Gadag, Raichur and Yadgir utilized the extra income for their children education. A significant number of farmers of Bidar, Dharwad and Raichur went for better nutritive food for the children (Fig 17).

**Figure 17: Social Impact with NFSM**




## 10.6 Which components are in demand by the farmers?

**Major Contributors for Higher Income**:

The district wise most important inputs contributed for higher yields are given in Table 30. The seed treatment has significantly contributed for higher yields in four surveyed districts such as Bidar, Gadag, Raichur and Yadgir. The cost benefit ratio is very high as the cost of seed treatment with *Trichoderma* is very cheap as compared many other inputs used in the cultivation of pulses. The outcome of the Mission had, thus, been very positive in motivating farmers to go for low cost inputs like treating seeds before sowing to have high yields.

The next best intervention is the use of improved variety/ hybrid seeds in the enhancement of yields. Hybrid seeds in rice and high yielding variety seeds in pulses have contributed for significant yield increase.

Integrated Nutrients Management with the use of micronutrients like zinc, boron and soil ameliorate gypsum and lime have worked very well to improve soil fertility and to attain high yields in many surveyed districts.

Farm equipments contribution is also significant among NFSM beneficiaries.

**Table 30: Major inputs contributed for higher income**

| **Districts** | **Major Contributors** |
|---|---|
| **Rice** | |
| Belgaum | Hybrid Paddy Seeds |
| Hassan | Multi-crop Planter |
| Shivamoga | Hybrid Paddy Seeds |
| Udupi | Liming in acidic soils |
| **Pulses** | |
| Bidar | Seed treatment with *Trichoderma* |
| Bijapur | INM interventions with micronutrients like Zinc, Boron followed by Gypsum application. |
| Dharwad | High Yielding Variety(HYV) Seeds, Rotovators |
| Gadag | Seed treatment with *Trichoderma* |
| Gulbarga | INM interventions with micronutrients like Zinc & Boron. Gypsum application. |
| Raichur | Seed treatment with *Trichoderma* |
| Yadgiri | Seed treatment with *Trichoderma* |

***Source: Focus Group Discussions***

## 11 INTERVENTION SPECIFIC FINDINGS

### 11.1 What is the intervention specific contribution to change in yield?

The NFSM beneficiaries were inquired on various interventions under pulses and rice to elicit their opinion on impact of different components availed by them; on productivity and income. Some of the important intervention-wise aspects were brought out in this section. Since most of the interventions are common to rice and pulses, the range of percentage variations are indicated against each parameter in the analysis broadly bringing out the position under each component for a fair understanding of the ground level conditions.

During the period of 2007-08 to 2013-14, there were mainly 7 interventions such as Demonstrations, Seed Supplies, Integrated Nutrient Management (INM), Integrated Pest Management (IPM), Farm Equipments, Water Application Tools and Trainings. Table 31, indicates the financial achievements against targets for the overall performance of all the study districts put together for the entire period. The overall financial performance of all the study districts put together, Farm Equipments with the distribution of knapsack sprayers, cono-weeders, rotavators, power weeders, multi-crop threshers and seed drills were quite good with 96% achievements. The performance of water application tools in the distribution of irrigation pump sets, sprinklers, pipes etc. with 82% and demonstrations with 81% against targets were also good.

**Table 31: Intervention wise financial achievements in percentage**

| Interventions / Districts | Belgaum | Hassan | Shimoga | Udupi | Avg-rice | Bidar | Bijapur | Dharwad | Gadag | Gulbarga | Raichur | Yadgiri | Avg-pulses | Avg of GT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demonstration | 86.19 | 78.86 | 91.33 | 58.51 | 78.72 | 83.14 | 86.67 | 92.45 | 80.59 | 71.86 | 90.92 | 90.92 | 85.22 | 81.97 |
| WAT | 121.08 | 100.27 | 94.72 | 11.72 | 81.95 | 106.31 | 67.83 | 94.55 | 41.77 | 59.14 | 100.61 | 106.27 | 82.35 | 82.15 |
| FE | 80.88 | 93.46 | 100.79 | 76.1 | 87.81 | 88.70 | 88.55 | 156.78 | 108.81 | 92.97 | 97.20 | 97.20 | 104.32 | 96.06 |
| Seed Supply | 6.39 | 16.45 | 17.56 | 62.97 | 25.84 | 65.9 | 84.39 | 109.12 | 133.81 | 124.09 | 57.73 | 86.41 | 94.49 | 60.16 |
| IPM | 39.13 | 60.08 | 108.24 | 14.23 | 55.42 | 107.08 | 107.61 | 90.43 | 107.18 | 102 | 90.89 | 89.96 | 99.31 | 77.36 |
| INM | 19.87 | 53.87 | 69.06 | 30.66 | 43.37 | 62.88 | 75.51 | 39.30 | 86.09 | 48.07 | 100.21 | 101.41 | 73.35 | 58.36 |
| Training | 90.10 | 17.72 | 48.92 | 49.06 | 51.45 | 52.58 | 55.29 | 52.84 | 29.94 | 54.2 | 33.83 | 33.83 | 44.64 | 48.04 |
| Total | 57.81 | 49.1 | 80.4 | 54.98 | 60.57 | 85.35 | 89.95 | 99.32 | 111.57 | 91.58 | 87.94 | 90.43 | 93.73 | 77.15 |

Source: Department of Agriculture, Bangalore

The performance of the study districts with regard to conduct of trainings against targets allotted to them was only 48%, followed by INM with 58% for rice and pulses put together. The extent of achievements however varied among different districts for different components. Districts like Gadag Dharwad, and Shimoga achieved more than 100 percent of the set financial targets for farm equipments, water application tools and IPM. Belgaum, Hassan and Shimoga could achieve only about 10-15 percent against targets for seed distribution. The performance of all the study districts in respect of other interventions against the targets hovered around 70-80% can be considered as satisfactory in view of the nature of the activity requiring great persuasion to motivate beneficiaries.

The intervention specific contribution to productivity and other benefits were studied and reported in this unit.

**11.2 What is the impact of demonstrations in terms of yields?**

The field demonstrations have been planned under the programme with a view to reveal the potentiality of the latest technology/improved practices and its impact on the enhancement of the crop productivity. All the interviewed 990 demonstration farmers have reported that they got benefited with the use of improved package of practices like System of Rice Intensification (SRI), high yielding variety seeds, pest control, training etc. (Table 32)

The various improved technical practices in rice demonstrations such as transplanting of young seedlings of 12-15 days on singly in a space of 25 x 25 cm, using of green manure has been largely followed by majority of the sampled farmers and got better yields.

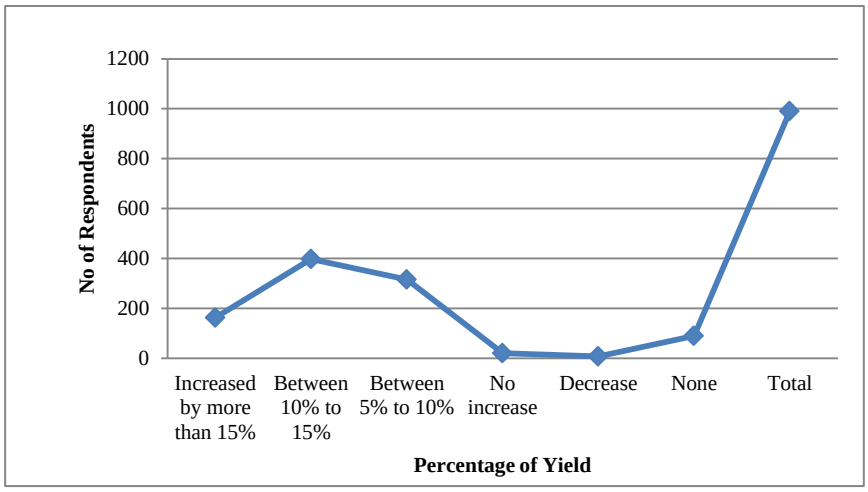
**Table 32: Impact of Demonstrations on Increase/ Decrease of Yield**

| | Districts | Increased by > 15% | Between 10% to 15% | Between 5% to 10% | No increase | Decrease | No response | Total |
|---|---|---|---|---|---|---|---|---|
| RICE | Belgaum | 18 (11.11) | 69 (17.38) | 3 (0.95) | 0 | 0 | 0 | 90 |
| | Hassan | 16 (9.88) | 23 (5.79) | 31 (9.84) | 2 (10) | 0 | 18 (20.22) | 90 |
| | Shimoga | 21 (12.96) | 25 (6.3) | 33 (10.48) | 2 (10) | 1 (14.29) | 8 (8.99) | 90 |
| | Udupi | 9 (5.56) | 21 (5.29) | 52 (16.51) | 0 | 4 (57.14) | 4 (4.49) | 90 |
| | **Total** | **64 (17.8%)** | **138 (38.4%)** | **119 (33.1%)** | **4 (1.2%)** | **5 (1.4%)** | **30 (8.4%)** | **360 (100%)** |
| PULSES | Bijapur | 23 (14.2) | 30 (7.56) | 28 (8.89) | 0 | 0 | 9 (10.11) | 90 |
| | Bidar | 21 (12.96) | 40 (10.08) | 28 (8.89) | 1 (5) | 0 | 0 | 90 |
| | Dharwad | 6 (3.7) | 48 (12.09) | 24 (7.62) | 12 (60) | 0 | 0 | 90 |
| | Gadag | 36 (22.22) | 26 (6.55) | 19 (6.03) | 0 | 1 (14.29) | 8 (8.99) | 90 |
| | Gulbarga | 0 | 31 (7.81) | 40 (12.69) | 0 | 0 | 19 (21.35) | 90 |
| | Raichur | 12 (7.41) | 18 (4.53) | 44 (13.97) | 3 (15) | 1 (14.29) | 12 (13.48) | 90 |
| | Yadgiri | 0 | 66 (16.62) | 13 (4.13) | 0 | 0 | 11 (12.36) | 90 |
| | **Total** | **98 (15.6%)** | **259 (41.2%)** | **196 (31.2%)** | **16 (2.6%)** | **2 (0.4%)** | **59 (9.4%)** | **630 (100%)** |
| | **Grand Total** | **162 (100) (16.4%)** | **397 (100) (40.1%)** | **315 (100) (31.9%)** | **20 (100) (2.1%)** | **7 (100) (0.7%)** | **89 (100) (9%)** | **990 (100%)** |

Source: Primary Data

The primary data analysis reveals that the demonstration package of practices has been found useful by an overwhelming majority of over 88.40% of the respondents with increased yields to the extent of 5 to 15% over control plots.

**Figure 18: Impact of Demonstrations on Increase/ Decrease of Yield**




Financial achievements were in the range of 80 to 95% in all sampled districts except in Udipi district.

### 11.3 What is the Impact of Improved Seeds on yield?

The HYV/improved varieties of seed and seed minikits of recently released location specific high yielding varieties were distributed to the farmers under the Mission intervention for popularization of varieties, seed multiplication and seed replacement at the farmer's field level. An overwhelming majority of respondents assessed the impact of the improved varieties of seed used by them as 'Good'. Some farmers in places like Gulbarga and Bijapur were not fully convinced to go for high yielding varieties of pulse crops due to highly adopted traditional varieties to the local weather conditions and also due to their quality that fetches better market price. Majority of districts reported of the difficulty in getting varieties less than 10 years old.

**Yield Gain**: The yield obtained by use of high yielding varieties in pulses and hybrids in rice seeds recorded a significant increase of 10 to 15% in 53% respondents fields, followed by 5 to 10% increase for 37% farmers over the traditional/old varieties. Hybrid KRG-4 replaced up to 15-20% rice cultivated area in Shimoga district. Respondents reported that the red gram productivity enhanced from 645 Kgs/ha during 2008-09 to 725 to 825 Kg/ha during 2012-13 in Yadgir district.

An overwhelming majority 78-88% of the respondents rated the impact of HYV/improved variety seeds of rice and pulses as very good with 5-15% enhanced yields. Reported more than 15% yield increase by 9.30% respondents. About 1.4% of pulse growers reported of no increase in yields (Table 33).

**Table 33: Impact of Improved Seeds on yield**

| Districts | Increased by > 15% | Between 10 to 15% | Between 5-10% | No Increase | Total |
|---|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 | 0 |
| Hassan | 3 (27.27) | 5 (7.94) | 20 (45.45) | 0 | 28 (23.53) |
| Shimoga | 5 (45.45) | 5 (7.94) | 4 (9.09) | 0 | 14 (11.76) |
| Udupi | 0 | 1 (1.59) | 3 (6.82) | 0 | 4 (3.36) |
| **Rice-Total** | **8 (17.4%)** | **11 (24%)** | **27 (58.7%)** | **0** | **46 (100%)** |
| Bijapur | 0 | 0 | 2 (4.55) | 0 | 2 (1.68) |
| Bidar | 0 | 1 (1.59) | 0 | 0 | 1 (0.84) |
| Dharwad | 2 (18.18) | 36 (57.14) | 0 | 0 | 38 (31.93) |
| Gadag | 0 | 1 (1.59) | 1 (2.27) | 0 | 2 (1.68) |
| Gulbarga | 0 | 3 (4.76) | 6 (13.64) | 0 | 9 (7.56) |
| Raichur | 1 (9.09) | 7 (11.11) | 8 (18.18) | 1 (100) | 17 (14.29) |
| Yadgiri | 0 | 4 (6.35) | 0 | 0 | 4 (3.36) |
| **Pulses-Total** | **3 (4.1%)** | **52 (71.3%)** | **17 (23.3%)** | **1 (1.4%)** | **73 (100%)** |
| **Total** | **11 (100)(9.3%)** | **63 (100)(53%)** | **44 (100)(37%)** | **1 (100)(1.4%)** | **119 (100%)** |

Source: Primary Data

### 11.4 What is the Impact on Soil Fertility Improvement with Integrated Nutrient Management (INM)?

Under NFSM, financial assistance is extended for distribution of micronutrients and liming material in acidic soils for rice, micronutrients and gypsum for salt affected soils and INM for pulses. The beneficiary farmers, by and large, all were satisfied with the quality of the micronutrients/soil ameliorants received under the NFSM interventions in the correction of micronutrients deficiencies.

An overwhelming majority of over 49.09% of respondents found the soil fertility improvement as 'good', 29.09% rated as 'satisfactory' and 21.82% rated as 'very good'. Large tracts of soils in Shimoga, Udipi and Hassan are acidic and deficient in micronutrients like zinc and boron. Application of Lime in these acidic soils gave tremendous response in the correction of soil fertility (Table 34).

The yield obtained from the gypsum treated plots under NFSM-Pulses recorded a significant increase.

**Table 34: INM Impact on Soil Fertility Improvement**

| Districts | Excellent | Very Good | Good | Satisfactory | Bad | Total |
|---|---|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 | 0 | 0 |
| Hassan | 0 | 3 (25) | 11 (40.74) | 10 (62.5) | 0 | 24 (43.64) |
| Shimoga | 0 | 4 (33.33) | 3 (11.11) | 1 (6.25) | 0 | 8 (14.55) |
| Udupi | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **0** | **7 (21.87%)** | **14 (43.75%)** | **11 (34.37%)** | **0** | **32 (100%)** |
| Bijapur | 0 | 0 | 0 | 0 | 0 | 0 |
| Bidar | 0 | 0 | 0 | 0 | 0 | 0 |
| Dharwad | 0 | 0 | 0 | 0 | 0 | 0 |
| Gadag | 0 | 1 (8.33) | 3 (11.11) | 0 | 0 | 4 (7.27) |
| Gulbarga | 0 | 0 | 3 (11.11) | 5 (31.25) | 0 | 8 (14.55) |
| Raichur | 0 | 2 (16.67) | 5 (18.52) | 0 | 0 | 7 (12.73) |
| Yadgiri | 0 | 2 (16.67) | 2 (7.41) | 0 | 0 | 4 (7.27) |
| **Total** | **0** | **5 (21.74%)** | **13 (56.52%)** | **5 (21.74%)** | **0** | **23 (100%)** |
| **Grand Total** | **0** | **12 (100) (21.82%)** | **27 (100) (49.09%)** | **16 (100) (29.09%)** | **0** | **55 (100%)** |

**Source: Primary Data**

**Yield Gain**: A large number of respondents (96.30%) used soil nutrients to improve soil fertility reported an increase of 5 to 15% yields over non-treated fields. The yield obtained by 50% respondents was 5 to 10% more than control, 40.80% respondents got 10 to 15% more yields and 5.60% reported more than 15% increase in their yields. A small segment of 3.70% respondents reported that there was 'no increase' in yields (Table 35).

**Table 35: Percentage Yield Increase due to INM**

| Districts | Increased by >15% | Between 10- to 15% | Between 5% to 10% | No increase | Decreased | Total |
|---|---|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 | 0 | 0 |
| Hassan | 1 (33.3) | 6 (27.3) | 15 (55.6) | 2 (100) | 0 | 24 (44.5) |
| Shimoga | 1 (33.3) | 4 (18.2) | 3 (11.2) | 0 | 0 | 8 (14.9) |
| Udupi | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **2 (6.3%)** | **10 (31.3%)** | **18 (56.3%)** | **2 (6.3%)** | **0** | **32 (100%)** |
| Bijapur | 0 | 0 | 0 | 0 | 0 | 0 |
| Bidar | 0 | 0 | 0 | 0 | 0 | 0 |
| Dharwad | 0 | 0 | 0 | 0 | 0 | 0 |
| Gadag | 0 | 1 (4.6) | 3 (11.2) | 0 | 0 | 4 (7.4) |
| Gulbarga | 0 | 4 (18.2) | 4 (14.9) | 0 | 0 | 8 (14.9) |
| Raichur | 1 (33.4) | 4 (18.2) | 2 (7.4) | 0 | 0 | 7 (13) |
| Yadgiri | 0 | 3 (13.7) | 0 | 0 | 0 | 3 (5.6) |
| **Total** | **1 (4.6%)** | **12 (54.6%)** | **9 (40.9%)** | **0** | **0** | **22 (100%)** |
| **Total** | **3 (100) (5.6%)** | **22 (100) (40.8%)** | **27 (100) (50%)** | **2 (100) (3.7%)** | **0** | **54 (100%)** |

Source: Primary Data

**11.5 What is the impact of Integrated Pest Management (IPM) on the pest control and yields?**

Assistance is extended for Integrated Pest Management including plant protection chemicals, bio-pesticides and weedicides to farmers for the effective management of pests in pulses and rice under NFSM.

**Table 36: Pest Control with IPM Interventions**

| Districts | Excellent | Very Good | Good | Satisfactory | Total |
|---|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 | 0 |
| Hassan | 0 | 0 | 1 (7.2) | 3 (60) | 4 (12.5) |
| Shimoga | 2 (100) | 5 (45.5) | 1 (7.2) | 0 | 8 (25) |
| Udupi | 0 | 0 | 0 | 0 | 0 |
| **Total** | **2 (16.7%)** | **5 (41.7%)** | **2 (16.7%)** | **3 (25%)** | **12 (100%)** |
| Bijapur | 0 | 1 (9.1) | 0 | 0 | 1 (3.2) |
| Bidar | 0 | 1 (9.1) | 0 | 0 | 1 (3.2) |
| Dharwad | 0 | 0 | 0 | 0 | 0 |
| Gadag | 0 | 1 (9.1) | 1 (7.2) | 0 | 2 (6.4) |
| Gulbarga | 0 | 1 (9.1) | 7 (50) | 2 (40) | 10 (31.3) |
| Raichur | 0 | 1 (9.1) | 4 (28.6) | 0 | 5 (15.7) |
| Yadgiri | 0 | 1 (9.1) | 0 | 0 | 1 (3.2) |
| **Total** | **0** | **6 (30%)** | **12 (60%)** | **2 (10%)** | **20** |
| **Total** | **2 (100)-6.30%** | **11 (100)-34.40%** | **14 (100)-43.80%** | **5 (100)-15.70%** | **32 (100%)** |

**Source: Primary Data**

The beneficiary farmers were reportedly facing weed problems mainly in rainfed rice and insect and disease problems for Pulses. A large number of the respondents satisfied with the timely supply of the quality pesticides. As many as 43.80% respondent farmers rated the results in the form of pest control as 'good' followed by 34.40% as 'very good', 6.30% as 'excellent' and the balance 15.70% rated as 'satisfactory'(Table 36).

**Impact on yield**: The yield obtained from the Integrated Pest Management (IPM) treated plots registered a considerable increase in the range of 5 to 15% over the non-treated plots. A substantial proportion of 97% of the respondents reported yield gain between 5 to 15% over non-treated plots (Table 37).

A large number of respondents reported of very good results with *Trichoderma viride* seed treatment in the control of seedlings mortality and in increasing yields.

**Table 37: Percentage Yield Increase due to IPM**

| Districts | Increased by > 15% | Between 10to 15% | Between 5% to 10% | No increased | Decreased | Total |
|---|---|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 | 0 | 0 |
| Hassan | 0 | 2 (14.28) | 2 (11.76) | 0 | 0 | 4 (12.5) |
| Shimoga | 1 (100) | 3 (21.43) | 4 (23.53) | 0 | 0 | 8 (25) |
| Udupi | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **1 (8.4%)** | **5 (41.7%)** | **6 (50%)** | **0** | **0** | **12 (100%)** |
| Bijapur | 0 | 0 | 1 (5.88) | 0 | 0 | 1 (3.13) |
| Bidar | 0 | 1 (7.14) | 0 | 0 | 0 | 1 (3.13) |
| Dharwad | 0 | 0 | 0 | 0 | 0 | 0 |
| Gadag | 0 | 1 (7.14) | 1 (5.88) | 0 | 0 | 2 (6.25) |
| Gulbarga | 0 | 5 (35.71) | 5 (29.41) | 0 | 0 | 10 (31.25) |
| Raichur | 0 | 1 (7.14) | 4 (23.53) | 0 | 0 | 5 (15.63) |
| Yadgiri | 0 | 1 (7.14) | 0 | 0 | 0 | 1 (3.13) |
| **Total** | **0** | **9 (45%)** | **11 (55%)** | **0** | **0** | **20 (100%)** |
| **Total** | **1 (100) (3.2%)** | **14 (100) (43.8%)** | **17 (100) (53.2%)** | **0** | **0** | **32 (100%)** |

**Source: Primary Data**

### 11.6 Is there any Cost Saving with Water Application Tools usage?

The pump sets and pipes supplied to the rice and pulse growers has created considerable additional irrigation facilities. The use of sprinkler sets supplied to the farmers cultivating rice and pulses had water saving. The water use efficiency increased.

**Table 38: Cost Saving with Water Application Tools**

| District | Cost Reduction > 15% | Between 10 to 15% | Between 5 to 10% | No Decrease | Total |
|---|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 | 0 |
| Hassan | 0 | 10 (45.5) | 4 (33.4) | 1 (100) | 15 (36.6) |
| Shimoga | 1 (16.7) | 2 (9.1) | 3 (25) | 0 | 6 (14.7) |
| Udupi | 1 (16.7) | 0 | 0 | 0 | 1 (2.5) |
| **Total** | **2 (9.1%)** | **12 (54.6%)** | **7 (31.9%)** | **1 (4.6%)** | **22 (100%)** |
| Bijapur | 2 (33.4) | 1 (4.6) | 3 (25) | 0 | 6 (14.7) |
| Bidar | 0 | 0 | 0 | 0 | 0 |
| Dharwad | 0 | 0 | 0 | 0 | 0 |
| Gadag | 0 | 1 (4.6) | 0 | 0 | 1 (2.5) |
| Gulbarga | 0 | 7 (31.9) | 2 (16.7) | 0 | 9 (22) |
| Raichur | 0 | 0 | 0 | 0 | 0 |
| Yadgiri | 2 (33.4) | 1 (4.6) | 0 | 0 | 3 (7.4) |
| **Total** | **4 (21.1%)** | **10 (52.7%)** | **5 (26.4%)** | **0** | **19 (100%)** |
| **Total** | **6 (100)(14.7%)** | **22 (100)(53.7%)** | **12 (100)(29.3%)** | **1 (100)(2.5%)** | **41 (100%)** |

Source: Primary Data

A large section of 53.70% farmers reported that they were in a position to reduce 10-15% cost on labour, followed by 29.30% respondents cost reduction to the extent of 5-10% and 14.70% respondents had more than 15% cost saving. Only about 2.50% reported that there was no cost saving (Table 38).

**Table 39: Usefulness of Tools Supplied under NFSM**

| Districts | Excellent | Very Good | Good | Satisfactory | Total |
|---|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 | 0 |
| Hassan | 0 | 9 (42.86) | 3 (21.43) | 3 (75) | 15 (36.58) |
| Shimoga | 0 | 4 (19.05) | 2 (14.28) | 0 | 6 (14.63) |
| Udupi | 0 | 1 (4.76) | 0 | 0 | 1 (2.44) |
| **Total** | **0** | **14 (63.7%)** | **5 (22.8%)** | **3 (13.7%)** | **22 (100%)** |
| Bijapur | 0 | 5 (23.81) | 1 (7.14) | 0 | 6 (14.63) |
| Bidar | 0 | 0 | 0 | 0 | 0 |
| Dharwad | 0 | 0 | 0 | 0 | 0 |
| Gadag | 0 | 1 (4.76) | 0 | 0 | 1 (2.44) |
| Gulbarga | 0 | 1 (4.76) | 8 (57.14) | 0 | 9 (21.95) |
| Raichur | 0 | 0 | 0 | 0 | 0 |
| Yadgiri | 2 (100) | 0 | 0 | 1 (25) | 3 (7.32) |
| **Total** | **2 (10.6%)** | **7 (36.9%)** | **9 (47.4%)** | **1 (5.3%)** | **19 (100%)** |
| **Total** | **2 (100)(4.9%)** | **21 (100)(51.3%)** | **14 (100)(34.2%)** | **4 (100) (9.8%)** | **41 (100%)** |

Source: Primary Data

A majority of 51.30% beneficiary farmers rated the usefulness of tools as 'very good' followed by rating of 'good' by 34.20% and excellent by 4.90% beneficiaries. The balance 9.80% beneficiaries rated as 'satisfactory' (Table 39).

As many as 46.40% reported of 5 to 10% water saving followed by 41.50% respondents 10 to 25% saving and 12.20% respondents with more than 25% water use efficiency (Table 40).

**Table 40: Water Use Efficiency with Water Application Tools**

| Districts | Saving of more than 25% | Between 10% to 25% | Between 5% to 10% | Total |
|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 |
| Hassan | 1 (20) | 12 (70.59) | 2 (10.53) | 15 (36.59) |
| Shimoga | 1 (20) | 1 (5.88) | 4 (21.05) | 6 (14.63) |
| Udupi | 1 (20) | 0 | 0 | 1 (2.44) |
| **Total** | **3 (13.7%)** | **13 (59.1%)** | **6 (27.3%)** | **22 (100%)** |
| Bijapur | 0 | 0 | 6 (31.58) | 6 (14.63) |
| Bidar | 0 | 0 | 0 | 0 |
| Dharwad | 0 | 0 | 0 | 0 |
| Gadag | 1 (20) | 0 | 0 | 1 (2.44) |
| Gulbarga | 0 | 3 (17.65) | 6 (31.58) | 9 (21.95) |
| Raichur | 0 | 0 | 0 | 0 |
| Yadgiri | 1 (20) | 1 (5.88) | 1 (5.26) | 3 (7.32) |
| **Total** | **2 (10.6%)** | **4 (21.1%)** | **13 (68.5%)** | **19 (100%)** |
| **Total** | **5 (100)(12.2%)** | **17 (100)(41.5%)** | **19 (100)(46.4%)** | **41 (100%)** |

Source: Primary Data

### 11.7 What is the impact of Farm Equipments on cost saving in NFSM beneficiaries?

The Mission provides assistance to the farmers for acquiring various agricultural equipments such as knap sack sprayer, rotavators, zero tiller, multicrop planter, seed drill, power weeder, combined harvester, paddy transplanter, thresher etc.

Tillers, mechanical sprayers, weeders, transplanters have contributed significantly in the mechanization of farming in all selected villages, particularly in the labour shortage districts like Shimoga, Udipi, Belgaum and Hassan.

**Impact of Farm Equipments**: The farm mechanization had a positive effect on the farming operations of the respondents in the form of increased income and productivity and also on the comfort level of the farmers. The use of farm equipments had brought savings both in time and money to the beneficiary farmers over the traditional method. Apart from savings in time and expenditure, the use of farm equipments has also ensured timely farming operations. The farm equipments supplied under the Mission also had a demonstration affect on the other farmers to inspire some of them to adopt the same.

**Table 41: Cost Saving with Farm Equipments**

| Districts | Cost of Saving > 15% | Between 10 to 15% | Between 5 to 10% | Total |
|---|---|---|---|---|
| Belgaum | 3 (20) | 2 (9.09) | 0 | 5 (8.2) |
| Hassan | 4 (26.67) | 11 (50) | 9 (37.5) | 24 (39.34) |
| Shimoga | 2 (13.33) | 2 (9.09) | 3 (12.5) | 7 (11.47) |
| Udupi | 3 (20) | 0 | 0 | 3 (4.92) |
| **Total** | **12 (30.8%)** | **15 (38.5%)** | **12 (30.8%)** | **39 (100%)** |
| Bijapur | 0 | 1 (4.54) | 1 (4.17) | 2 (3.28) |
| Bidar | 0 | 1 (4.54) | 0 | 1 (1.64) |
| Dharwad | 0 | 0 | 0 | 0 |
| Gadag | 2 (13.33) | 0 | 0 | 2 (3.28) |
| Gulbarga | 0 | 3 (13.64) | 6 (25) | 9 (14.75) |
| Raichur | 1 (6.67) | 2 (9.09) | 5 (20.83) | 8 (13.11) |
| Yadgiri | 0 | 0 | 0 | 0 |
| **Total** | **3 (13.7%)** | **7 (31.82%)** | **12 (54.6%)** | **22 (100%)** |
| **G Total** | **15 (100)(24.6%)** | **22 (100)(36.1%)** | **24 (100)(39.4%)** | **61 (100%)** |

Source: Primary Data

The study revealed a cost saving of more than 15% for 24.60% respondents, 10-15% for 36.10% respondents and about 10% with 39.40% farmers of both rice and pulses due to the use of farm equipments as compared to traditional methods of operations for the same work. All beneficiaries of farm equipments are satisfied with the quality and usefulness of equipments supplied under the scheme except one farmer in Hassan district (Table 41).

Diesel pump sets and rotavators have more demand in Belgaum district. Transplanters, reapers, customized harvesters, drum seeders are popular in Udipi district due to labor shortage for different operations.

### 11.8 Is there any impact of Trainings on yield?

The Training component is an important and effective extension tool for transfer of technology at the grass root level. An overwhelming majority of 90% respondents expressed their satisfaction with the quality of training, 75% satisfied with the involvement of subject experts, and 80% satisfied with the quality of training materials provided.

Training programs conducted in a season were ranging from 1 to 4. Large number of farmers expressed that they need more number of training programs before season starts. Every respondent informed that the training programs were useful and it has contributed for higher yields.

**Table 42: Impact of Trainings on Yield**

| Districts | Increased by > 15% | Between 10 to 15% | Between 5 to 10% | Total |
|---|---|---|---|---|
| Belgaum | 0 | 0 | 0 | 0 |
| Hassan | 0 | 1 (6.7) | 1 (6.7) | 2 (6.3) |
| Shimoga | 1 (50) | 2 (13.4) | 4 (26.8) | 7 (21.9) |
| Udupi | 0 | 0 | 3 (20) | 3 (9.4) |
| **Total** | **1 (8.4%)** | **3 (25%)** | **8 (66.7%)** | **12 (100%)** |
| Bijapur | 0 | 0 | 0 | 0 |
| Bidar | 0 | 1 (6.7) | 0 | 1 (3.2) |
| Dharwad | 0 | 0 | 0 | 0 |
| Gadag | 0 | 0 | 0 | 0 |
| Gulbarga | 0 | 6 (40) | 3 (20) | 9 (28.2) |
| Raichur | 1 (50) | 1 (6.7) | 4 (26.8) | 6 (18.8) |
| Yadgiri | 0 | 4 (26.8) | 0 | 4 (12.5) |
| **Total** | **1 (5%)** | **12 (60%)** | **7 (35%)** | **20 (1005)** |
| **Total** | **2 (100)(6.3%)** | **15 (100)(46.9%)** | **15 (100)(46.9%)** | **32 (100%)** |

Source: Primary Data

The yield obtained from the trainings registered a considerable increase in the range of 5 to 15% over the non-beneficiaries. All the respondents reported of increase in yields due to training programs (Table 42).

## 12. DISTRICT WISE-FINDINGS AND CONCLUSIONS

### A. Rice

#### 12.1 What are District wise physical and financial achievements?

The physical targets for sampled districts for the period 2007-08 to 2013-14 were fixed to **5,50,942** units out of which **3,86,346** has been covered (Table 43 and Fig 19 & 20). The Targets and achievements of selected districts for the financial outlay were Rs. **52.66** crore and Rs. **33.58** crore respectively. The overall physical and financial achievements were 70.12 and 63.77 percent respectively. The extent of achievements however, varied among different districts. Districts like Shimoga achieved 88.83 and 80.40 percent physical and financial respectively. Belgaum could achieve 65.89% physical and 57.81% financial targets. Udipi achieved 53.19% physical and 54.98% financial targets. Hassan could achieve only 55.13% and 49.09% physical and financial targets.

**Table 43: Rice-Selected Districts Targets and Achievements**

| Districts | Physical (Units) | | Percentage | Financial (Lakhs in Rs.) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievement | | Target | Achievement | |
| Belgaum | 137965 | 90910 | 65.89 | 1536.05 | 888.066 | 57.81 |
| Hassan | 153449 | 84592.10 | 55.13 | 1186.21 | 582.27 | 49.09 |
| Shimoga | 204231 | 181428 | 88.83 | 1925.26 | 1547.97 | 80.4 |
| Udupi | 55297 | 29416 | 53.19 | 619.03 | 340.32 | 54.98 |
| **Rice Total** | **550942** | **386346.05** | **70.12** | **5266.55** | **3358.63** | **63.77** |

**Source: Department of Agriculture, Karnataka**

Shimoga district achievements for both physical and financial were highest as compared to other districts.

**Figure 19: Rice- Selected Districts Physical Targets & Achievements**

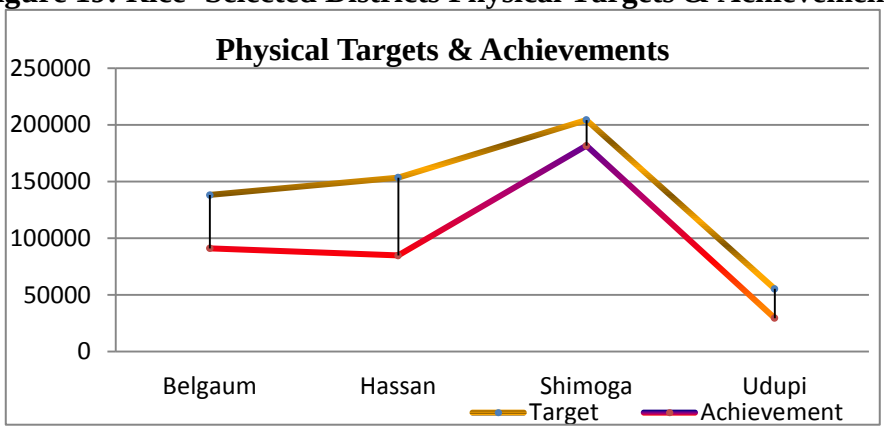
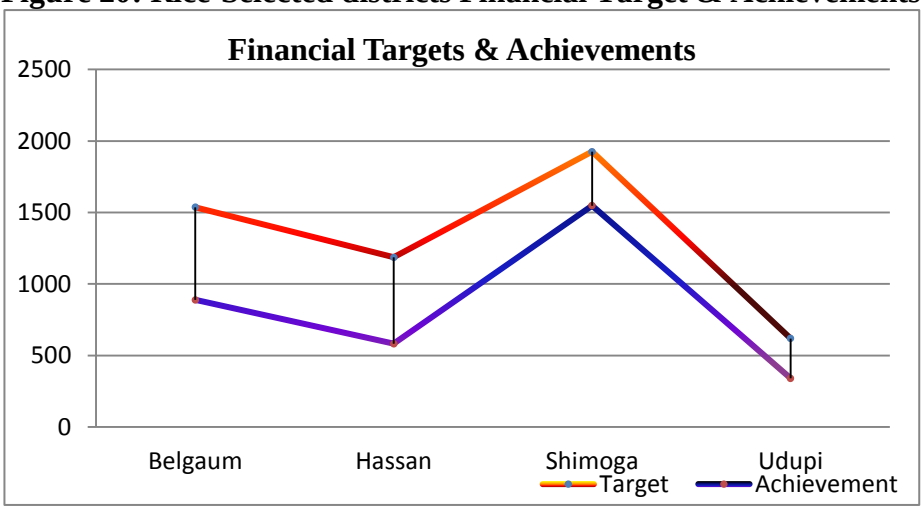


**Figure 20: Rice-Selected districts Financial Target & Achievements**




**Source: Generated from Progress Reports, Department of Agriculture**

The district wise physical and financial achievements, demographic and socio-economic characteristics, execution/implementation and impact on the extent of improvement in area, yields, income and social benefits were studied and reported in this unit.

## I. UDUPI

### 12.2 What is the impact of NFSM implementation in Udipi District?

In Udupi district agriculture is the main occupation with more than 80% of population. Out of the total land area of 929 sq kms only 40% of land is used for agriculture. Rest is either forest land or land unsuitable for agriculture. Paddy is the main crop raised by 75% of the cultivated area in Kharif season. The other crops are chilly, sweet potato, ginger and vegetables. In Rabi season, paddy, chillies, black gram and green gram are raised. Plantation crops include coconut, cashew nut, areca nut and pepper. Cardamom is also grown in land close to Western Ghats. There is a sizeable acreage of waste land both cultivable as well as fallow waste land that can be effectively used if proper irrigation system is provided.

### 12.3 What are achievements against targets of Udipi district (2007-08 to 2013-14)?

The overall physical and financial achievements were 53.19 & 54.98 percent respectively. The extent of achievements however, varied for different interventions. An area of 2118 ha covered under demonstrations (2007-08 to 2013-14) against targeted 1918 ha. The targets and achievements for financial outlay were Rs. 70.14 lakh and Rs.40.71 lakh respectively. Water application tools achievements were 12.16 and 11.72 percent physical and financial respectively. Farm equipments physical achievements were 193.19% but financial achievements were only 76.10%. Seed supply achievement percent of the set physical and financial targets were 55.97 and 62.97 respectively. Integrated Pest Management (IPM) achievements were only 14.25 percent of physical and 14.23 percent of the financial targets.

Other interventions such as Integrated Nutrient Management (INM) and training could achieve 36.03% and 66.67% of their physical targets (Table 44, Fig 21 & 22).

**Table 44: Udupi-Physical and Financial Targets & Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (Rs. In Lakhs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievement | | Target | Achievement | |
| Demonstration | 1918 | 2118 | 110.43 | 70.14 | 40.716 | 58.51 |
| WAT | 255 | 31 | 12.16 | 25.5 | 2.989 | 11.72 |
| FE | 4452 | 8601 | 193.19 | 268.68 | 204.473 | 76.1 |
| Seed Supply | 17075 | 9557 | 55.97 | 65.285 | 41.112 | 62.97 |
| IPM | 10530 | 1501 | 14.25 | 52.65 | 7.49 | 14.23 |
| INM | 21013 | 7572 | 36.03 | 128.05 | 39.263 | 30.66 |
| Training | 54 | 36 | 66.67 | 8.73 | 4.283 | 49.06 |
| Total | 55297 | 29416 | 53.196 | 619.035 | 340.326 | 54.98 |

Source: Progress Reports of the Department of Agriculture, Karnataka

Water Application Tools (WAT) and Integrated Pest Management (IPM) achievements have fallen short of the set targets.

**Figure 21: Udupi- Financial Targets and Achievements**

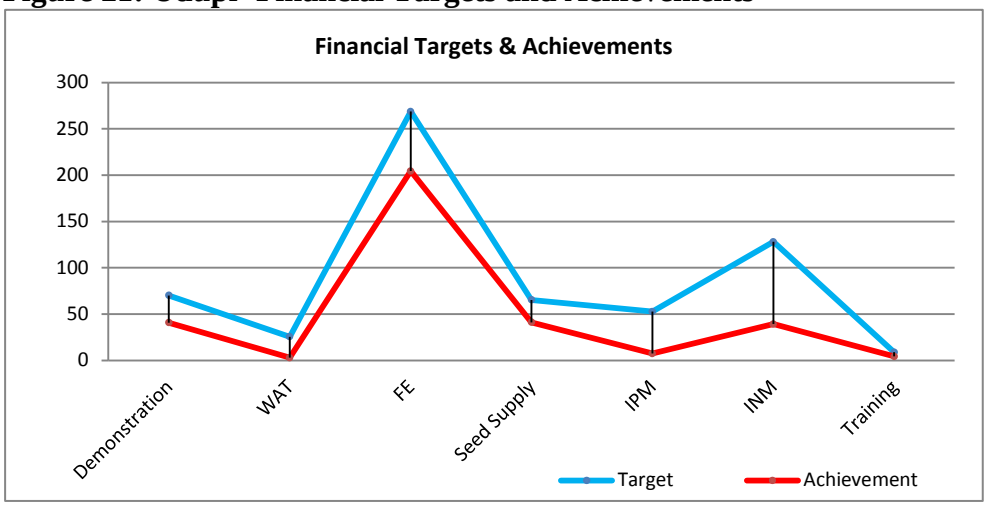
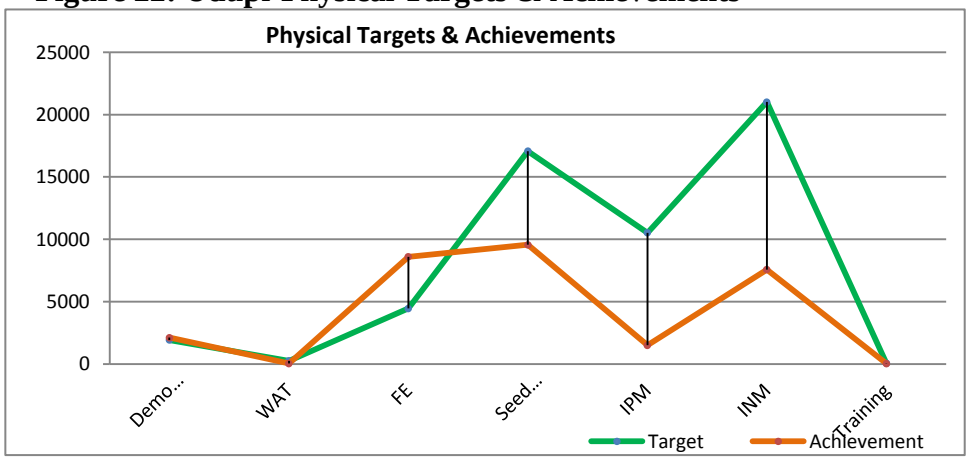



**Figure 22: Udupi-Physical Targets & Achievements**




Source: Generated from Progress Reports

Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan. The purpose of analyzing the profiles of different respondents and deriving the findings was to evaluate the overall impact created by the scheme.

**12.4 What are Demographic and Socio-Economic Characteristics of Udipi beneficiaries?**

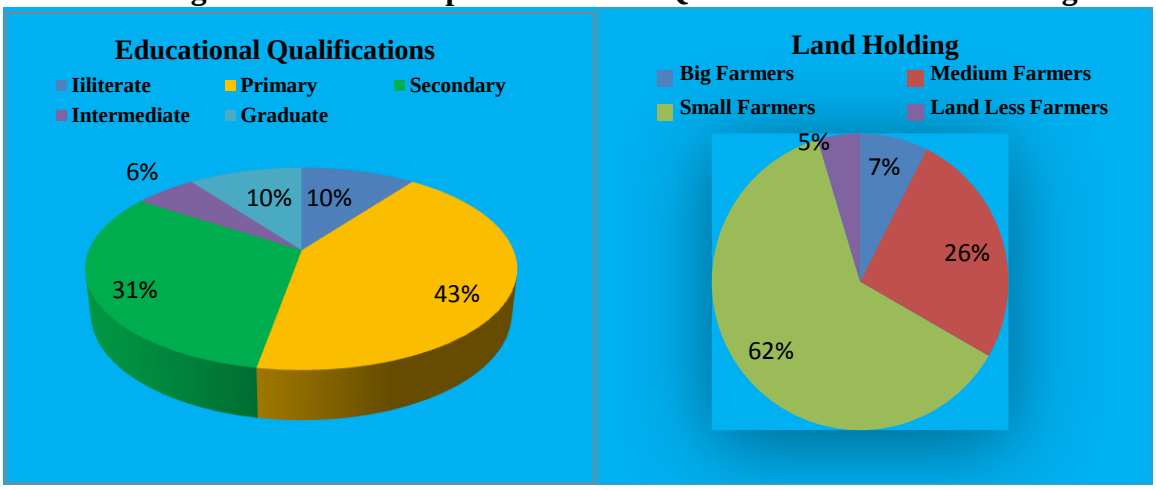
**Gender**: The role of the women in agriculture is significant for conducting different farm activities like sowing, weeding, harvesting etc. The proportion of male among the sampled respondents is 70 percent and the remaining 30 percent female.

**Age**: The majority of the respondents 82.40% are in the age group of above 40 years, followed by 13% in the age of 35-40 years and 4.6% in the age of 25-35 years.

**Categories of Farmers**: The NFSM scheme was extended to all the categories of the farmers and 72.22% of the respondents selected for the present study are from OC/General Caste followed by 12.20% BC category, 8.3% ST and 7.4% minorities. It shows, the coverage of different categories of farmers selected for primary survey in various villages under study were able to provide the benefits of NFSM scheme to all the categories of the farmers.

**Educational Status**: Education plays an important role in the development and the same is true for the NFSM scheme. Therefore, the education status of sampled farmers both beneficiaries and non-beneficiaries was enquired. This information is summarized in Figure 23 below.

**Figure 23 & 24: Udupi -Educational Qualification & Land Holding**




From the Figure, 43% of the sample respondents are of primary school educated followed by 31% secondary school educated, 10% graduates, 6% completed Intermediate and the remaining 10% illiterate.

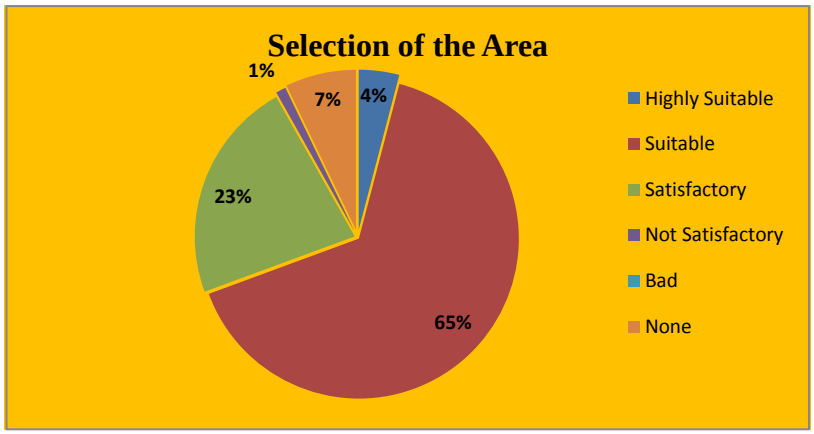
**Land Holding**: The sampled farmers were categorized into four categories based on their land holdings such as small and marginal farmers with 2 hectares, medium with 2-10 hectares, large above 10 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding have been presented in the Figure 24 for both beneficiaries and

non-beneficiaries. The above Figure reveals that the proportion of small and marginal farmers were highest with 62%, followed by 26%, 7% and 5% medium, big and lease holding category respectively. Among them 86% were cultivating only on rain fed and the remaining under irrigation facilities. Annual income of 41.70% of them was Rs 25,000 to 50,000 followed by 35.20% of them with less than Rs 25,000. The remaining respondents' income found to be more than Rs 50,000 per annum.

**12.5 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area and Beneficiaries:** From the study, 65.30 percent respondents reported that the selection of area under various interventions was done on the basis of its suitability, followed by 22.40 percent respondents opinion of satisfactory, 4.10 percent highly suitable, and one percent not satisfactory as given in the Figure 25.

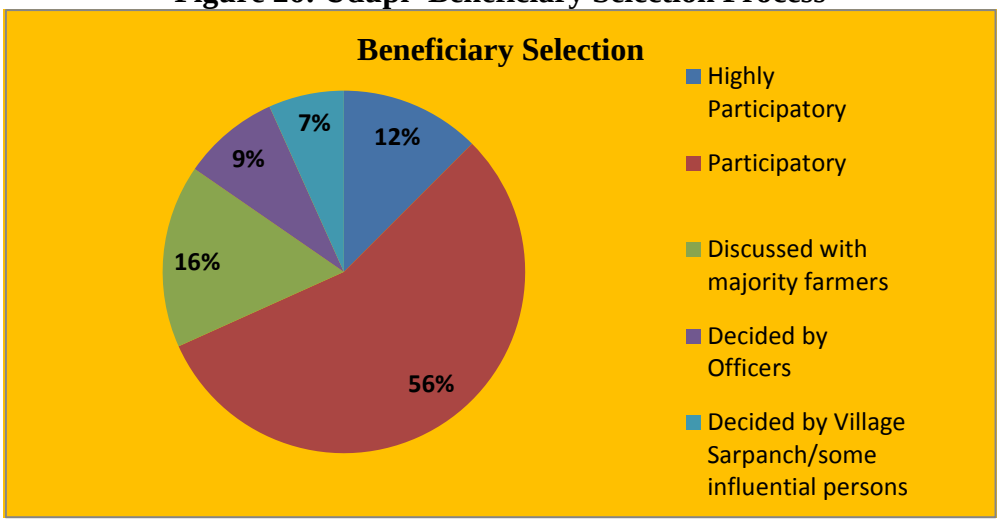
**Figure 25: Udupi -Selection of the area**




As shown in Figure 26, the study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in villages (56%), followed by 16% discussed with majority farmers, 12% highly participatory and 9% observed that it was decided by officers.

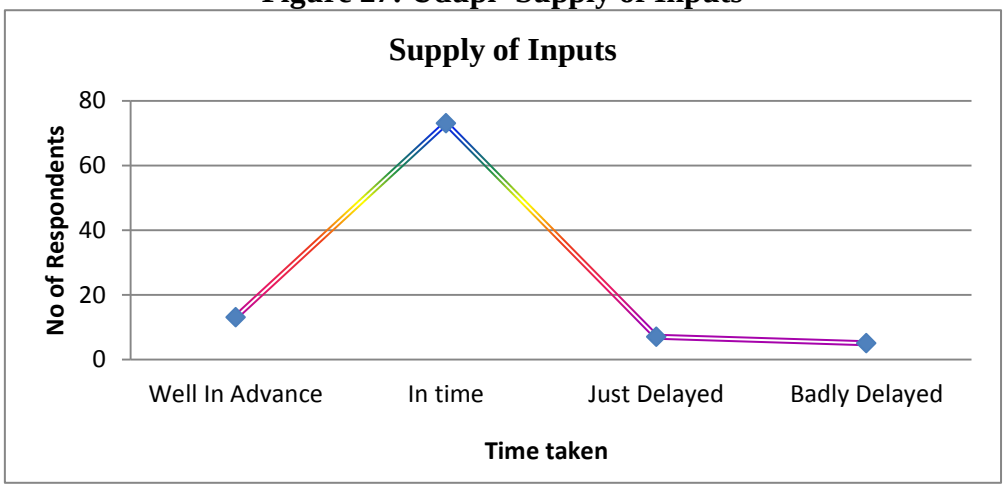
The Pachayat Raj Institutions were involvement and rating of 'good' by 57% respondents, 'satisfactory' by 31% respondents, and the balance 9% reported excellent.

**Figure 26: Udupi -Beneficiary Selection Process**




**Inputs supply**: The timely availability of inputs like seeds, fertilizers, pesticides etc. to farmers is one of the critical aspects for enhancing productivity. Proper planning for timely availability of inputs and advance tie-up with manufacturers and suppliers is essential for facilitating early procurement and supply. From the Figure 27, it is evident that, 74.5% of the respondents have given highest rating 'in time' with reference to the supply of inputs/materials, followed by 13.30% respondents rating of 'well in advance'. Only 7.10% reported of just delayed and 5% response was badly delayed.

**Figure 27: Udupi- Supply of Inputs**




***Source: Primary Data***

**Technical support**: The study reveals that 63.30% of the total respondents rated 'good' in the technical support got from the department of agriculture, followed by 16.30% rating of 'very good', 16.30% as 'satisfactory' and 1% rated 'excellent' service. It indicates that the respondents were happy with technical support (Table 28).

**Figure 28: Udupi-Technical Support**

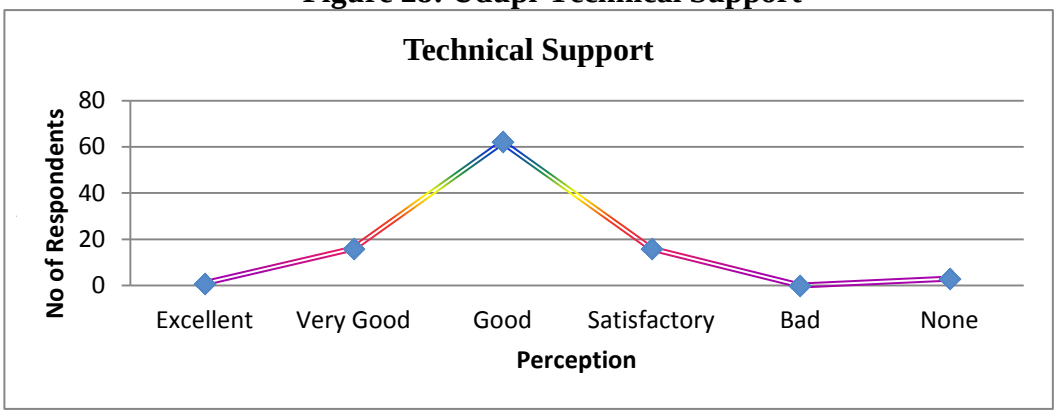



Figure 29: **Udupi-Involvement of Subject Experts**

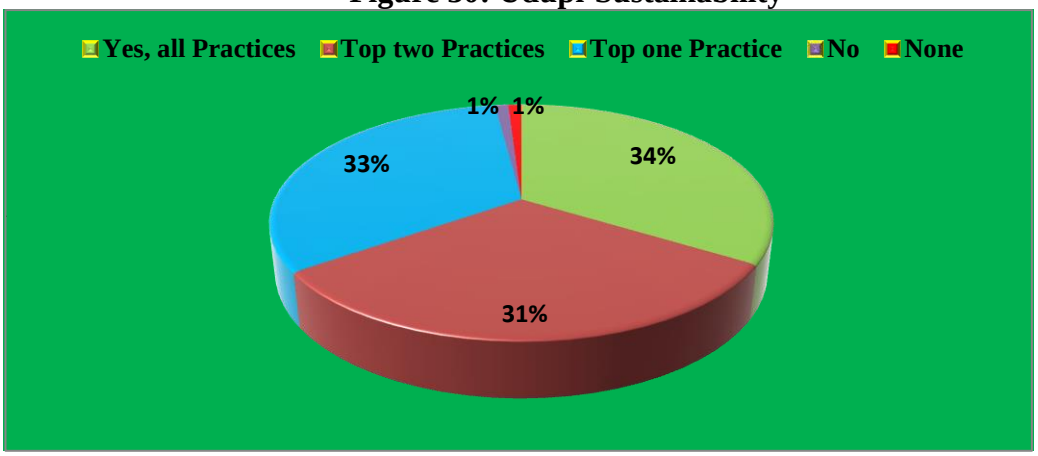

**Involvement of Subject Experts**:

From the Figure 29, majority of the respondents (43%) gave rating 'satisfactory' followed by 40% rated 'good', 7% rated 'very good' and 2% gave 'excellent'. However, 8% of the respondents felt that the involvement of subject experts was bad in the implementation of NFSM.

**12.6 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries of Udipi District?**

**Sustainability of technology**: Continuity of practices is an indication of its sustainability and the survey reveals 34% would continue all recommended practices. Further, 32% each will continue with the top one practice and two practices. 1% expressed that they don't continue the recommended practices and another 1% has not decided (Fig 30).

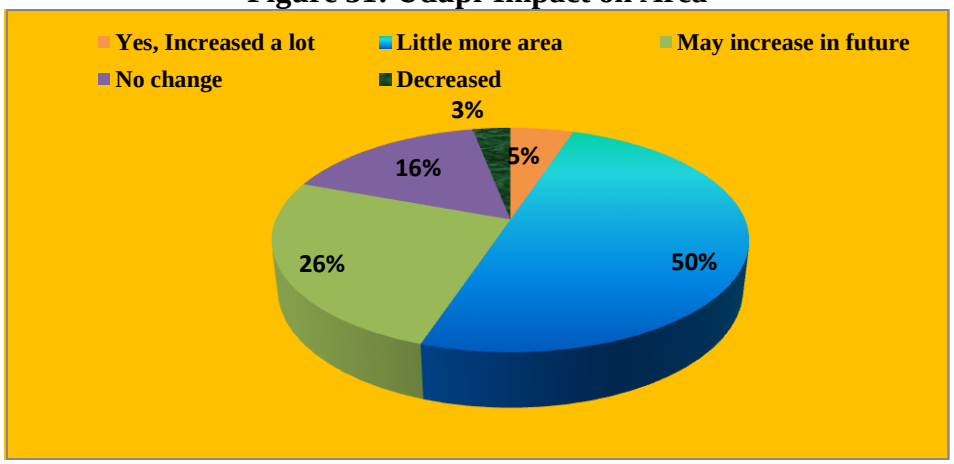
**Figure 30: Udupi-Sustainability**




***Source: Primary Data***

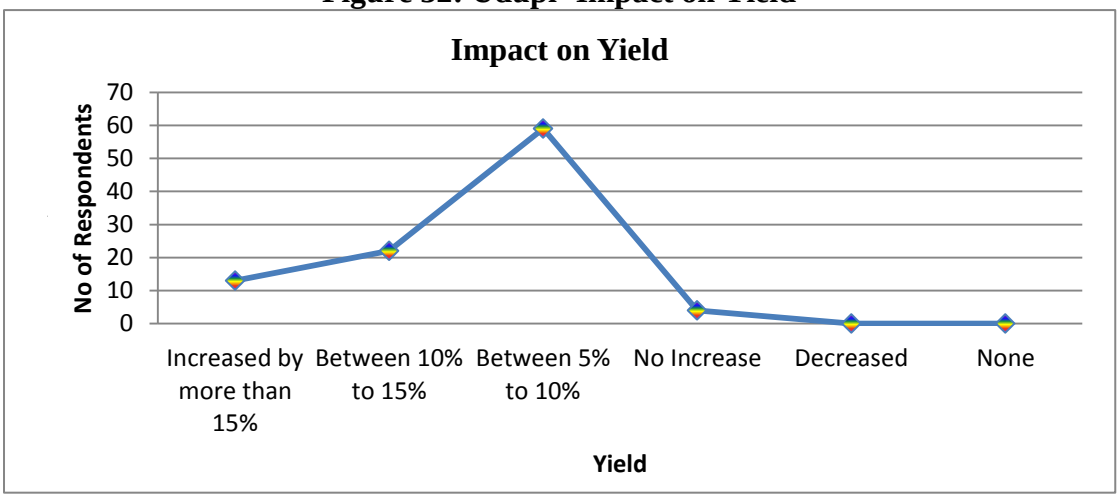
**Increase/ Decrease of area**: One of the major objectives of the scheme is that the area under rice should increase with increased productivity through improved technology adoption. The survey indicated 50% of the sample respondents rating on the increased area was "little more' followed by 25.50% of respondents' opinion of 'may increase in future'. Only 5% of them informed that the area under rice has increased a lot. About 16% found that there was no increase in area. The remaining 3% opined that the area decreased due to other remunerative crops (Fig 31).

**Figure 31: Udupi-Impact on Area**




**Increase/ Decrease of yields**: The major objective of the mission is to increase the yields of rice with the interventions. NFSM has generated benefits to the farmers in terms of enhancement of the productivity. The survey findings revealed that there was significant increase in the productivity of rice. From the Figure 32, it is evident that the increase in the yields due to NFSM interventions was 5-10% for 60% of the sample respondents, followed by 10-15% increase for 22% farmers, more than 15% for 13% beneficiaries. The opinion of about 4% was of no increase in the yields.

**Figure 32: Udupi- Impact on Yield**

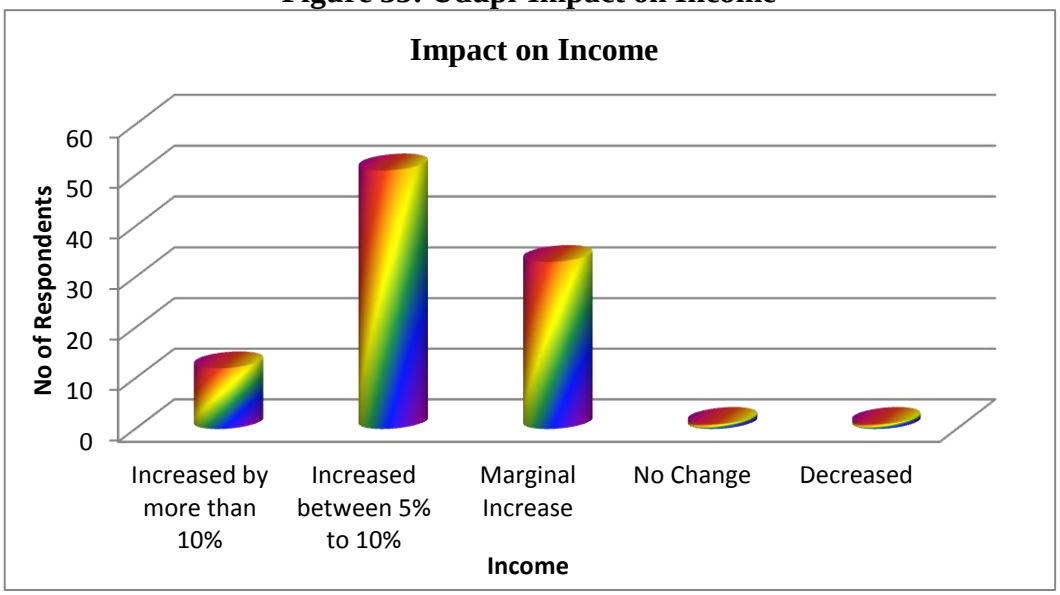



***Source: Primary Data***

**Non-beneficiaries**: The non-beneficiary farmers had mixed responses for not adopting the scheme such as lack of awareness and not selected by the department officers. About 50 percent of the respondents reported that their yields were less than NFSM beneficiaries and the balance 50% respondents yields were at par with NFSM beneficiaries.

**Economic Impact**: NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income was higher on beneficiary farms. The majority 52% respondents reported of 5-10% increase in their income, followed by 34% reported marginal increase in income. The response of 12% respondents was that their income increase due to NFSM interventions was more than 10%. There was also 1% each who experienced of no change in income and decreased income (Fig 33).

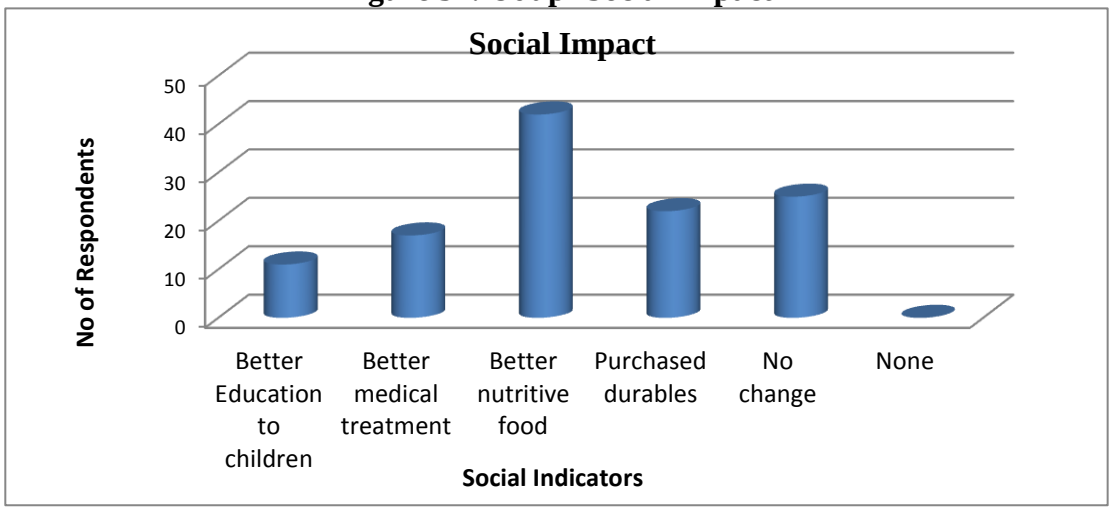
**Figure 33: Udupi-Impact on Income**




**Social Impact:** Agriculture is the principal driving force of the Indian rural economy. The majority of the farmers are facing poverty, undernourishment, health and education problems

due to low agricultural incomes. The survey findings reported that there was significant increase in the productivity of rice and consequential income level of farmers. The survey report found 43% respondents were getting better nutritive food, 22% purchased durables like motorcycle, refrigerator etc. Further, 17% had better medical treatment and 11% of the respondents children were getting better education. A section of 25% respondents opined that it has not brought any improvement in their living conditions (Fig 34).

**Figure 34: Udupi-Social Impact**




**Focus group** discussion brought out an observation that the migrations have declined due to better yields and income.

As far as non-beneficiaries are concerned 70% of them were not aware of new technologies used by NFSM beneficiaries and wanted to get benefited with NFSM scheme.

**12.7 What are major contributors for enhanced production and income in Udipi district?**

Soil acidity occurs naturally in high rainfall areas like in the case of Udupi district that receives about 4,570 mm rainfall annually. The only way to reverse soil acidification is to raise the pH through the application of agricultural lime to the soil. Majority of the respondents felt that the best gain from NFSM was the Lime application. Further, use of zinc and boron improved soil fertility and productivity.

Large number of the respondents considered line sowing of SRI cultivation, direct seeding with Drum Seeders were other value added inputs got under NFSM.

**12.8 How much convergence NFSM had with other schemes in Udipi District?**

It was reported of having convergence of Mission interventions with different schemes of the State level programmes such as Bhoochetana, ATMA, Soil Enrichment, Farm Mechanization, Micro Irrigation, Karnataka Seed Mission etc.

**12.9 What are Forward and Backward Linkages of the Scheme in Udipi District?**

Department has been providing market information on prevailing prices and Minimum Support Price (MSP). Farmers are connected to input supplying agencies like KSSC, KSCMF & Private Seed Companies, Farm Machinery Suppliers and Micro Irrigation system agencies.

**12.10 What are constraints in implementing the scheme and suggestions for improvement of programme?**

**Problems**: Wild animals menace is the serious problem in Udipi district mainly with monkeys, bison and peacocks. Many farmers are not having land registration in their name and therefore not getting eligibility for subsidies under different schemes of the Government.

**Suggestions**: Some of the beneficiaries have expressed that they have not received inputs in time and suggested that the inputs to be supplied in time. There was a request from many farmers to supply more quantities of hybrid paddy and green manure seeds.

## II. SHIMOGA (SHIVAMOGA)

Shimoga lies between the latitudes 13°27' and 14°39' North and between the longitudes 74°38' and 76°04' East at a mean altitude of 640 meters above sea level. It is bordered on the East by Davanagere district, South by the Chickmagalur district, West by the Udupi and North-Canara districts and on the North by Haveri and Davanagere districts.

Shimoga district falls under agriculture zone 7 and 9. Zone 7 consists of Shimoga, Bhadravati and Shikaripura talukas while zone 9 has Sagar, Thirthahally, Hosanagar and Sorab talukas. Annual normal rainfall of the district is 1805.5 mm. South-West monsoon starts normally from 2nd week of June and peak precipitation occur during July and August months. Kharif is the main cropping season in the district and paddy is major food crop, which occupies about 70% of the cultivable area, followed by cotton and maize. Coconut, ragi, pepper, areca nut and sugarcane are also grown. Total cultivable area under agriculture crops is 1.85 lakh hectares. Around 0.30 lakh hectare is covered during summer, out of which 0.26 lakh hectares is irrigated by Bhadra, Gondi & Tunga and remaining area under tanks. About two-thirds of the area is under cereals, pulses and oilseeds.

**12.11 What are achievements against targets of Shimoga District?**

The overall physical and financial achievements were very good with 88.83 and 80.40 percent respectively. The extent of achievements for farm equipments was excellent with 383.88% physical and 100.79% financial. An area of 5,247 ha was covered against the physical targets of 3,960 ha under demonstrations. Achievements were almost at par with targets even with

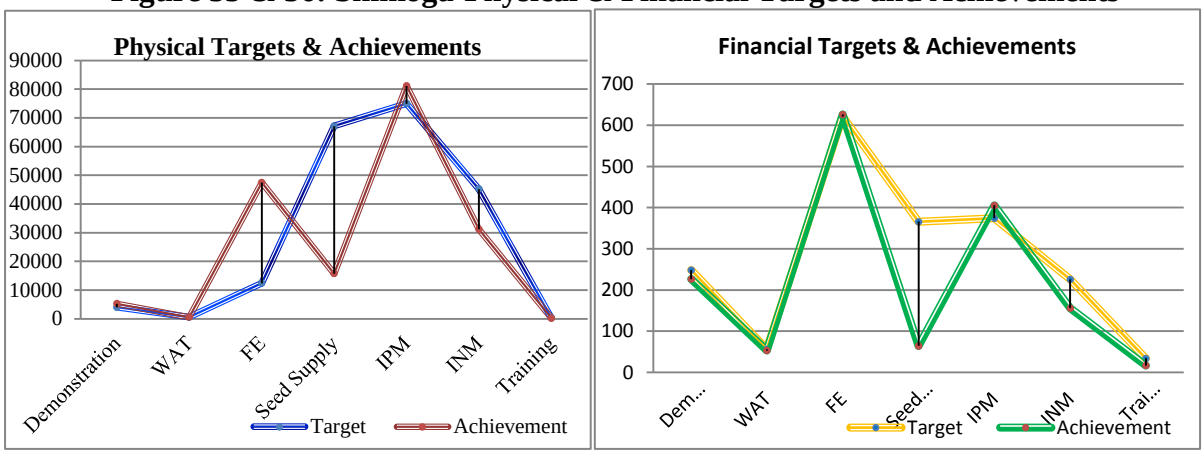
other interventions except in case of seed supplies that was only 23.47 percent physical and 17.56 percent financial (Table 45, Fig 35 & 36).

**Table 45: Shimoga- Physical and Financial Targets and Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (Rs. In Lakhs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievement | | Target | Achievement | |
| Demonstration | 3960 | 5247 | 132.5 | 247.93 | 226.43 | 91.33 |
| WAT | 561 | 541 | 96.43 | 56.1 | 53.14 | 94.72 |
| FE | 12366 | 47470 | 383.88 | 621.33 | 626.25 | 100.79 |
| Seed Supply | 67058 | 15738 | 23.47 | 365.74 | 64.24 | 17.56 |
| IPM | 74923 | 81099 | 108.24 | 374.61 | 405.49 | 108.24 |
| INM | 45147 | 31171 | 69.04 | 225.68 | 155.85 | 69.06 |
| Training | 216 | 162 | 0.75 | 33.87 | 16.57 | 48.92 |
| Total | 204231 | 181428 | 88.83 | 1925.26 | 1547.97 | 80.4 |

Source: Department of Agriculture

**Figure 35 & 36: Shimoga-Physical & Financial Targets and Achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan. The purpose of analyzing the profiles of different respondents and deriving the findings was to evaluate the overall impact created by the scheme.

**12.12 What are Demographic and Socio-Economic Characteristics?**

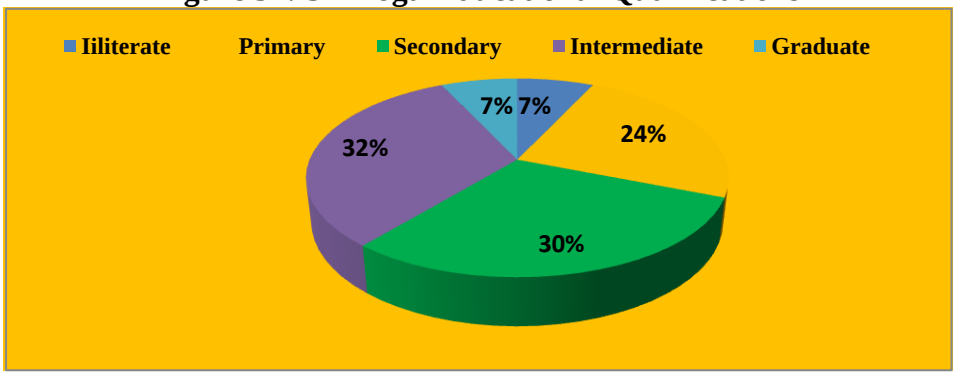
**Gender:** The proportion of male among the sampled respondents are 87 percent and the remaining female.

**Age**: The majority of the respondents are more than 35 years old. About 43% in the age group of 35-40 years and 41% are more than 40 years. Further, 11% were in the age group of 30-35 years, 4% of 25-30 years and 1% of 18-25 years old.

**Categories of Farmers**: The NFSM scheme is extended to all the categories of the farmers and 54% of the respondents selected for the present study are from OC/General category followed by 32% BC, 11% SC, 2% ST and 1% minorities. It shows, the coverage of different categories of farmers selected for primary survey in various villages under study were able to provide the benefits of NFSM scheme to all the categories of the farmers.

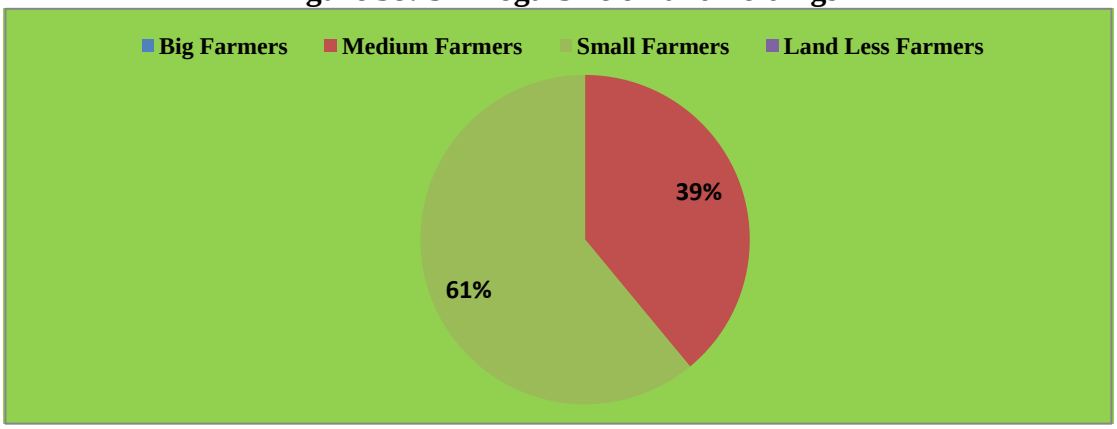
**Educational Status**: Education plays an important role in the development and the same is true for the NFSM scheme. Therefore, the education status of sampled farmers both beneficiaries and non-beneficiaries was enquired. This information is summarized in Figure 35 below.

**Figure 37: Shimoga-Educational Qualifications**




From the Figure (37), 32% of the sample respondents are intermediate educated, followed by 30% secondary school educated, 24% primary school educated, 7% graduates and the remaining 7% illiterate.

**Figure 38: Shimoga-Size of land holdings**



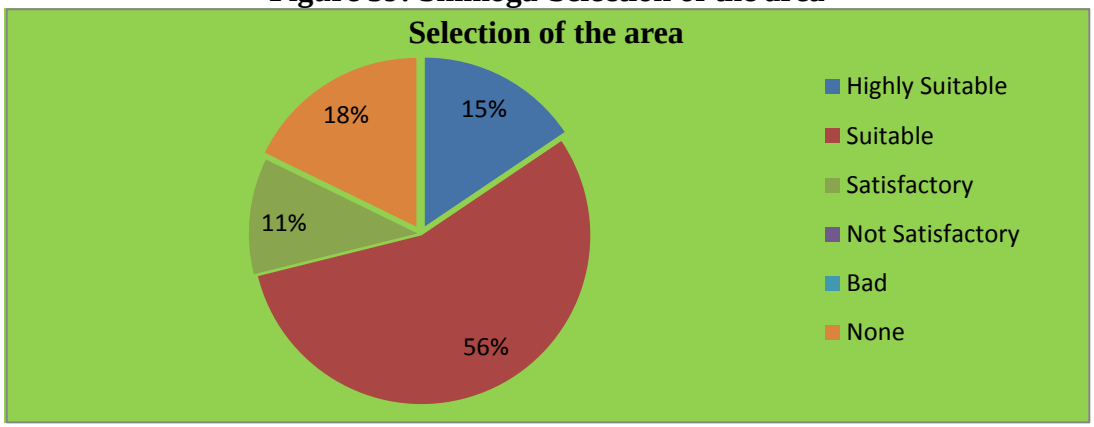

**Land Holding**: The sampled farmers were categorized into four groups based on their land holding such as small and marginal farmers with less than 2 hectares, medium between 2-10 hectares, large above 10 hectares and landless leaseholders. The results on distribution of farmers according to their land holding have been presented in the Figure 38 for both beneficiaries and non-beneficiaries. The above Figure reveals that the major 61% respondents are small farmers and the remaining medium farmers.

Annual income of 33% of them was Rs 25,000 to 50,000 followed by 31% of them having income ranging from Rs 50,000 to Rs 75,000. Further 21% of the respondents' income was less than Rs 25,000 per annum. The income of the balance 15% was Rs 75,000 to 1,00,000 per annum.

**12.13 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

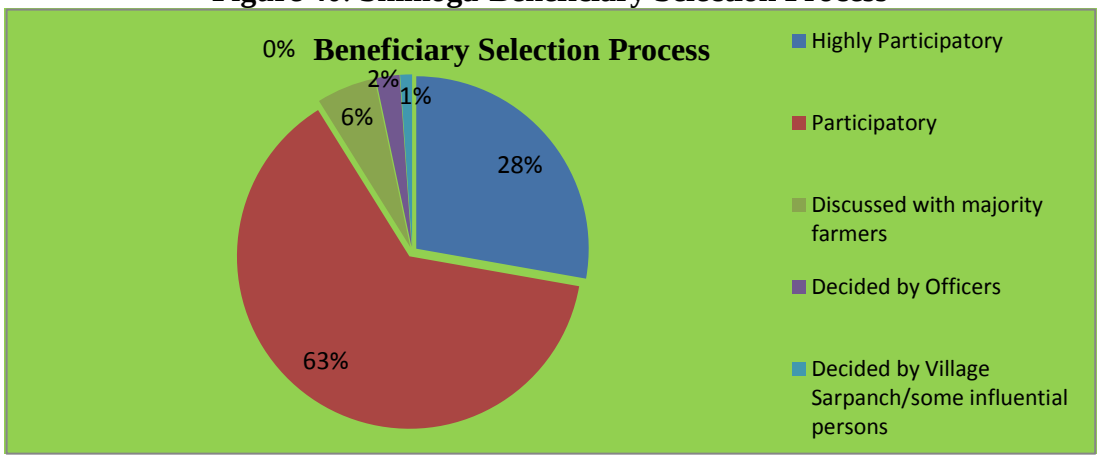
**Selection of Area**: From the study, 55.60 percent respondents reported that the selection of area under various interventions was done on the basis of its suitability, 15.60 percent respondents' response was 'highly suitable' and 11.10% indicated 'satisfaction'. Balance 17.80 percent has not responded (Fig 39).

**Figure 39: Shimoga-Selection of the area**



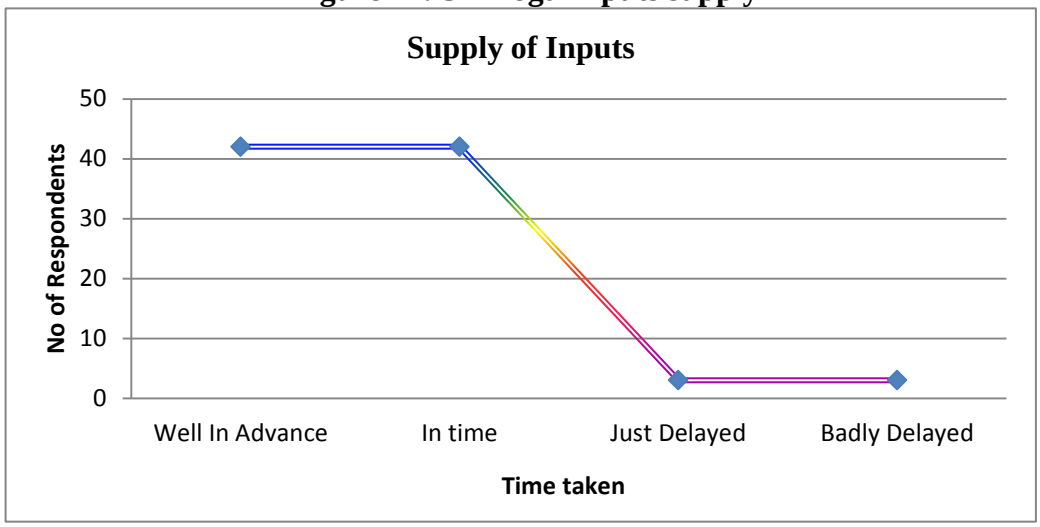

**Selection of Beneficiaries**: The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in villages. Majority 63.30% respondents opinioned that the selection was on participatory mode, 27.80% response 'highly participatory', 5.6% opined 'discussed with majority of farmers', 2.20% felt 'decided by officers' and 1.10% think 'decided by Village Panchayat Sarpanch or some other influential persons' (Fig 38).

**Figure 40: Shimoga-Beneficiary Selection Process**



**Inputs supply:** The timely availability of inputs like seeds, fertilizers, pesticides etc. to the farmers is one of the critical aspects for enhancing productivity. Proper planning for timely availability of inputs and advance tie-up with manufacturers and suppliers is essential for facilitating early procurement and supply. The survey reveals 46.70% each reported inputs were supplied 'in advance' and 'in time'. The balance 3.30% each opined of 'just delayed' and 'badly delayed'(Fig 41).

**Figure 41: Shimoga-Inputs supply**

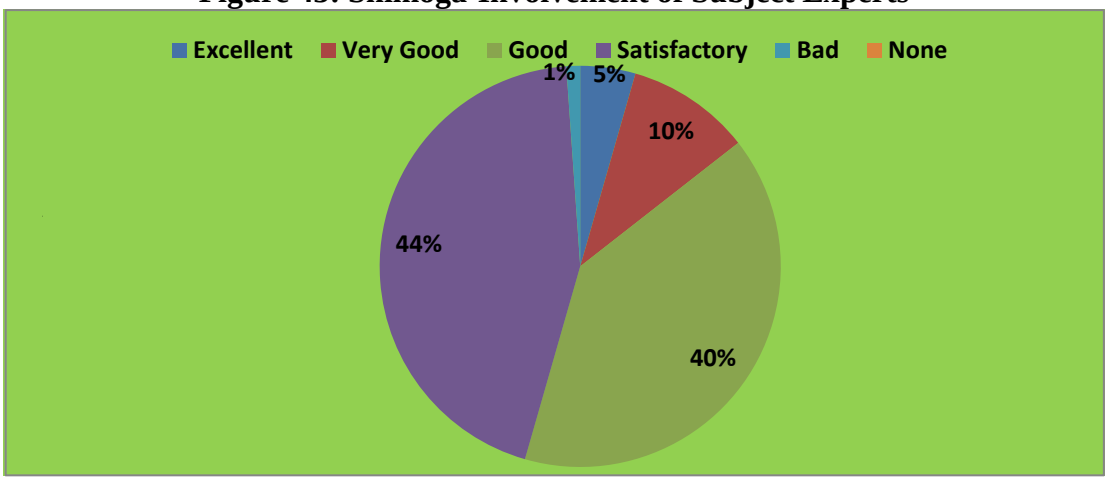



**Technical support:** The study reveals 45.60% of the total respondents rated 'very good' on the technical support given by the department of agriculture, 25.60% rated 'excellent', 22.20% rated 'good' and 5.60% 'satisfactory'. The balance 1.10% felt technical service was bad (Fig 42).

**Figure 42: Shimoga-Technical Support**


**Involvement of Subject Experts:** From the Figure 43, majority of the respondents (44%) gave rating of 'satisfactory' on the involvement of subject experts, 40% gave 'good', 10% 'very good' and 4.40% 'excellent'. The remaining 1.10% of the respondents felt that the involvement of subject experts was 'bad' in the implementation of NFSM.

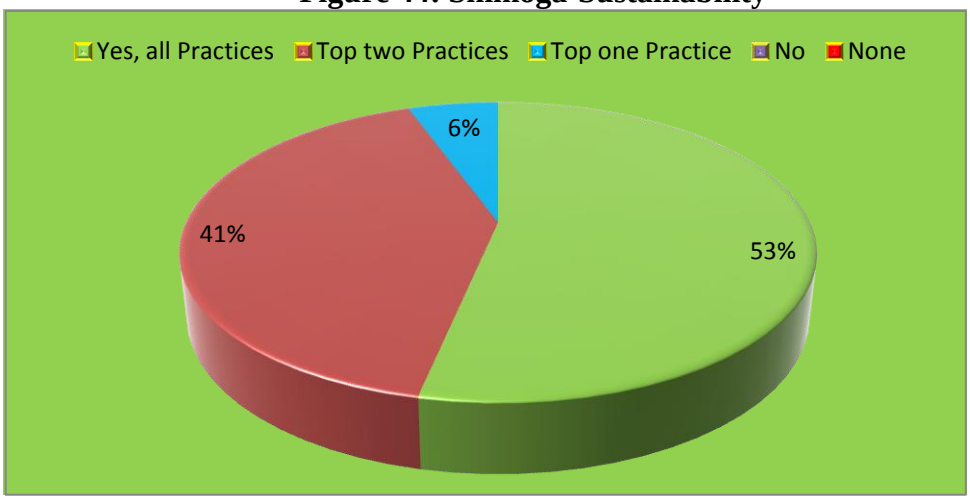
**Figure 43: Shimoga-Involvement of Subject Experts**




**12.14 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

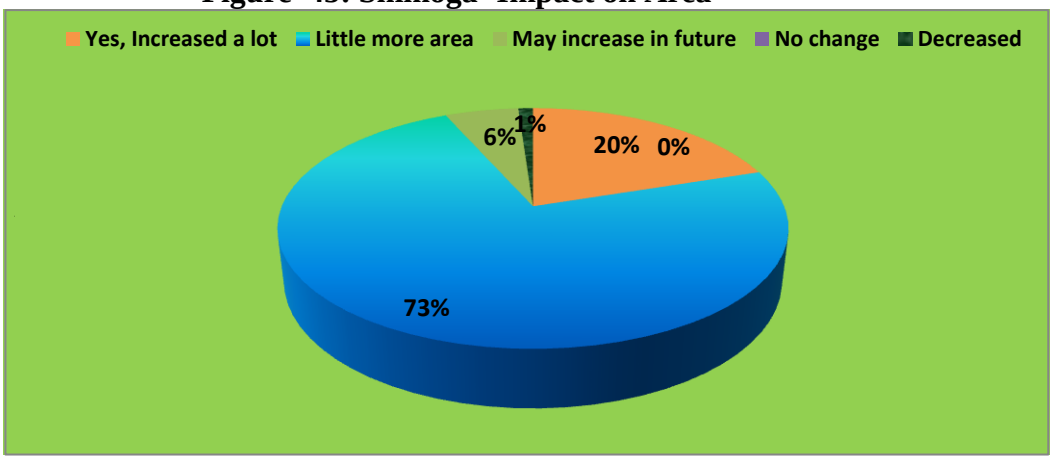
**Sustainability of technology**: Continuity of practices is an indication of its sustainability and the survey reveals 53.30% will continue all recommended practices, 41.10% to practice most important top 2 practices and 5.60% continue prime one practice only (Fig 44).

**Figure 44: Shimoga-Sustainability**




**Increase/ Decrease of area:** One of the major objectives of the scheme is that the area under rice should increase with increased productivity through improved technology adoption. The survey indicated 73.30% of the sample respondents gave rating of increase was "little more area" followed by 20.00% of respondents' opinion 'increased a lot' and 5.60% believe the area decreased under rice (Fig 45).

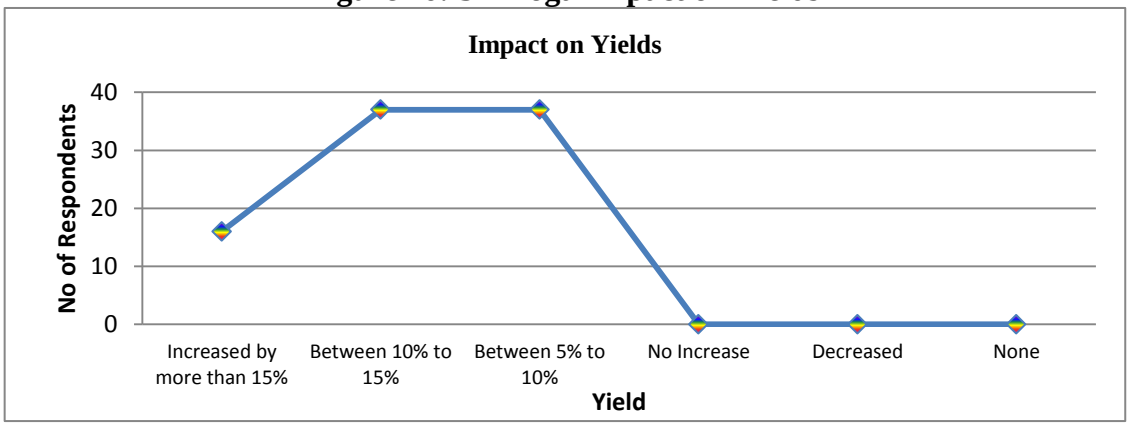
**Figure 45: Shimoga- Impact on Area**




**Increase/ Decrease of yield:** The major objective of the mission is to increase the yields of rice with the NFSM interventions. NFSM has generated benefits to the farmers in terms of enhancement of the productivity. The survey findings revealed that there was significant increase in the productivity of rice. From the Figure 46, it is evident that for the majority 82.20% respondents yields were 5-15%. About 41.10% each respondent's yields increased to 10-15% and 5-10% respectively. The balance 17.80% respondents' yields were more than 15%.

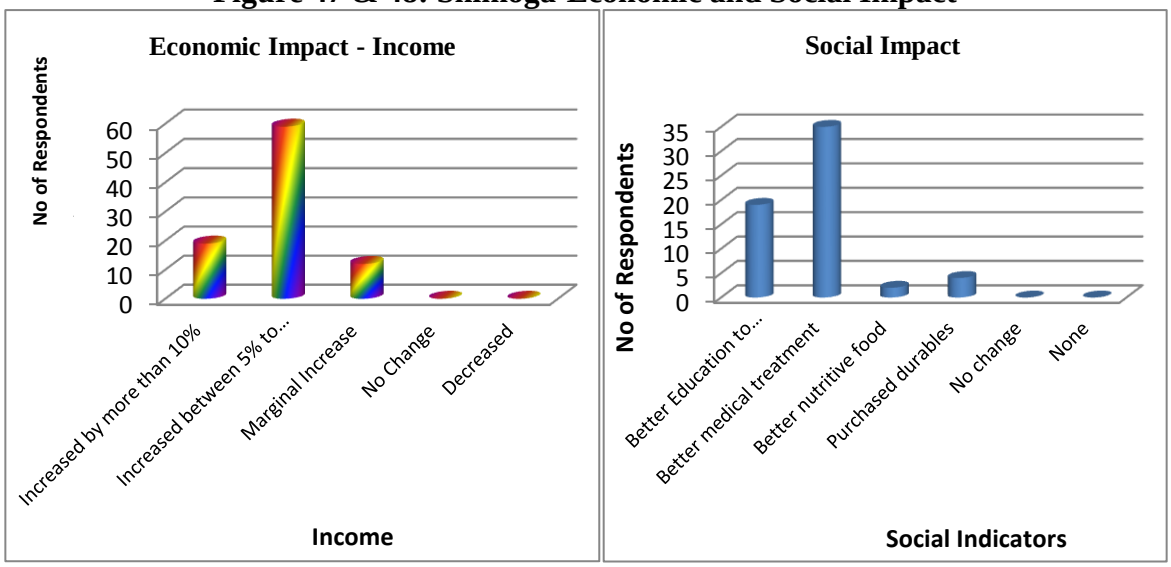
**Non-beneficiaries**: The opinion of 60% non-beneficiary farmers' yields were at par with beneficiaries, 30% non-beneficiaries yields were less than beneficiaries and it was far less yields for the balance 10% non-beneficiaries.

**Figure 46: Shimoga-Impact on Yields**




**Economic Impact**: NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income was higher for beneficiaries. The majority 65.60% respondents reported of 5-10% increase in their income, 21.10% got more than 10% increase in their income. There was a marginal increase for 13.30% respondents (Fig 47).

**Figure 47 & 48: Shimoga-Economic and Social Impact**




**Social Impact:** The survey findings reported that there was significant increase in the productivity of rice and consequential income level of farmers. The survey reports, 55.60% respondents could afford better education to their children, 38.90% used higher income for better nutritive food, 21.20% got better medical treatment and 2.30% purchased durables. About 4.60% respondents opined that they have not seen any change.

Focus group discussion brought out an observation that there was an increased employment, reduced migrations, more area brought under irrigation and better education to children due to NFSM interventions (Fig 48).

**Non-beneficiaries**: Many non-beneficiaries expressed that they were not aware of new technologies used by NFSM beneficiaries and wanted to get benefited with NFSM scheme.

**12.15 What are major contributors for enhanced production and income?**

**Major contributors:** Hybrid paddy, line planting and machine transplantation, green manure seed, farm machinery, micronutrients mainly zinc and boron gave significant results in the improvement of productivity. *Rice hybrid – Arize-6444 of Bayer Crop Science was getting popular with assured high yields.*

**12.16 What are constraints in implementing the scheme and suggestions for improvement of programme?**

**Problems:**

**i) Pests**: Bacterial Leaf Blight disease in rice crop was causing considerable yield loss (20-60%) annually especially in Kharif season.

**ii) Marketing Problems**: Farmers were getting Rs 1000 per quintal market price at the time of harvesting during the month of November. The Minimum Support Price (MSP) procurement operations starts only during January. Small farmers are major sufferers as they can't keep until

January for better price. Agricultural Produce Market Committee (APMC) payments are usually take long time and the payments are made only in the month of May. iii) Pesticide supplies were getting delayed. iv) Seed shedding in hybrids is the major problem. Rice stacks of hybrids are not relished fodder for cattle. vi) Hybrid KRG-4 is good but seed availability is a limitation.

**Suggestions:** There is a large demand for Guttar Rocking sprayers at 50% subsidy and the same may be incorporated in the scheme.

Many farmers have suggested to include tarpaulin in the scheme to protect their harvest from sudden rains as many farmers have no storage facilities. A large number of farmers wanted the supply of high yielding hybrid seeds like KRH 4 in large areas.

**III. Hassan**

Hassan district is lying between 12° 13´ and 13° 33´ North latitudes and 75° 33´ and 76 º 38´ East longitudes. The greatest length of the district, from South to North, is about 129 kilometers, and its greatest breadth, from East to West, is about 116 kilometers. The geographic area of the district of Hassan is 6845 square kilometers. The population is 15.67 lakh and the average rainfall is about 1031 mm annually.

Hassan district is situated at southern part of the state comprising of 8 blocks. The entire district comes under 4 Agro climatic zones namely, Central dry zone, Southern dry zone, Southern transitional zone and Hilly zone. Arasikere taluk comes under Central dry zone, Channarayapatna taluk comes under Southern dry zone, Holenarsipur, Arkalgud, Alur and Belur comes under Southern transitional zone, where as Sakleshpur taluk comes under Hilly zone. The district has 8 taluks, 38 hoblies & 2369 villages. The total cultivable area of the district is 4.48 lakh ha of which 79% of the area is under rain fed agriculture. The four reservoir projects in Kaveri basin Hemavathi, Harangi, Vatehole & Yagachi supports irrigation to the extent of 46,672 ha in Hassan district.

The major crops grown here are paddy, sugarcane, ragi, pulse, maize, tobacco, coffee, black pepper, potato etc.

**12.17 What are physical and financial achievements against targets?**

The overall physical and financial achievements were 55.13 and 49.09 percent respectively. The area covered under demonstrations was 3047 ha against the targeted 3065 ha for the period of 2007-08 to 2013-14. For the same intervention, the targets and achievements for financial outlay were Rs. 88.30 lakh and Rs.69.63 lakh respectively. Water application tools achievements were 126.39 and 100.27 percent physical and financial respectively. Farm

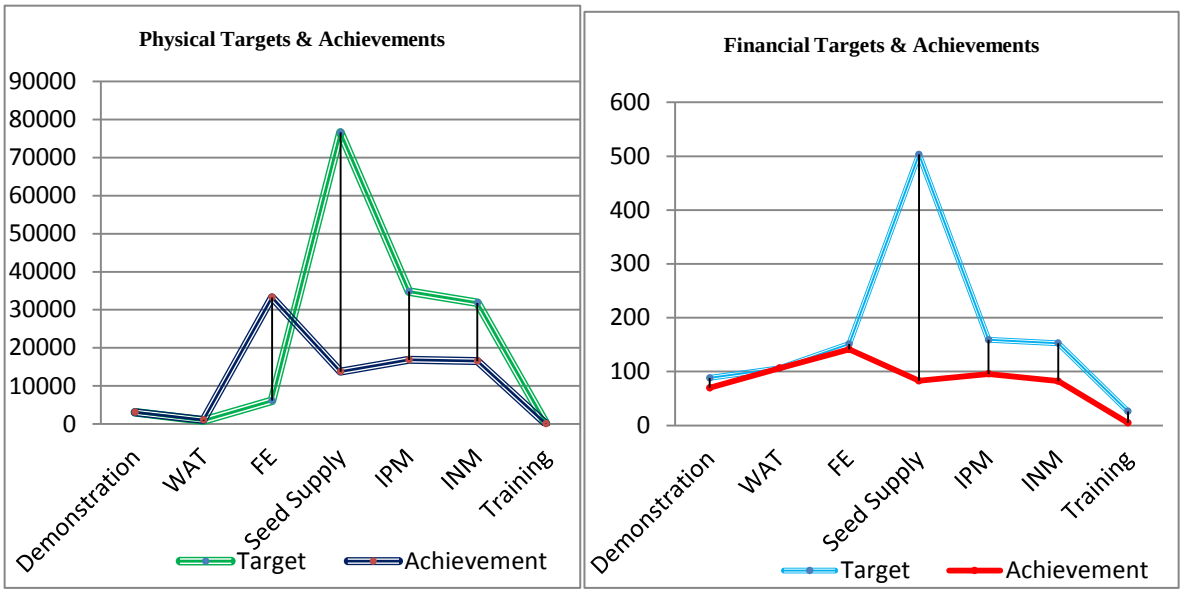
equipments physical and financial achievements were 543.81% and 93.46% respectively. Seed supply achievement percentages to the set physical and financial targets were 19.95 and 16.45 only. Integrated Pest Management (IPM) achievements were 48.45 percent of physical and 60.08 percent of the financial targets. Integrated Nutrient Management (INM) achievements were 51.96 and 53.87 percent physical and financial respectively. The training could achieve 36.75% physical and 17.72% financial targets (Table 46 & Fig 49).

**Table 46: Hassan-Physical & Financial Targets and Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (Rs. In Lakhs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievement | | Target | Achievement | |
| Demonstration | 3065 | 3047 | 99.41 | 88.3 | 69.63 | 78.86 |
| WAT | 860 | 1087 | 126.395 | 106 | 106.29 | 100.27 |
| FE | 6115 | 33254 | 543.81 | 151.05 | 141.17 | 93.46 |
| Seed Supply | 76629 | 13754.58 | 19.95 | 503.16 | 82.76 | 16.45 |
| IPM | 34800 | 16862 | 48.45 | 159 | 95.52 | 60.08 |
| INM | 31808 | 16526.5 | 51.96 | 152.79 | 82.31 | 53.87 |
| Training | 166 | 61 | 36.75 | 25.91 | 4.59 | 17.72 |
| Total | 153449 | 84592.08 | 55.13 | 1186.21 | 582.27 | 49.096 |

Source: Department of Agriculture, Karnataka

**Figure 49: Hassan-Physical & Financial Targets and Achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan. The purpose of analyzing the profiles of different respondents and deriving the findings was to evaluate the overall impact created by the scheme.

**12.18 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries**?

**Gender**: The proportion of male among the sampled respondents are 93 percent and the balance 7 percent female.

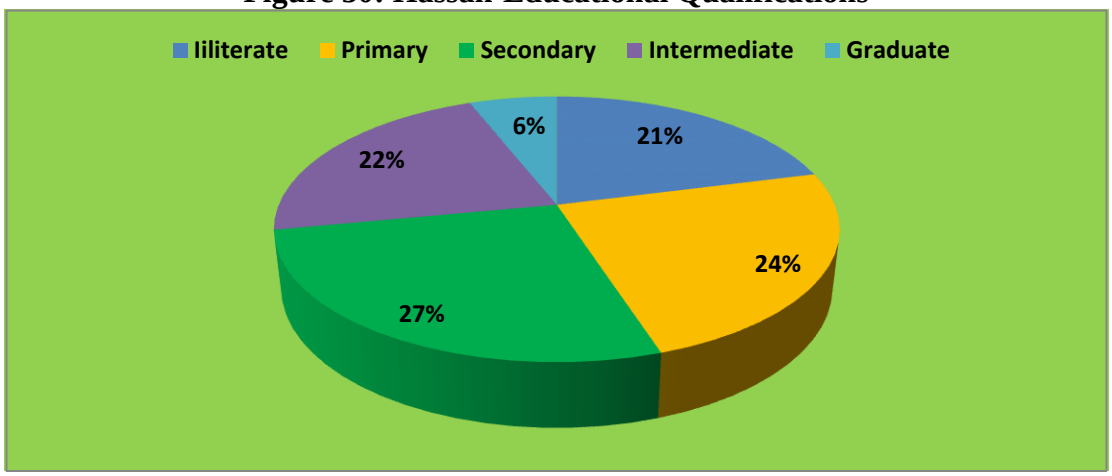
**Age**: The majority of the respondents 55% are more than 40 years old, 33% in the age group 35-40 years, 7% with 30-35 years, 4% with 25-30 years and 1% of 18-25 years old.

**Categories of Farmers**: The NFSM scheme was extended to all the categories of the farmers and 67% of the respondents selected for the present study are from OC/General category followed by 21% BC category, 9% SC, and 3% ST. It shows, the coverage of different categories of farmers selected for primary survey in various villages under study were able to provide the benefits of NFSM scheme to all the categories of the farmers.

**Educational Status**: Education plays an important role in the development and the same is true for the NFSM scheme. Therefore, the education status of sample farmers both beneficiaries and non-beneficiaries was enquired. This information is summarized in the Figure 50.

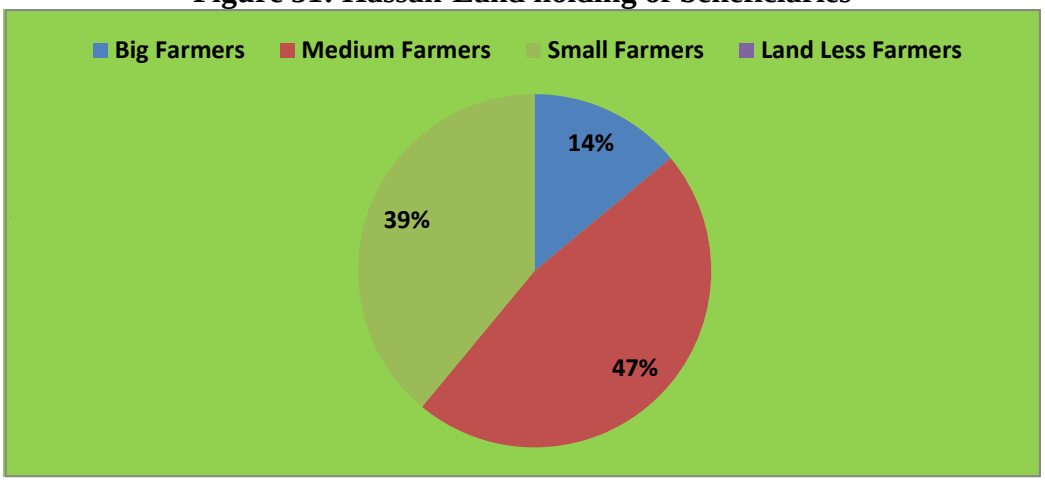
From the Figure, 27% of the sample respondents are of secondary school educated followed by 24% primary school educated, 22% intermediate educated, 21% illiterate and 6% graduates.

**Figure 50: Hassan-Educational Qualifications**




**Land Holding**: The sampled farmers were categorized into four groups based on their land holdings such as small and marginal farmers below 2 hectares, medium between 2-10 hectares, large above 10 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding category have been presented in the Figure 51 for both beneficiaries and non-beneficiaries.

**Figure 51: Hassan-Land holding of beneficiaries**



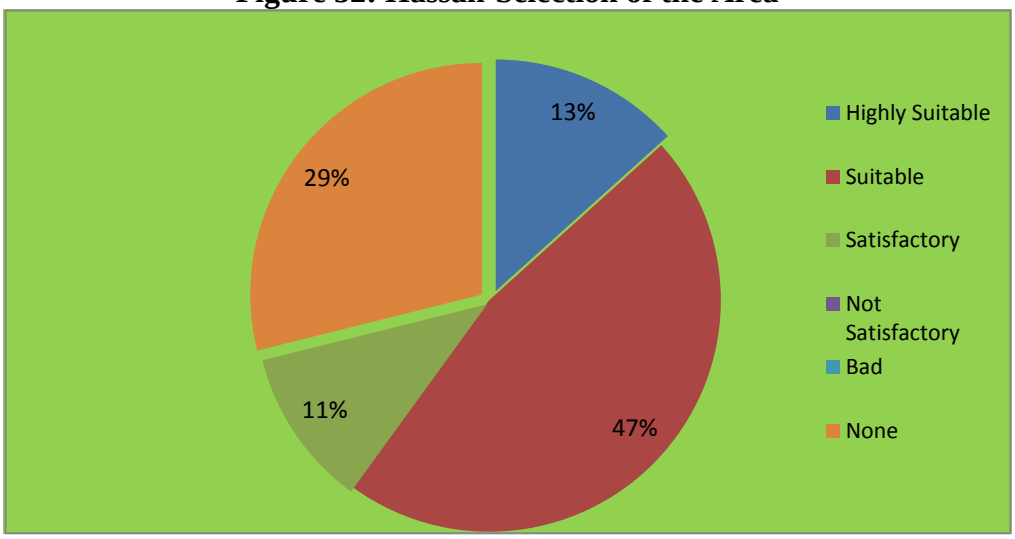

The above Figure reveals that the majority 47% respondents were medium farmers, followed by 39% small farmers and 14% big farmers.

Annual income of respondents was also collected to find out their financial position. Annual income of 36% of them was below Rs 25,000 followed by 34% having income ranging from Rs 25,000 to Rs 75,000 and 30% respondents income more than Rs 75,000 per annum.

**12.19 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area**: From the study, 46.70 percent respondents reported that the selection of area under various interventions was done on the basis of its 'suitability', followed by 13.30 percent expressed 'highly suitable' and 11.10% gave 'satisfaction'. Balance 28.90 percent has not responded (Fig 52).

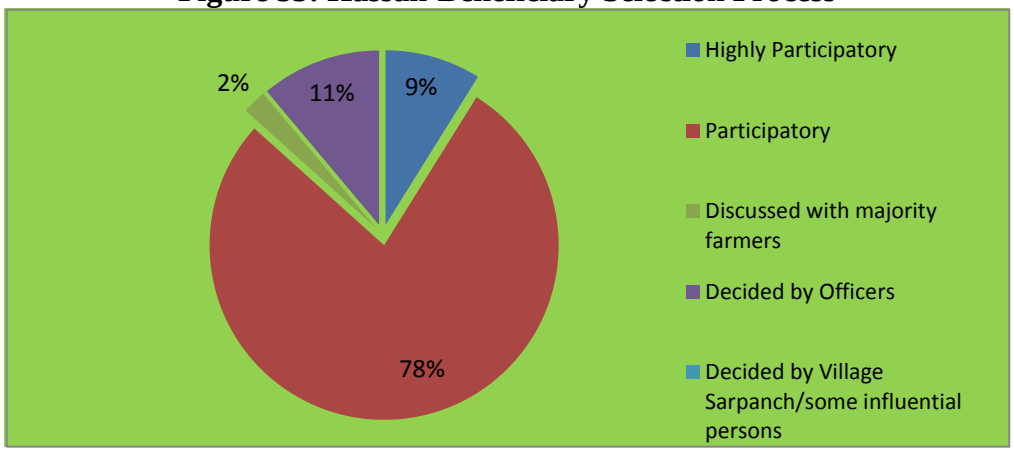
**Figure 52: Hassan-Selection of the Area**




**Selection of Beneficiaries:** The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in villages.

Majority 77.80% respondents opined that the selection process was participatory and 8.90% felt it was 'highly participatory'. Further, 2.20% observed that it was 'discussed with majority of farmers'. But 11.10% felt it was decided by officers (Fig 53).

**Figure 53: Hassan-Beneficiary Selection Process**

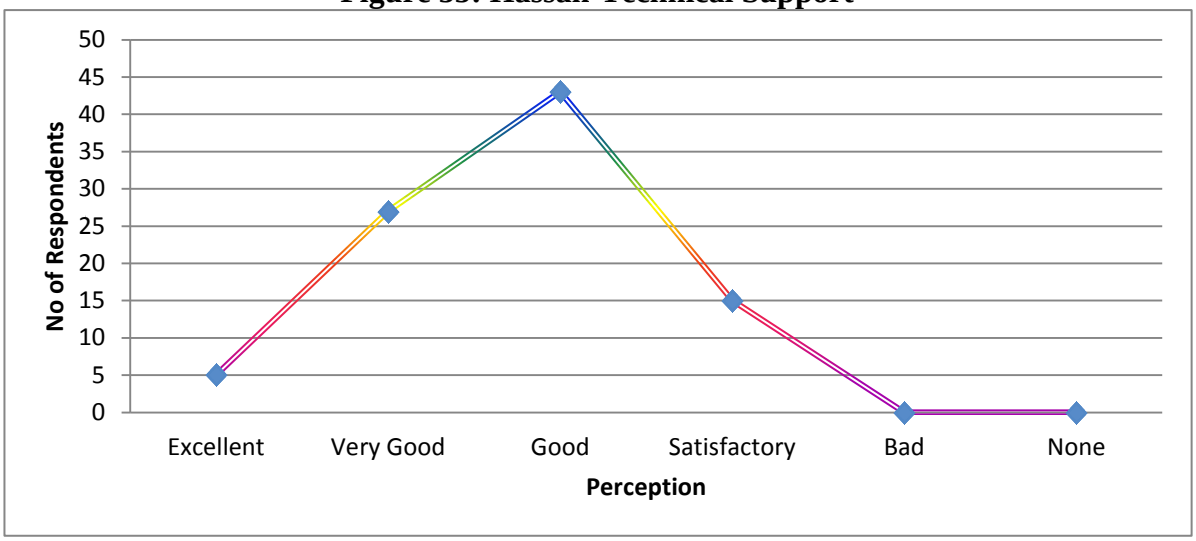



**Inputs supply**: The timely availability of inputs like seeds, fertilizers, pesticides etc. to the farmers is one of the critical aspects for enhancing productivity. Proper planning for timely availability of inputs and advanced tie-up with manufacturers and suppliers is essential for facilitating early procurement and supply. The survey reveals 56.70% experienced that the supplies were on time. Further, 30% opined supplies were 'well in advance', 6.60% each felt of just delayed and badly delayed (Fig 54).

**Figure 54: Hassan-Supply of Inputs**


**Technical support**: The study reveals that 47.80% of the total respondents rated 'good' in the technical support got from the department of agriculture, followed by 30.00% rating of 'very good', 16.70% 'satisfactory'. The balance 5.60% indicated of 'excellent' technical support (Fig 55).

**Figure 55: Hassan-Technical Support**



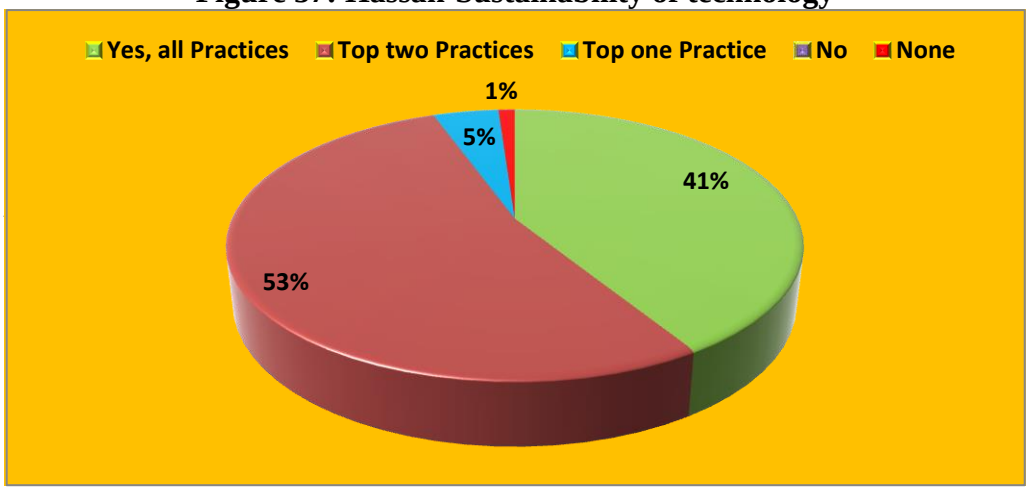

**Involvement of Subject Experts:** From the survey report, 66.70% of the respondents gave rating of 'satisfactory' on the involvement of subject experts, followed by 28% good and 5.60% very good (Fig 56).

**Figure 56: Hassan-Involvement of Subject Experts**


**12.20 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

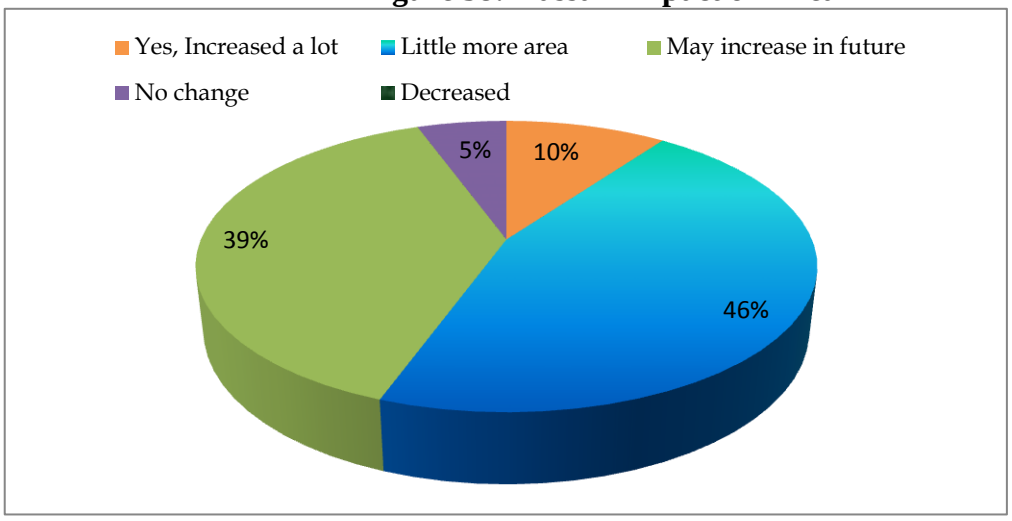
**Sustainability of technology**: Continuity of practices is an indication of its sustainability and the survey reveals 53.30% will continue top two most important practices followed by 41.10% practice all recommended practices, and 5% practice the top one practice (Fig 57).

**Figure 57: Hassan-Sustainability of technology**




**Increase/ Decrease of area :** One of the major objectives of the scheme is that the area under rice should increase with increased productivity through improved technology adoption. The survey indicated that about 45.60% of the sample respondents gave rating of increased area as "little more area" followed by 38.90% stated as 'area may increase in future' and 10% felt area 'increased a lot'. The remaining 5.60% think that there was no change (Fig 58).

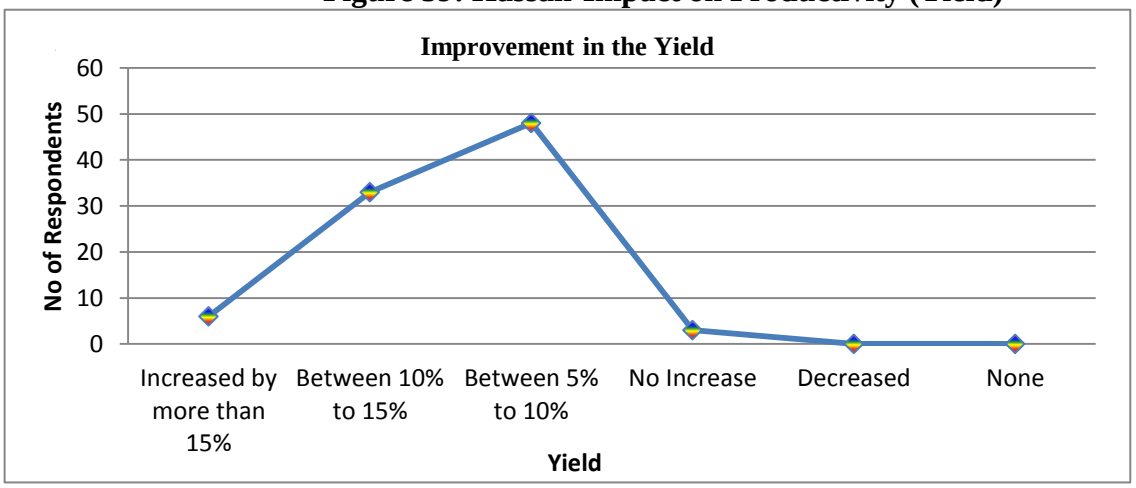
**Figure 58: Hassan-Impact on Area**




**Increase/ Decrease of yield**: The major objective of the mission is to increase the yields of rice with the interventions. NFSM has generated benefits to the farmers in terms of enhancement of the productivity. The survey findings revealed that there was significant increase in the productivity of rice. From the Figure (59), 53.30% assume that the increase in yields due to NFSM interventions was 5-10%, 36.70% opined of 10-15% increase, and 6.70% observed more than 15% increase in yields. The balance 3.30% felt of no increase in yields due to NFSM interventions.

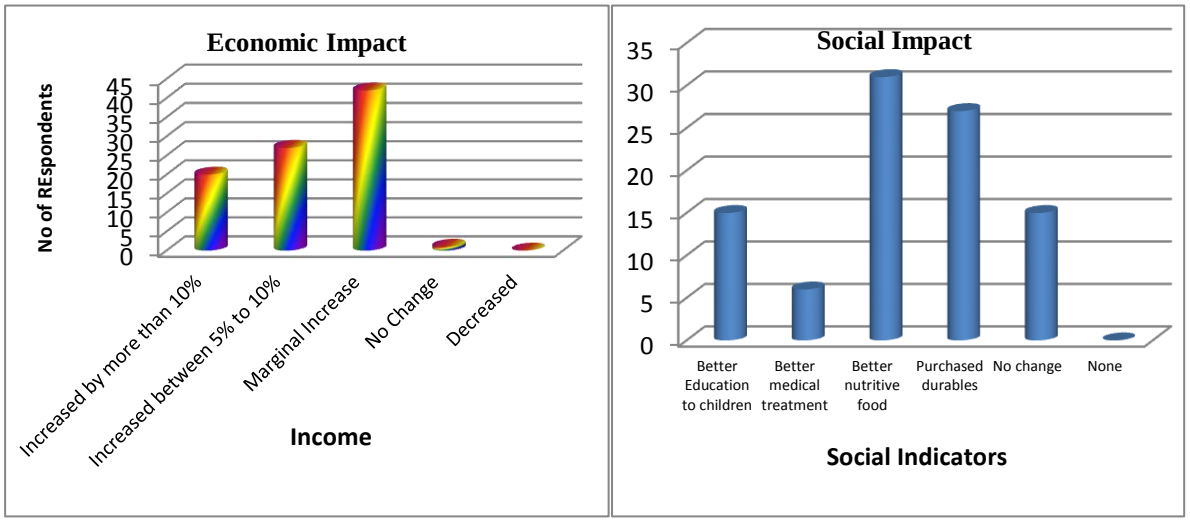
**Non-beneficiaries**: The **non-beneficiary farmers**, 66.67% indicated that their yields were less than NFSM beneficiaries, 22% believed of getting more yields than NFSM beneficiaries and 11.11% at par with NFSM beneficiaries.

**Figure 59: Hassan-Impact on Productivity (Yield)**




**Economic Impact:** NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income was higher on beneficiary farms. The majority 46.70% respondents reported of 'marginal increase in their income', 30% respondents indicated of 5-10% increase and 22.20% got more than 10% increase in their income. The remaining 1.10% respondents reported that there was no change in their income (Fig 60).

**Figure 60: Hassan-Economic and Social Impact**




**Social Impact:** The survey findings (Fig 58) reported that there was significant increase in the productivity of rice and consequential income level of farmers. The survey report found 34.50% respondents could afford better nutritive food, 30% used for the purchase of durables, 16.70% gave better education to their children and 6.70% used higher income for better medical treatment. A section of 16.70% opined that there was no change in their livelihoods.

**Focus group** discussion brought out an observation that there was an increased employment, reduced migrations, more area brought under irrigation and getting better nutritive food due to NFSM interventions.

**Non-beneficiaries**: Many **non-beneficiaries** expressed that they were interested to know improved technologies used under NFSM and wanted to get benefited with NFSM scheme.

**12.21 What are major contributors for enhanced production and income in the District?**

Machine transplantation, using of inputs like zinc, lime, hybrid seed (hybrids KRH-2/4) are major contributors for higher yields. Lime application has given significant results in acid soils. KRH 2&4 are a medium duration maturing hybrids with an average yield potential of 7.3 tons per ha as compared to 6 tons/ha of Jaya the best high yielding check. It is replacing Karimdiga and Chippaga local varieties. Private company hybrids are also contributing for higher yields (GK 5003). Diesel pump sets, sprinklers have also contributed for higher income generation.

**12.22 How much convergence NFSM had with other schemes?**

The NFSM program had convergence with Bhoochetna scheme in Hassan district.

**12.23 What are Suggestions to improve the programme**: Farmers have suggested toincrease the supply of lime, green manure seeds, new hybrid seeds, bullock drawn puddlers.

Few farmers felt that the supply of advanced computer tabs will help them in getting required details from time to time.

**IV Belgaum ( Belagavi)**

The district of Belgaum is located east of the Western Ghats and is situated in the North-Western part of Karnataka state. It is bordered by the state of Goa on its South-West and Maharashtra state towards its west and north. The district lies between 15°00' and 17°00' North latitudes and between 74°00 and 75°30' East longitudes. It covers an area of 13,444 Sq. Km.

The climate of the district as a whole can be termed as semi-arid. The variation in the maximum temperature during the year ranges from 27.00 °**C** to 35.70°**C** and minimum from 13.90°**C** to 20.60°**C**. The district experiences pleasant winters and hot dry summers. The hot season extends from March to May, during which the daily maximum temperature often shoots up to 35.7°**C**.

Agro-climatologically the district can be divided into three zones i.e. high rainfall "Hilly zone", "Northern transitional zone" and "Northern dry zone" from South-West to North-East respectively.

Agriculture is the main source of livelihood for 71% of the district population. The major commercial crops grown are maize, rice, wheat, sugar cane, tobacco and cotton. There has been 45% increase in sugarcane cultivation since 1993 and currently sugarcane, tobacco and cotton account for 22% of the gross cropped area of the district.

**12.24 What are physical and financial achievements against targets?**

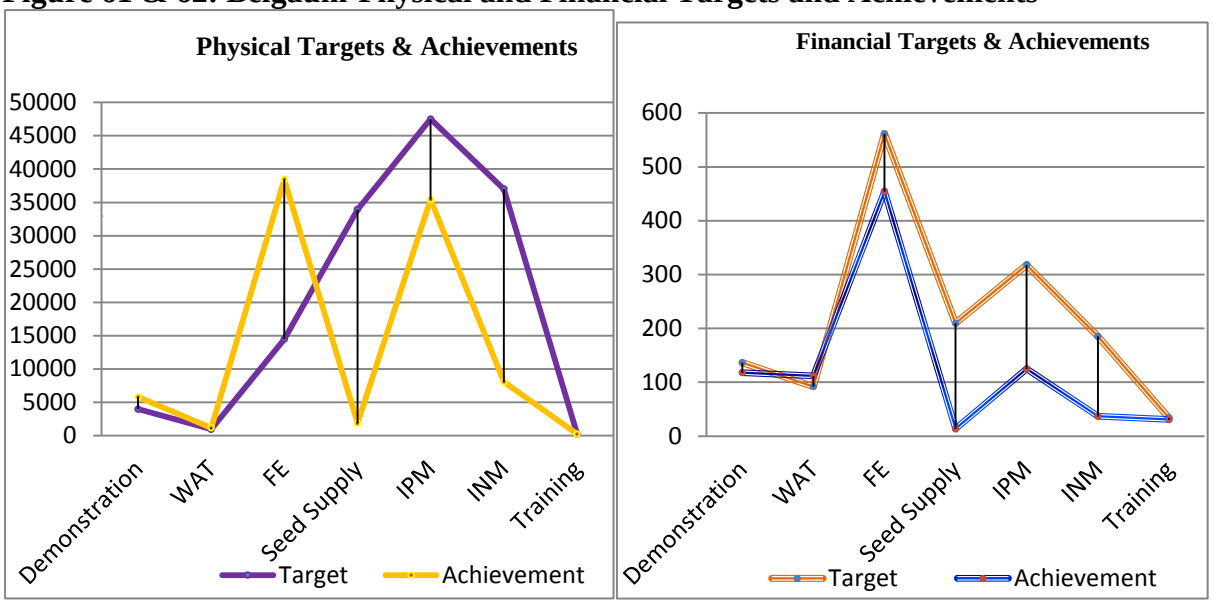
The overall physical and financial achievements were 65.89 and 57.81 percent respectively. Farm equipments physical achievements were 265.93% and financial achievements were 80.88%. The achievements against targets for demonstrations were 146.44% physical and 86.19% financial. The achievements for water application tools and trainings were good with 121.08% and 90.10% financial and 123.80% and 96.65% physical respectively. Seed supplies were lowest with 5.41% physical and 6.39% financial achievements due to non-availability hybrid seeds in enough quantities. Integrated Nutrient Management (INM) achievements were only 21.77 and 19.87 percent physical and financial respectively. Integrated Pest Management (IPM) achievements were 74.64 percent of physical and 39.13 percent of the financial targets (Table 47 and Fig 61 & 62).

**Table 47: Belgaum- Physical and Financial Targets and Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (Rs. In Lakhs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievement | | Target | Achievement | |
| Demonstration | 3947 | 5780 | 146.44 | 136.46 | 117.61 | 86.19 |
| WAT | 920 | 1139 | 123.8 | 92 | 111.39 | 121.08 |
| FE | 14458 | 38448 | 265.93 | 561.43 | 454.06 | 80.88 |
| Seed Supply | 33931 | 1830.97 | 5.41 | 209.37 | 13.37 | 6.39 |
| IPM | 47500 | 35455 | 74.64 | 318 | 124.43 | 39.13 |
| INM | 37000 | 8055 | 21.77 | 185 | 36.76 | 19.87 |
| Training | 209 | 202 | 96.65 | 33.79 | 30.446 | 90.10 |
| Total | 137965 | 90909.97 | 65.89 | 1536.05 | 888.066 | 57.81 |

**Source: Department of Agriculture**

**Figure 61 & 62: Belgaum-Physical and Financial Targets and Achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan. The demographic, socio-economic characteristics, execution of the program, transfer of technology, impact on area, productivity, economy, social, problems, convergence with others schemes, suggestions and major contributing interventions are brought out in this unit.

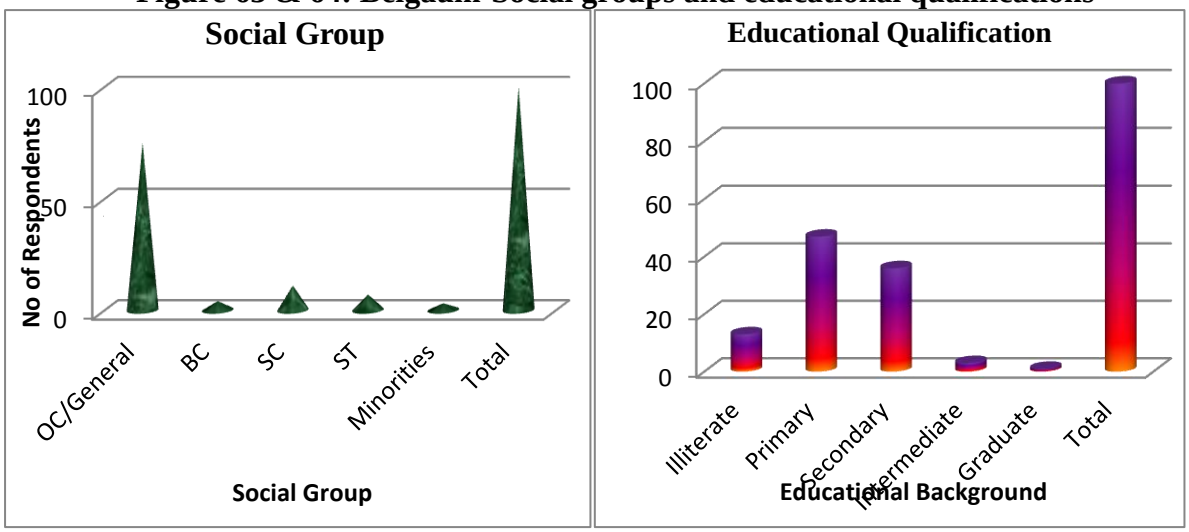
**12.25 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?**

**Gender:** The proportion of male among the sampled respondents is 98 percent and the balance 2 percent are female.

**Age**: The respondents of 32% are in the age group of 40 years and above, followed by 26% in the age of 30-35 years, 22% in the range of 25-30 years, 11% under 18-25 years old and the balance 9% of 35-40 years old.

**Categories of Farmers:** The NFSM scheme is extended to all the categories of the farmers and 75% of the respondents selected for the present study are from OC/General Caste followed by 11% SC, 7% ST, 4% BC and 3% minorities. It shows, the coverage of different categories of farmers selected for primary survey in various villages under study were able to provide the benefits of NFSM scheme to all the categories of the farmers (Fig 63).

**Figure 63 & 64: Belgaum-Social groups and educational qualifications**

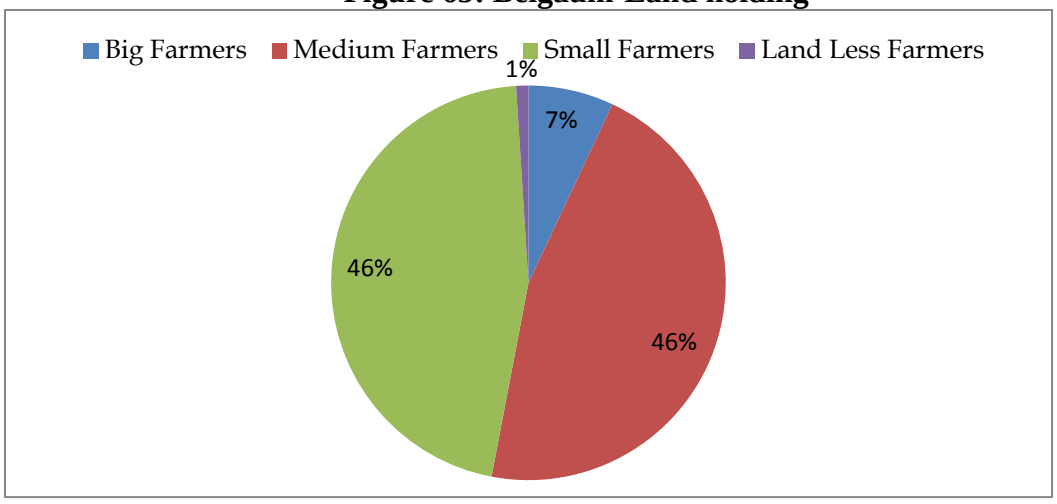



**Educational Status**: Education plays an important role in the development and the same is true for the NFSM scheme. Therefore, the educational status of sampled farmers both beneficiaries and non-beneficiaries was enquired.

From the Figure 64, about 47% of the sample respondents are of Primary School educated followed by 36% secondary school educated, 13% illiterate, 3% completed Intermediate and the remaining 1% graduates.

**Land Holding**: The sampled farmers were categorized into four categories based on their land holdings such as small and marginal farmers under 2 hectares, medium between 2-10 hectares, large above 10 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding have been presented in the Figure 65 for both beneficiaries and non-beneficiaries.

**Figure 65: Belgaum-Land holding**



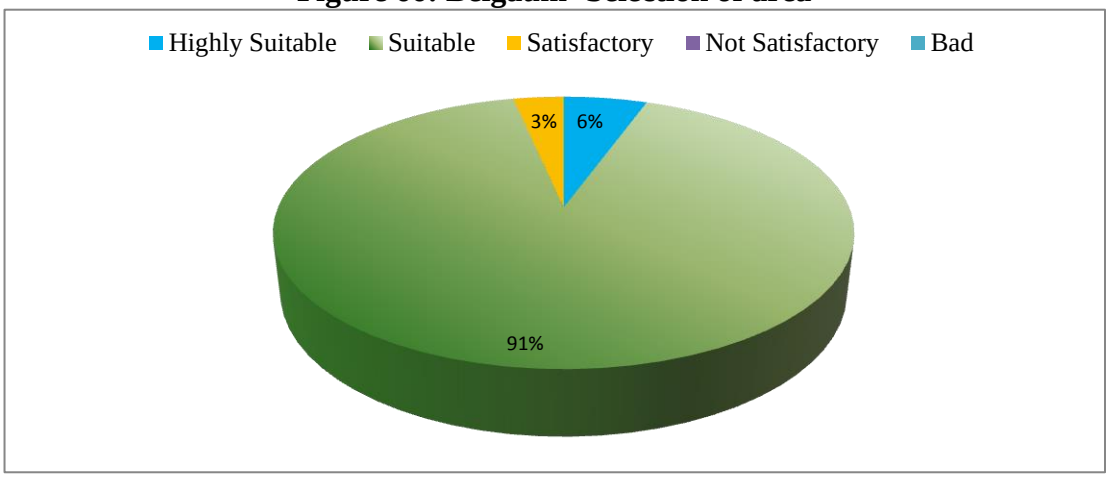
The above Figure reveals that the proportion of small and medium farmers have equal representation with 46% each, followed by 7% are of big farmers and one lease holder. Among them 72% are cultivating under irrigation and the balance 28 are cultivating under rain fed conditions.

Annual income of 68% of them is Rs 25,000 to 50,000 followed by 18% having an income ranging from Rs 50,000 to Rs 75,000. Others are having less than Rs 25,000 income per annum.

**12.26 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

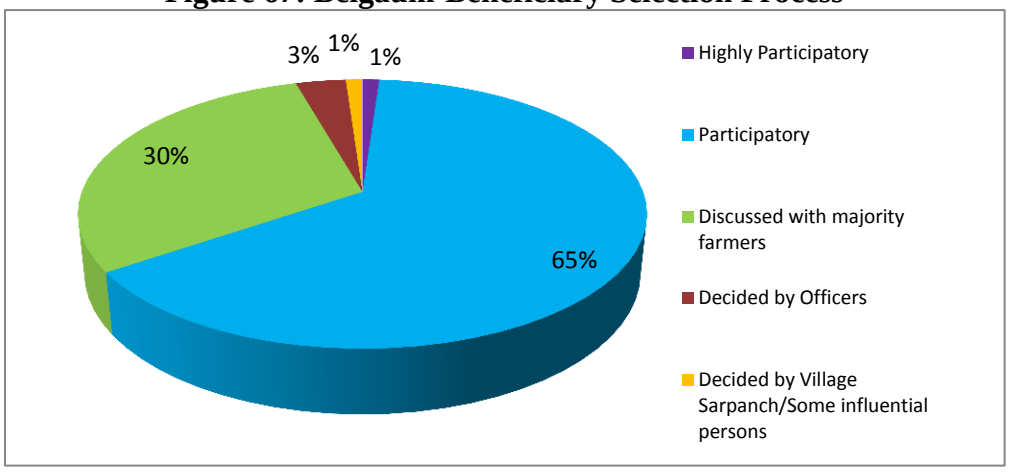
**Selection of Area:** From the study, 91.10 percent respondents reported that the selection of area under various interventions was done on the basis of its suitability, followed by 5.60 percent respondents opined highly suitable and 3.30 percent gave satisfaction (Fig 66).

**Figure 66: Belgaum- Selection of area**



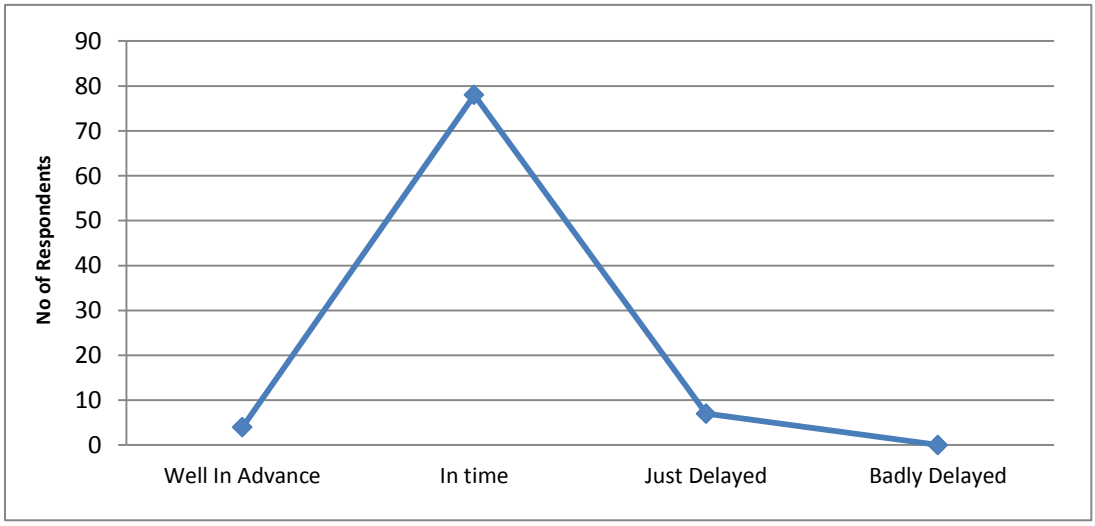

**Selection of Beneficiaries:** The study found, 64.40% respondents opinion on the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in villages, followed by 30% of them believe that the scheme was discussed with majority farmers, 3.3% understand it was decided by officers and 1.10% opined that it was highly participatory(Fig 67).

**Figure 67: Belgaum-Beneficiary Selection Process**




**Inputs supply:** The timely availability of inputs like seeds, fertilizers, pesticides etc. to the farmers is one of the critical aspects for enhancing productivity. Proper planning for timely availability of inputs and advance tie-up with manufacturers and suppliers is essential for facilitating early procurement and supply. The survey reveals, 86.70% of the respondents experienced of getting inputs 'on time'. Further, 7.80% reported of just delayed but 5.6% informed that the supplies were 'well in advance' (Fig 68).

**Figure 68: Belgaum-Supply of Inputs**

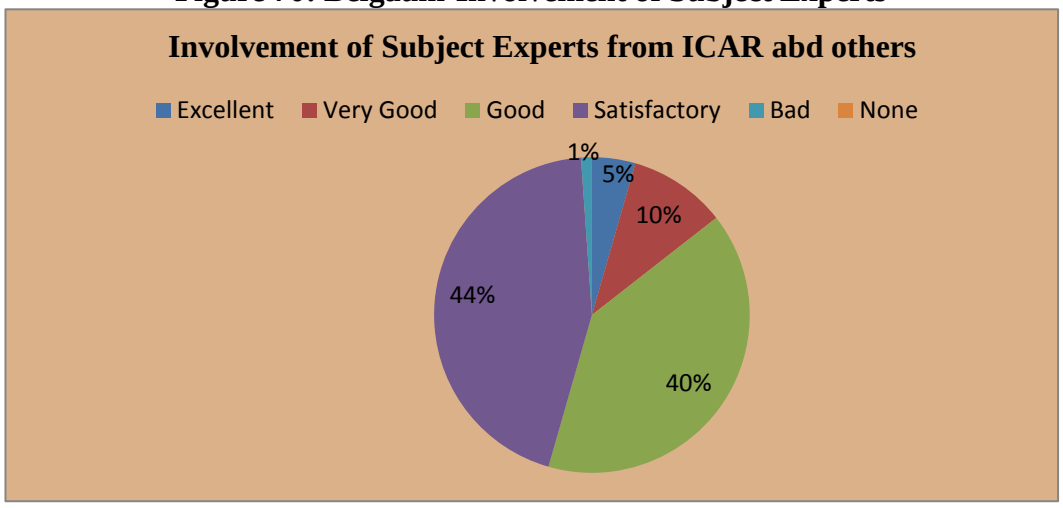



**Technical support**: The study reveals, 48.90% of the total respondents rated good in the technical support got from the department of agriculture, followed by 44.40% rating of very good, 4.40% as excellent and 2.20% as satisfactory. It is an indication that the respondents were very happy with technical support (Fig 69).

**Figure 69: Belgaum-Technical support**


**Involvement of Subject Experts:** From the Figure 70, majority of the respondents (44%) gave highest rating with satisfactory followed by 40% with good, 10% with very good and 5% gave excellent rating. Only 1% of the respondents felt that the involvement of subject experts was bad in the implementation of NFSM.

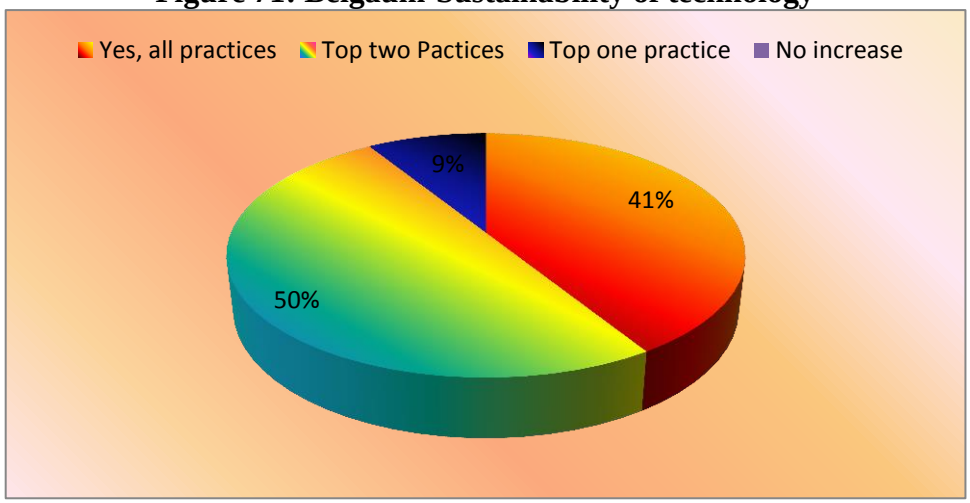
**Figure 70: Belgaum-Involvement of Subject Experts**




**12.27 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

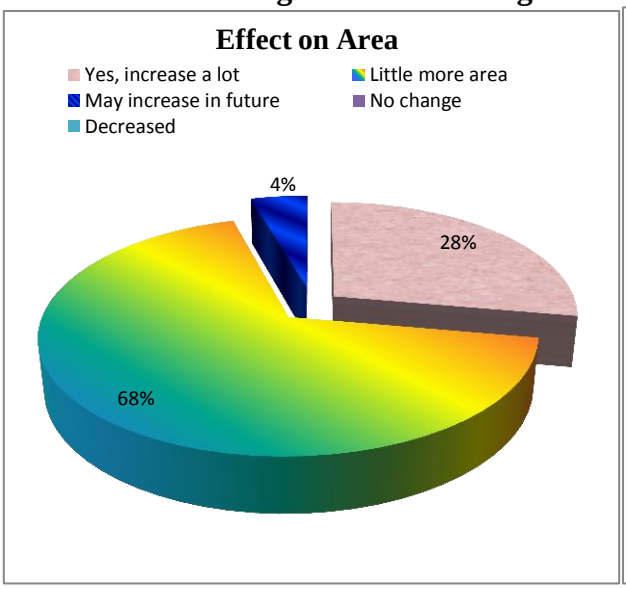
**Sustainability of technology**: Continuity of practices is an indication of its sustainability and the survey reveals 50.00% would continue top 2 recommended practices and 41.10% will continue to practice all recommendations. 8.90% expressed that they continue Top one practice (Fig 71).

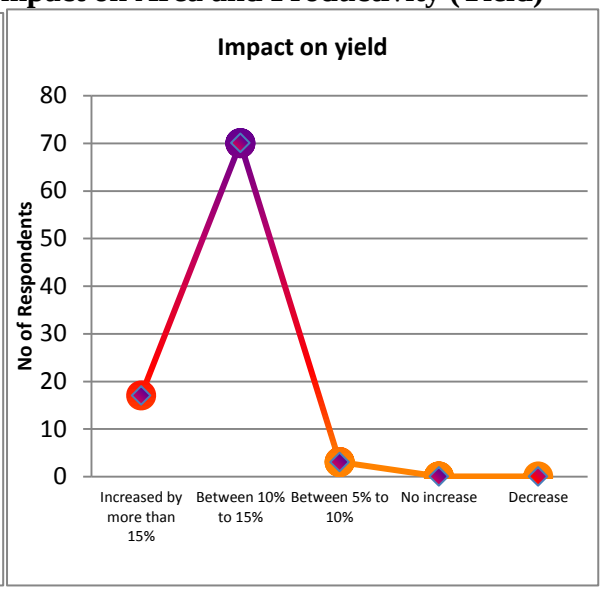
**Figure 71: Belgaum-Sustainability of technology**




**Increase/ Decrease of area**: One of the major objectives of the scheme is that the area under rice should increase with increased productivity through improved technology adoption. The survey indicated 67.80% of the sample respondents specified rate of increase was "little more" followed by 27.80% of respondents opined 'increased a lot'. Only 4.40% of them informed that the area under rice may increase in future (Fig 72).

**Figure 72 & 73: Belgaum-Impact on Area and Productivity (Yield)**



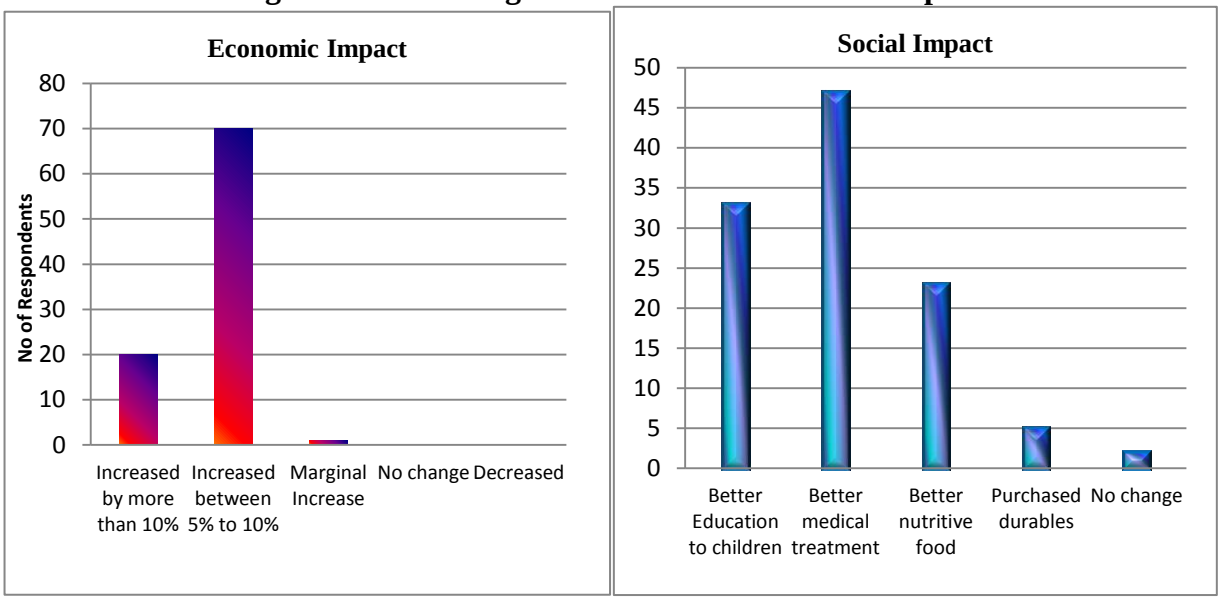




**Increase/ Decrease of yield:** The major objective of the mission is to increase the yields of rice with the interventions. The survey findings revealed that there was significant increase in the productivity of rice. From the Figure 73, it is evident that the increased in the yields due to NFSM interventions was 10-15% for 77.80% of the sample respondents, followed by more 15% for 18.90% beneficiaries. The opinion of about 3.30% respondents was 5-10% increase in their yields.

**Non-beneficiaries**: The **non-beneficiaries** were not adopting the improved practices of the scheme because of lack of awareness. All respondents revealed that their yields were less than NFSM beneficiaries.

**Economic Impact**: NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed (Fig 74) that the income of beneficiaries was higher. The majority 77.80% respondents reported of 5-10% increase in their income followed by 22.22% got more than 10% increase in their income. The response of 1% respondents was that there was no change in their income.

**Figure 74 & 75: Belgaum-Economic and Social Impact**




**Social Impact**: The majority of the farmers are facing poverty, undernourishment, health and education problems due to low agricultural incomes. The survey findings reported that there was significant increase in the productivity of rice and consequential income level of farmers. The survey report shown in Figure 75 found 52.20% of respondents could afford better medical treatment, 36.70% gave better education to their children followed by 25.56% used high income for better nutritive food, 5.56% purchased durables like motorcycle, refrigerator etc. The balance 2.22% respondents opined that it has not brought any improvement in their living conditions.

**Focus group** discussion brought out an observation that the migrations reduced due to better yields, employment and income. As far as **non beneficiaries** are concerned 85.70% of them are not aware of new technologies used by NFSM beneficiaries and wanted to get benefited with NFSM scheme.

**12.28 What are major contributors for enhanced production and suggestion for for improvement of programme?**

**Major Contributors**: Major contributors for higher yields are hybrid paddy seed, intercultivator, rotavator, diesel engine, micronutrients etc.

**Suggestion**: May include power tillers as it is very much needed in the district.

## B. PULSES

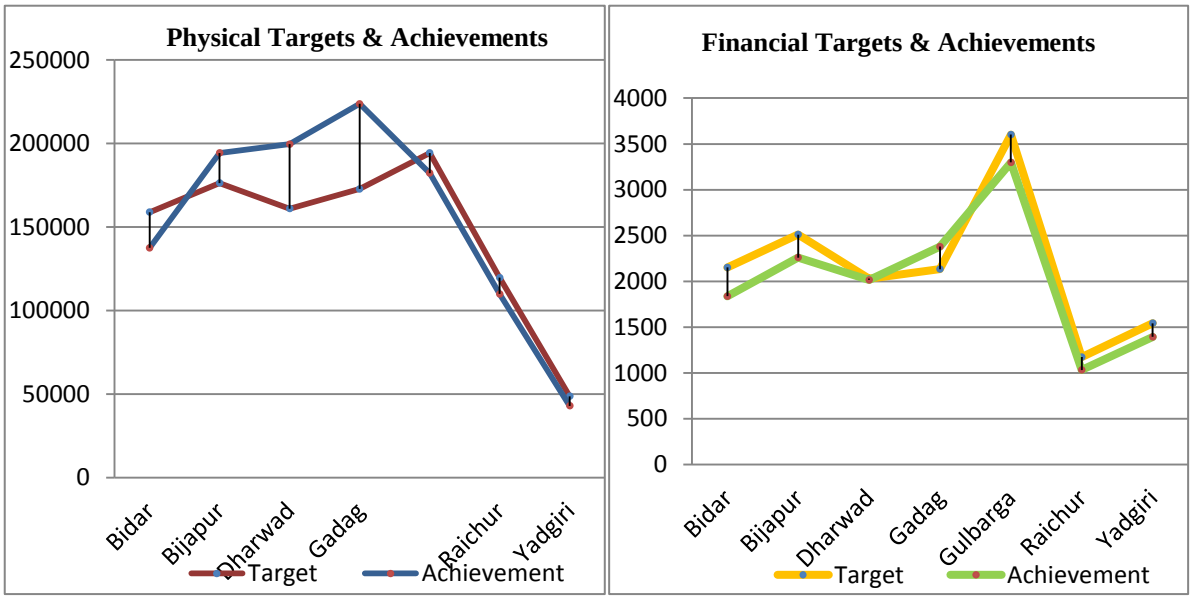
The physical targets of selected districts for the period 2007-08 to 2013-14 were fixed to **10,31,611** units, out of which **10,90,362** has been covered with 105.69% achievement. The Targets and achievements for financial outlay were Rs. **151.44** crore and Rs. **142.17 crore** respectively. The overall physical and financial achievements thus comes out to be **105.69** and **93.88** percent. The extent of achievements were reasonably good. Districts like Gadag and Dharwad achieved 100% physical and financial targets. Bijapur achieved more than 100% physical targets and 89.95% financial targets. Achievements of Raichur and Bidar districts were also significant with more than 85% for both physical and financial. Other districts also had a good record of achievements against targets (Table 48).

**Table 48: Pulses-Physical and Financial Targets and Achievements**

| Districts | Physical (Units) | | Percentage | Financial (Lakhs in Rs.) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievement | | Target | Achievement | |
| Bidar | 158862 | 137526 | 86.57 | 2152.51 | 1837.1 | 85.35 |
| Bijapur | 176291 | 194335 | 110.24 | 2510.85 | 2258.58 | 89.95 |
| Dharwad | 160950 | 199643 | 124.04 | 2030.33 | 2016.52 | 99.32 |
| Gadag | 172800 | 223794 | 129.51 | 2132.9 | 2379.63 | 111.57 |
| Gulbarga | 194365 | 182241 | 93.76 | 3602.18 | 3298.74 | 91.58 |
| Raichur | 119695 | 109894 | 91.81 | 1174.1 | 1032.54 | 87.94 |
| Yadgir | 48648 | 42929 | 88.24 | 1541.83 | 1394.3 | 90.43 |
| **Total Pulses** | **1031611** | **1090362** | **105.695** | **15144.7** | **14217.4** | **93.88** |

**Source: Department of Agriculture**

**Figure 76 & 77: Pulses-Physical and Financial Targets and Achievements**



In this study, sample districts for NFSM-pulses are Gulbarga, Bidar, Bijapur, Yadagir, Raichur, Dharwad and Gadag to study the impact of NFSM interventions. The study was done using individual interview of farmers followed by focus group discussions in villages.

**DISTRICT WISE REPORT**

The district wise physical and financial achievements, demographic and socio-economic characteristics, execution/implementation and impact on the extent of improvement in area, yields, income and social benefits were studied and reported in this unit.

## V. BIDAR

The district is located on the Northern Maidans of Karnataka with expansive plateau landscape. Soils covering this region are black to deep brown in colour which are rich in humus and form some of the most valuable fertile lands in the country, well suited for cultivating pulses.

**Weather and Climate**: The district experiences semi-arid climate with extreme summer. The dust storms and severe heat waves are common in the district between April and May. Coldest months are December and January. The temperature varies in the district between 20 °C and 42 °C. The summer season in Bidar starts in the first week of March and lasts until mid-June. This is followed by South-West monsoon which continues till late September, and winter from September to end of January is winter.

May is the hottest month with average daily maximum temperature of 38.8 °C while December is the coldest with average daily minimum of 16.4 °C. The highest temperature recorded at Bidar was 43.3 °C on 8$^{th}$ May 1931 and the lowest 3.9 °C on 5$^{th}$ January 1901.

The average annual precipitation at Bidar is 847 mm with most of the rainfall received during the monsoon season. The variation in rainfall from year to year is large and the district is prone to drought.

**Agriculture:** Agriculture is the main occupation in rural parts of the district. The total geographical area is 5.42 lakh ha, total cultivable area 4.53 lakh ha, total Kharif sown area 3.44 lakh ha and total Rabi sown area 1.08 lakh ha. The area under major pulse crops grown is to the extent of 3.45 lakh hectares. In the recent period, soybean is replacing to the extent of 1.35 lakh hectares.

Agriculture in Bidar is mostly dry cultivation or rain-dependent cultivation in which a wide variety of local sorghum (Jola, the staple grain), pulses (greengram, bengalgram, blackgram, redgram), paddy, wheat, sugarcane, chillies, oil seeds (groundnut), wheat and other cereal

crops are grown. Crop cultivation is restricted to two periods, Kharif cultivation (June-September) and Rabi or winter cultivation (September-January).

**12.29 What are physical and financial achievements against targets?**

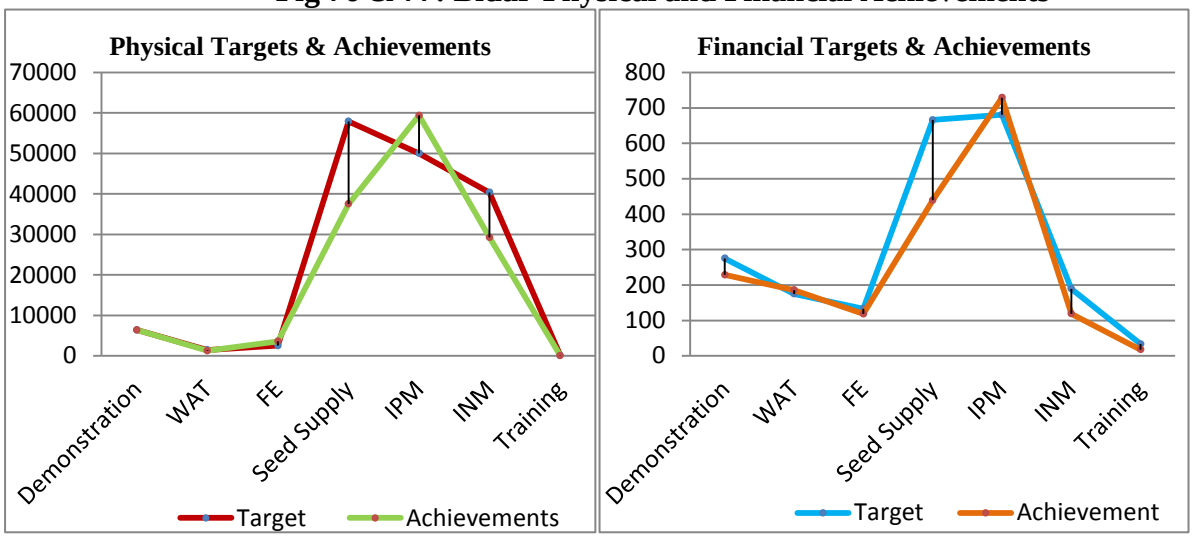
As shown in Table 49, the overall physical and financial achievements were 86.57 and 85.35 percent respectively. The physical achievements were 100% for demonstrations, 143.16% in the farm equipments and 118.74% in IPM component. The physical and financial achievements exceeded targets under IPM. The physical achievements were more than 85 percent and financial more than 100% for water application tools. The seed supply and INM physical achievements were 64.79% and 72.46% respectively. The training component physical and financial achievements were only 54.95% and 52.58% respectively. Financial achievements for demonstrations and farm equipments were about 80%. INM financial achievement was 62.88%.

**Table 49: Bidar-Physical and Financial Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (lakh of Rs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievements | | Target | Achievement | |
| Demonstration | 6400 | 6400 | 100.00 | 275 | 228.64 | 83.14 |
| WAT | 1475 | 1266 | 85.83 | 174.73 | 185.76 | 106.31 |
| FE | 2523 | 3612 | 143.16 | 133.46 | 118.38 | 88.701 |
| Seed Supply | 57908 | 37516 | 64.79 | 666.1 | 438.97 | 65.901 |
| IPM | 50014 | 59388 | 118.74 | 680.64 | 728.83 | 107.08 |
| INM | 40360 | 29244 | 72.46 | 189.22 | 118.98 | 62.88 |
| Training | 182 | 100 | 54.95 | 33.36 | 17.54 | 52.58 |
| Total | 158862 | 137526 | 86.57 | 2152.51 | 1837.1 | 85.35 |

**Source: Department of Agriculture Progress Report**

**Fig 76 & 77: Bidar-Physical and Financial Achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan and findings are given in this unit.

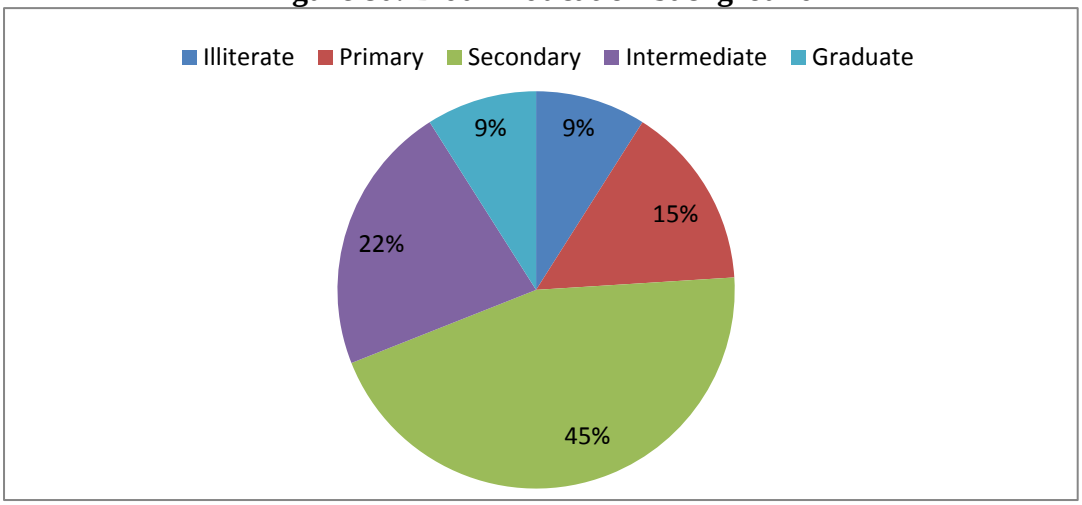
**12.30 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?**

**Gender and Age**: The proportion of male among the sampled respondents is 97 percent and the majority of the respondents 39% are in the age group of 40 and above, followed by 36% in the range of 35-40 years old, 16% in 30-35 years, 8% in 25-35 years and 1% in the age group of 18-25 years.

**Categories of Farmers**: The NFSM scheme is extended to all the categories of the farmers and 64% of the respondents selected for the present study are from OC/General Caste followed by 16% of the ST category, 10% SC, 4% BC and 6% minorities. It shows, the coverage of different categories of farmers selected for primary survey in various villages under study were able to provide the benefits of NFSM scheme to all the categories of the farmers.

**Educational Status**: The education status of sampled farmers both beneficiaries and non-beneficiaries was enquired. This information is summarized in Figure 80 below.

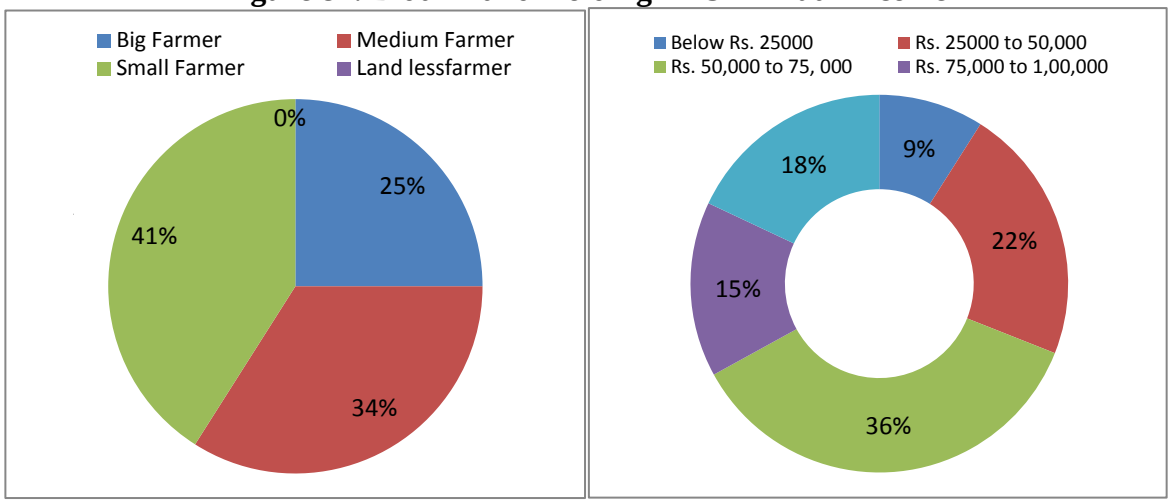
**Figure 80: Bidar-Education background**




From the data, 45% of the sample respondents are of secondary school educated followed by 22% intermediate education, 15% primary, 9% graduates, and the remaining 9% illiterate.

**Land Holding:** The sampled farmers were categorized into four categories based on their land holdings such as small and marginal farmers under 2 hectares, medium between 2-4 hectares, large above 4 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding have been presented in the Figure 81 for both beneficiaries and non-beneficiaries.

**Figure 81: Bidar-Land Holding & Annual Income**

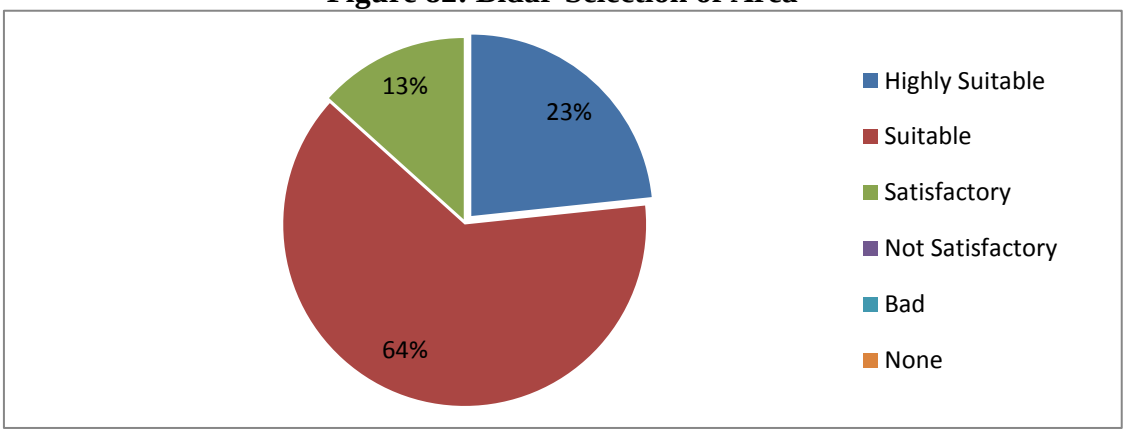



The above Figure reveals that the proportion of small and marginal farmers is highest with 41%, followed by 34% medium and 25% big farmers. Among them 36% are having Rs 50,000 to 75,000 annual income, 22% income Rs 25,000 to 50,000, about 15% income Rs 75,000 to 1,00,000, another 18% with more than Rs 1,00,000 and the balance 9% income is below Rs 25,000.

**12.31 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area:** From the study, 64 percent respondents reported that the selection of the area under various interventions was done on the basis of its suitability, followed by 23 percent respondents opinion of highly suitable and 12 percent satisfactory as given in the Figure 82.

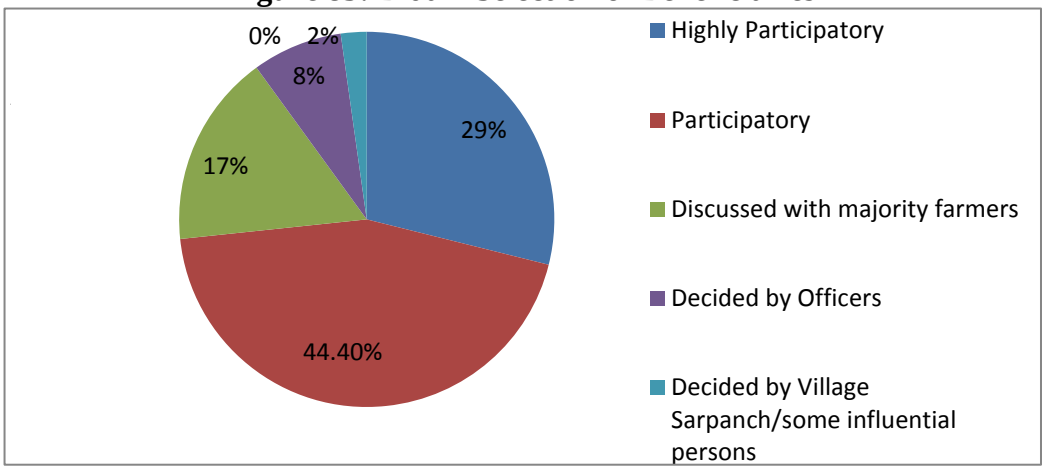
**Figure 82: Bidar-Selection of Area**




**Selection of Beneficiaries:** The response of 44.40% beneficiaries was that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in villages, followed by 28.9% opinion of highly participatory, 16.70% felt it was discussed with majority farmers, 7.80% believe that it was decided by officers and 2.20%

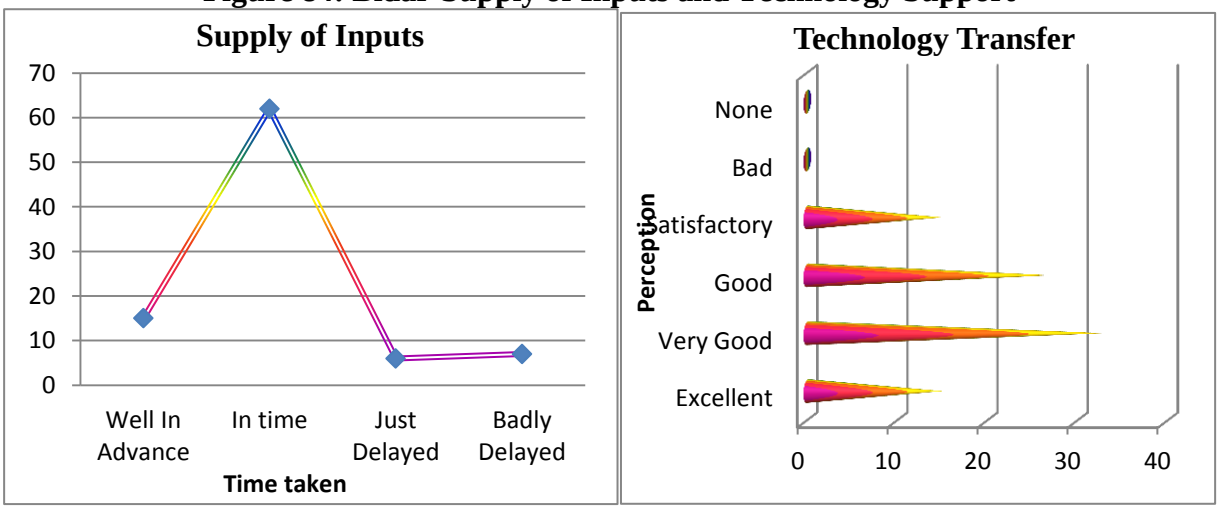
understand that it was decided by village Sarpanch or by an influential person in the village as shown in Figure 83.

**Figure 83: Bidar- Selection of Beneficiaries**




**Inputs supply:** The timely availability of inputs like seeds, fertilizers, pesticides etc. to the farmers is one of the critical aspects for enhancing productivity. Proper planning for timely availability of inputs and advance tie-up with manufacturers and suppliers is essential for facilitating early procurement and supply. The survey reveals, 68.90% of the respondents experienced of getting inputs on time. Further, 16.70% respondents felt supplies were well in advance followed by 7.80% reported of badly delayed and the balance 6.70% response was 'just delayed' (Fig 84).

**Figure 84: Bidar-Supply of Inputs and Technology Support**



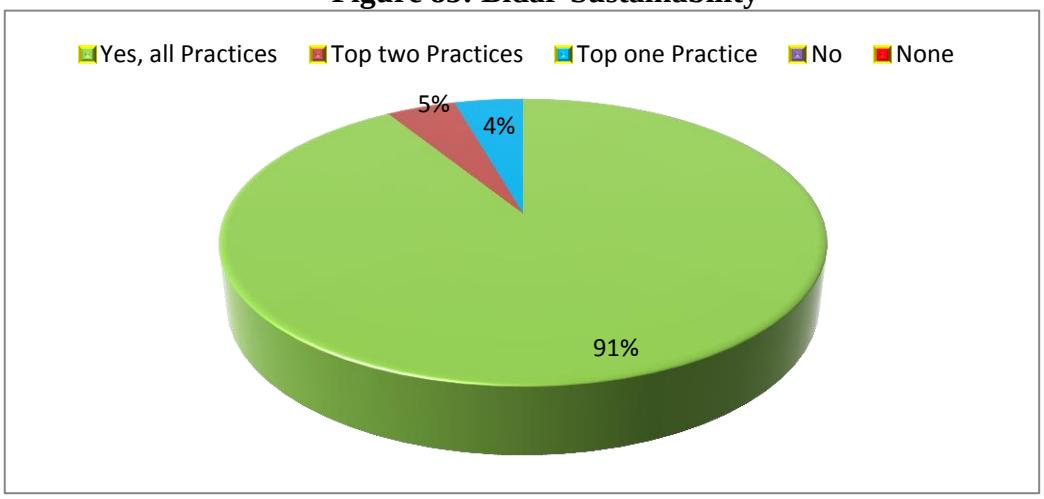

**Technical support:** As shown in the Figure 84, the study reveals 44.40% of the total respondents rated 'good' in the technical support got from the department of agriculture, followed by 32.20% rated 'very good', 16.70% as 'excellent' and 5.60% as 'satisfactory'. It is an indication that the respondents were very happy with technical support. Number of Farmer

Field Days conducted varied from 1 to 4 in a season. On the transfer of technology front, the majority of respondents reported of 'good' to 'very good'.

**12.32 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

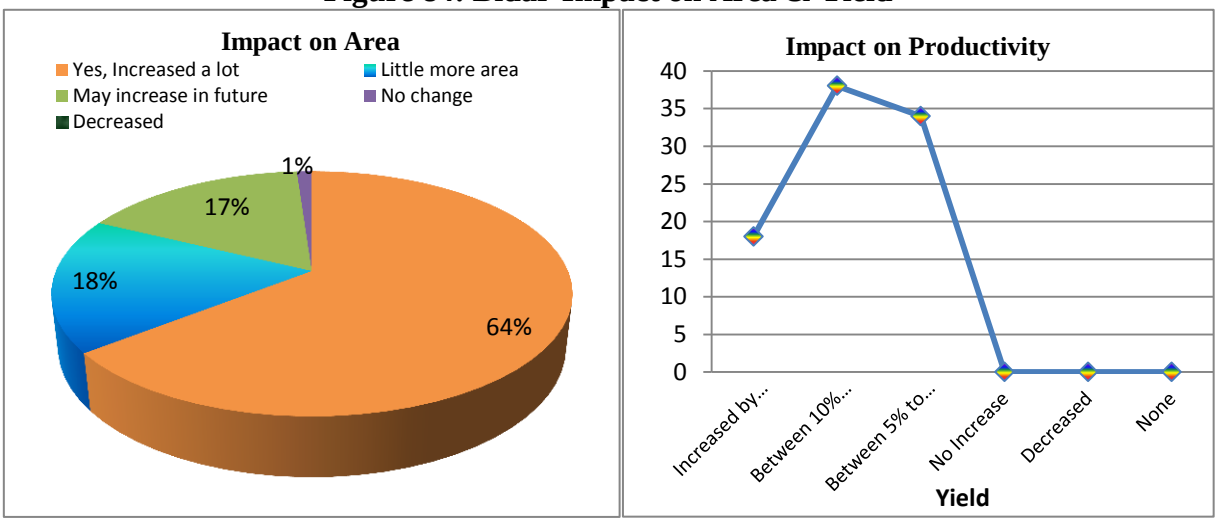
**Sustainability of technology:** Continuity of practices is an indication of its sustainability and the survey reveals 91.10% will continue to practice all recommended practices, 4.40% each practice top 2 and top 1 practices respectively (Fig 85).

**Figure 85: Bidar-Sustainability**




**Impact on Area:** One of the major objectives of the scheme is that the area under pulses should increase with increased productivity through improved technology adoption. The survey indicated 64.40% of the sample respondents rated increase as "increased a lot" followed by 17.80% of respondents opinion was 'little more area", 16.70% indicated that it "may increase in future'. Only 1.1% opined of no change in area under pulses (Fig 86).

**Figure 84: Bidar-Impact on Area & Yield**

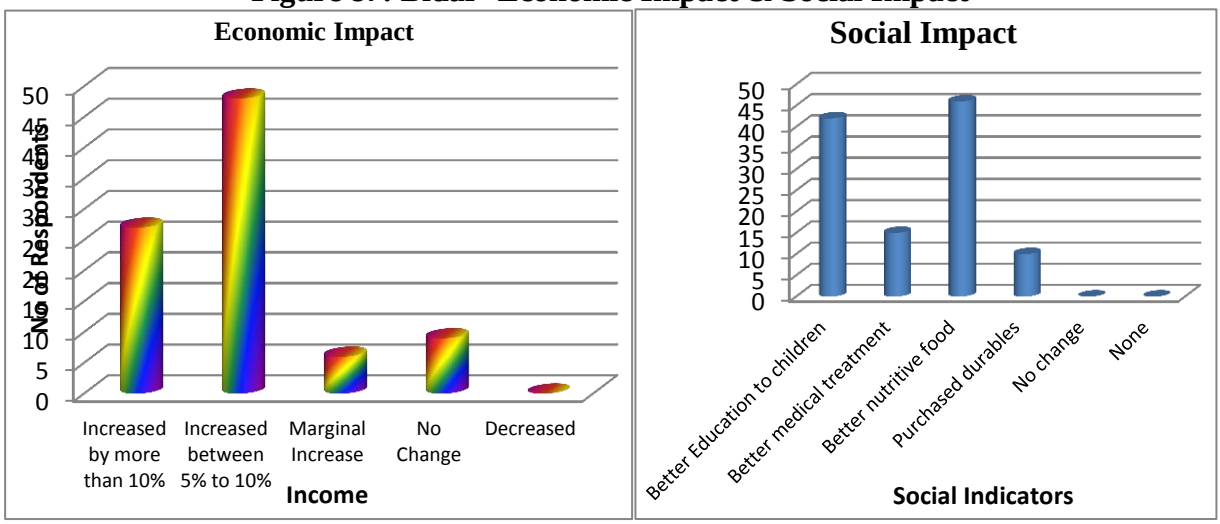


**Impact on Yield:** NFSM has generated benefits to the farmers in terms of enhancement of the productivity. The survey findings revealed that there was significant increase in the productivity of pulses. From the Figure 84, it is evident that the increased yields due to NFSM interventions was 10-15% for 42.20% of the sample respondents, followed by 5-10% increase for 37.8% farmers and more than 15% for 20% beneficiaries.

**Non-beneficiaries**: The **non-beneficiaries** had a mixed response for not adopting the scheme. Some of them were not aware of the mission and others were not selected by the department officers. As per primary survey, about 80 percent of the respondents revealed that their yields were less than NFSM beneficiaries and the balance 20 percent expressed that their yields were at par with NFSM beneficiaries.

**Economic Impact:** NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the beneficiaries got higher income. The majority 53.3% respondents reported of 5-10% increase in their income followed by 30% got more than 10%. The response of 10% respondents was that there was no change and 6.70% experienced marginal increase in their income due to NFSM interventions (Fig 87).

**Figure 87: Bidar- Economic Impact & Social Impact**




**Social Impact:** The survey findings reported that there was significant increase in the productivity of pulses and consequential income level of farmers. The survey report found that about 51.11% of respondents felt that they are getting better nutritive food, 46.60% felt that their children having better education, 16.60% had better medical treatment and 11.11% purchased durables like motorcycle, refrigerator etc.(Fig 87).

**Focus group discussion** brought out an observation that the migrations have come down due to better yields and income.

As far as **non-beneficiaries** are concerned, no one was aware of new technologies used by NFSM beneficiaries and wanted to get benefited with NFSM scheme.

**12.33 What are major contributors for enhanced production in the District?**

Majority of the respondents felt that the seed treatment with *Trichoderma viridi* was the major contributor in maintaining appropriate plant population by reducing seedlings mortality at the initial stages of crops. The other most important contributing component for higher productivity of pulses under NFSM was use of micronutrients like zinc and boron.

**12.34 How much convergence NFSM had with other schemes?**

It was reported that the convergence of Mission interventions had with different schemes of the State level programmes particularly with Bhoochetana and Farm Mechanization.

**12.35 What are Forward and Backward Linkages of the Scheme?**

No significant forward and backward linkages were reported.

**12.36 What are constraints in implementing the scheme and suggestions for improvement of programme?**

**Problems:** Less than 10 year old varieties seed distribution norm under the scheme is a major constraint. Subsidy for drip irrigation was not getting extended in time.

**Suggestions:** May conduct more awareness programs to understand fully about NFSM and also conduct number of technical training programs on the improved cultivation practices.

## VI. Gulbarga

Gulbarga district is located in the Northern part of the state and lies between North latitude $17^0$ 10 and $17^0$ 45 and between East longitude $76^0$ 10 and $77^0$ 45. It is bounded on the west by Bijapur district of Karnataka and Solapur district of Maharastra, on the north by Bidar district of Karnataka and Medak district of Telangana State and on the south by Yadgir, a newly formed district of Karnataka.

Gulbarga district occupies 16,224 square kilometers area. It is the largest district in the state in Geographical area which constitutes 8.46 percent area of the state. The district is sub-divided into 2 revenue sub-divisions viz. Gulbarga and Sedam. There are 7 revenue blocks in the district namely Aland, Afzalpur, Chincholli, Chittapur, Gulbarga, Jewargi and Sedam. There are 8 educational blocks in the district namely Afzalpur, Chincholli, Chittapur, Gulbarga North, Gulbarga South, Jewargi and Sedam. The district has got 32 Hobalis, 4 Muncipals, 7 Taluk Panchayats, 220 Grama Panchayats, 9 Assembly constituencies in the district.

It is predominantly an agricultural district divided into two agro climatic zones namely Eastern transition and North-Eastern dry zone. These zones indicate the predominance of rain dependent dry land agricultural area. The normal rainfall of the district is 777 mms. The climate of Gulbarga district is generally dry. The net sown area in the district is 85.1 per cent of the total cultivable land area, which is 13,821.94 square kilometers.

Agriculture in the district mainly depends upon the rainfall and the net area irrigated to net area sown is 14%, which is below the state average of 24%. Bhima, Kagina, Mullamari, Benne Tora and Bori rivers flow in the district. The medium irrigation project in the district is Chandrampalli. There are 36 lift irrigation schemes and 445 minor irrigation tanks in the district. Major crops grown in the district are jowar, red gram, sunflower and groundnut. In terms of productivity the yields of principal crops are lesser than the state average. The variation in rainfall and endemic pest attack has affected productivity of tur (red gram). The production and productivity of jowar has been improving because of better use of fertilizer and plant protection measures. In case of oil seeds the area and production has been decreased.

**12.37 What are physical and financial achievements against targets?**

The overall physical and financial achievements were 93.76 and 91.58 percent respectively. The physical achievements were highest with 357.98 percent in farm equipments followed by IPM and seed supplies with about 100 percent. SFSMEC is empowered to make inter-componential changes in budgetary allocation based on the local needs to the extent of 20% of the total allocation. The higher percent distribution of farm equipments mainly knapsack sprayers was taken up with the approval of SFSMEC.

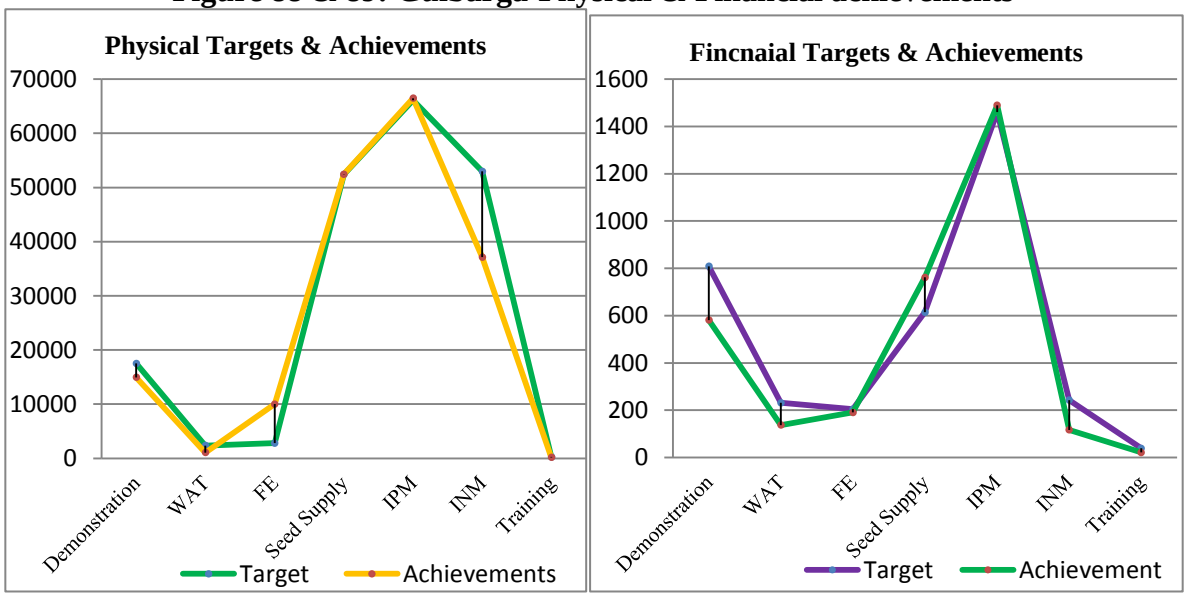
The financial achievements were better in seed supply, IPM and farm equipments with 124.09, 102 and 92.97 percentages respectively. Water application tools achievements were only 44.32 and 59.14 percent physical and financial respectively. Demonstrations physical and financial achievements were 85.34% and 71.86% respectively. Integrated Nutrient Management (INM) and training interventions could achieve 70.10% and 72.30% physical and 48.07% and 54.20% financial targets respectively (Table 50).

**Table 50: Gulbarga-Physical and Financial Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (in lakh of Rs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievements | | Target | Achievement | |
| Demonstration | 17500 | 14935 | 85.34 | 809 | 581.37 | 71.86 |
| WAT | 2367 | 1049 | 44.32 | 231.58 | 136.96 | 59.14 |
| FE | 2799 | 10020 | 357.98 | 204.85 | 190.45 | 92.97 |
| Seed Supply | 52385 | 52447 | 100.12 | 614.22 | 762.22 | 124.09 |
| IPM | 66084 | 66474 | 100.59 | 1460.57 | 1489.79 | 102 |
| INM | 52985 | 37139 | 70.10 | 242.81 | 116.73 | 48.07 |
| Training | 245 | 177 | 72.3 | 39.15 | 21.22 | 54.2 |
| Total | 194365 | 182241 | 93.76 | 3602.18 | 3298.74 | 91.58 |

Source: Progress Reports, Dept. of Agriculture

**Figure 88 & 89: Gulbarga-Physical & Financial achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan to evaluate the overall impact created by the scheme.

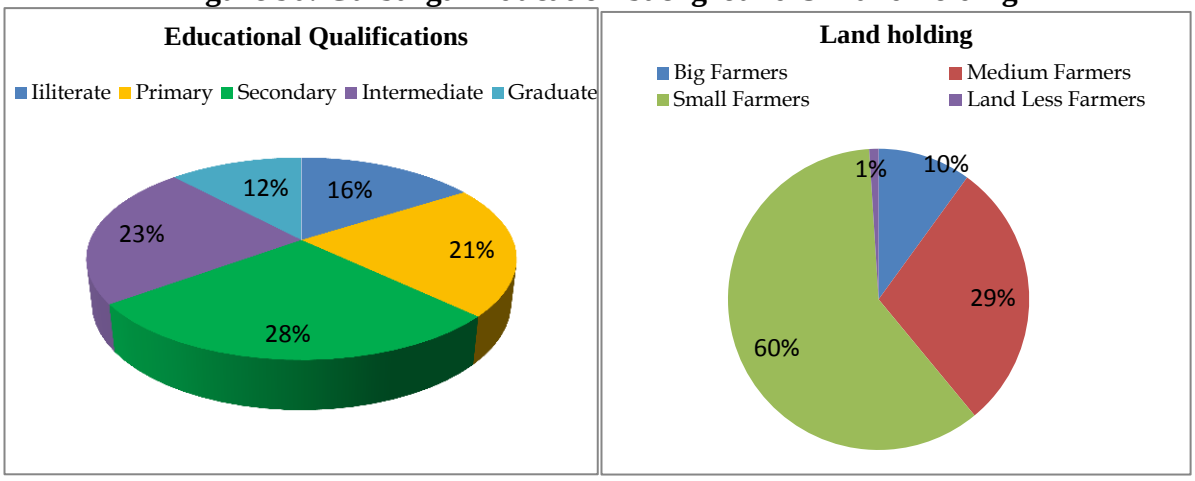
**12.38 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?**

**Gender and Age**: The proportion of male among the sampled respondents is 97 percent. The majority (47%) of the respondents are 40 years and above, followed by 27% under the age group of 35-40 years, 18% in the age group of 30-35 years. Further, 6% are 25-30 years and 2% of 18-25 years old.

**Categories of Farmers**: The NFSM scheme is extended to all the categories of the farmers and 73% of the respondents selected for the present study are from OC/General category followed by 18% SC, 6% BC, 1% ST and 2% minorities. It shows, the coverage of different categories of farmers selected for primary survey in various villages study was able to provide the benefits of NFSM scheme to all the categories.

**Educational Status**: Education plays an important role in the development and the same is true for the NFSM scheme. Therefore, the education status of sampled farmers both beneficiaries and non-beneficiaries was enquired. This information is summarized in Figure 90 below.

**Figure 90: Gulbarga- Education background & Land holding**



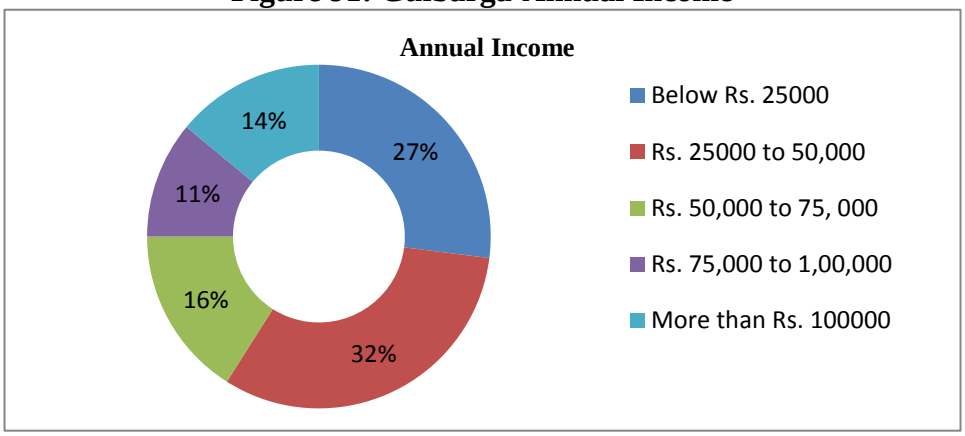

From the Figure, education background of 28% respondents is secondary school education, 23% intermediate, 21% primary school educated, 16% illiterate and 12% graduates.

**Land Holding:**The sampled farmers were categorized into four categories based on their land holdings such as small and marginal farmers under 2 hectares, medium between 2-4 hectares, large above 4 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding have been presented in the Figure 88 for both beneficiaries and non-beneficiaries.

The above Figure reveals that the majority 60% respondents were small farmers, followed by 29% medium farmers, 10% big farmers and 1% landless farmers.

**Family Income:** Annual income of 32% of respondents was Rs 25,000 to 50,000 followed by 27% having income below Rs 25,000, 16% respondents' income Rs 50,000 to 75,000 and 15% having more than Rs 75,000 per annum (Fig 91).

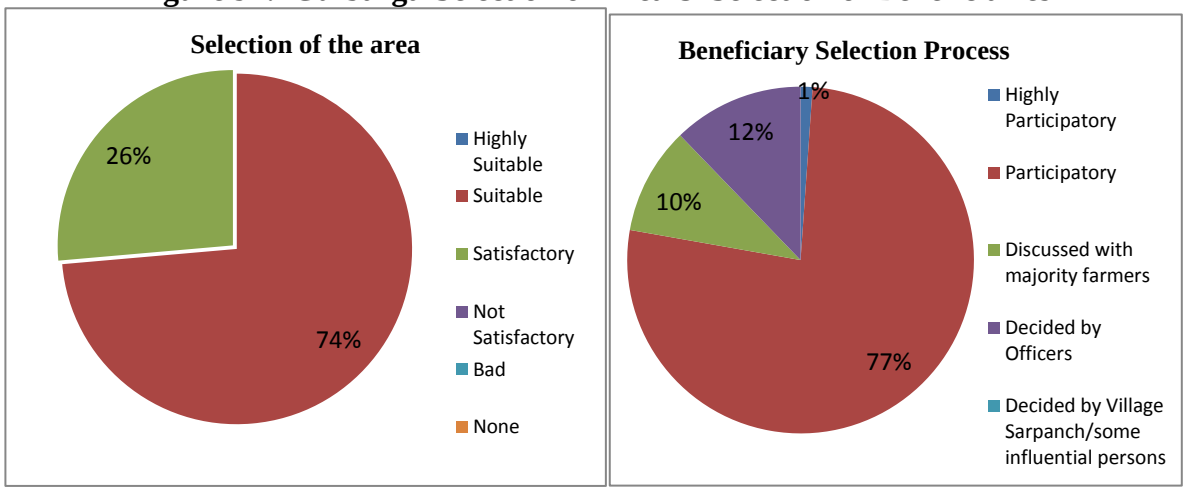
**Figure 91: Gulbarga-Annual Income**




**12.39 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area and Beneficiaries:** From the study, 74 percent respondents reported that the selection of area under various interventions was done on the basis of its suitability, and 26 percent felt satisfactory (Fig 92).

**Figure 92: Gulbarga-Selection of Area & Selection of Beneficiaries**

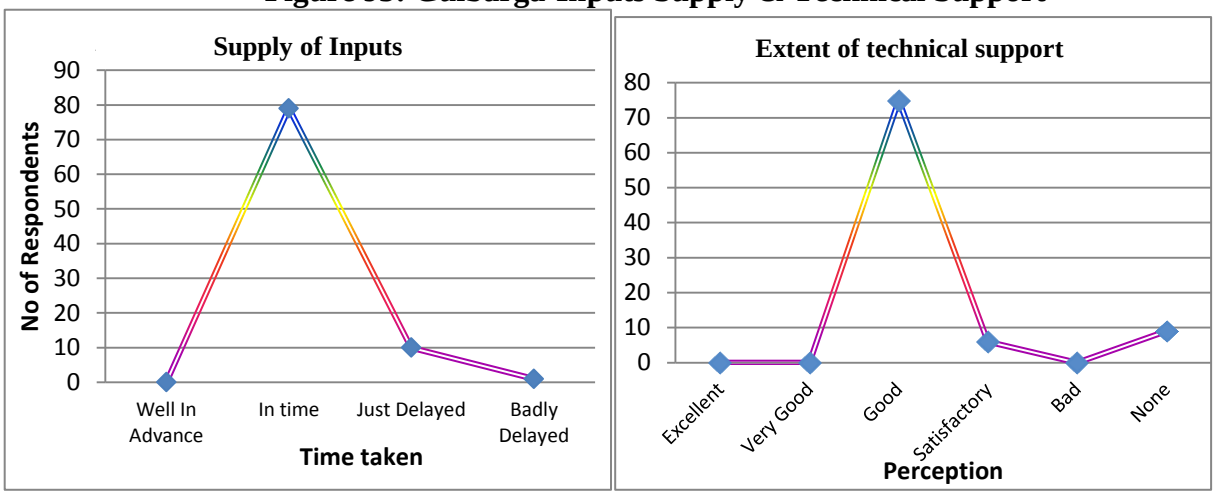



**Beneficiaries Selection**: The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in the village. Majority 77% respondents opined that the selection process was participatory, 12% opined it was decided by officers, 10% indicated as 'it was discussed with majority of farmers' and 1% convinced it was highly participatory (Fig 92)

**Inputs supply**: The timely availability of inputs like seeds, fertilizers, pesticides etc. to the farmers is one of the critical aspects for enhancing productivity. Proper planning for timely

availability of inputs and advance tie-up with manufacturers and suppliers is essential for facilitating early procurement and supply. The survey reveals 87.80% respondents experience was inputs supplied on time, followed by 11.10% response of just delayed (Fig 93).

**Figure 93: Gulbarga-Inputs Supply & Technical Support**

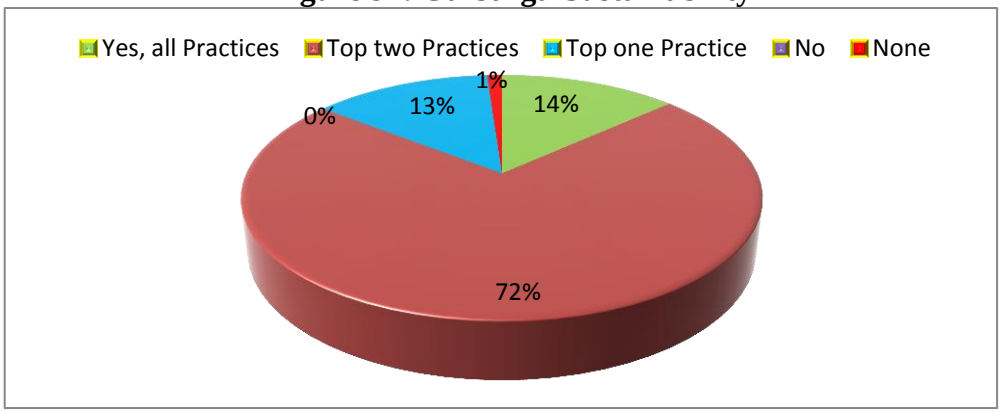



**Technical support:** The study reveals 83.30% of the total respondents rated 'good' in the technical support got from the department of agriculture, followed by 6.70% rated 'satisfactory' and the balance 10% not responded (Fig 93).

**12.40 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

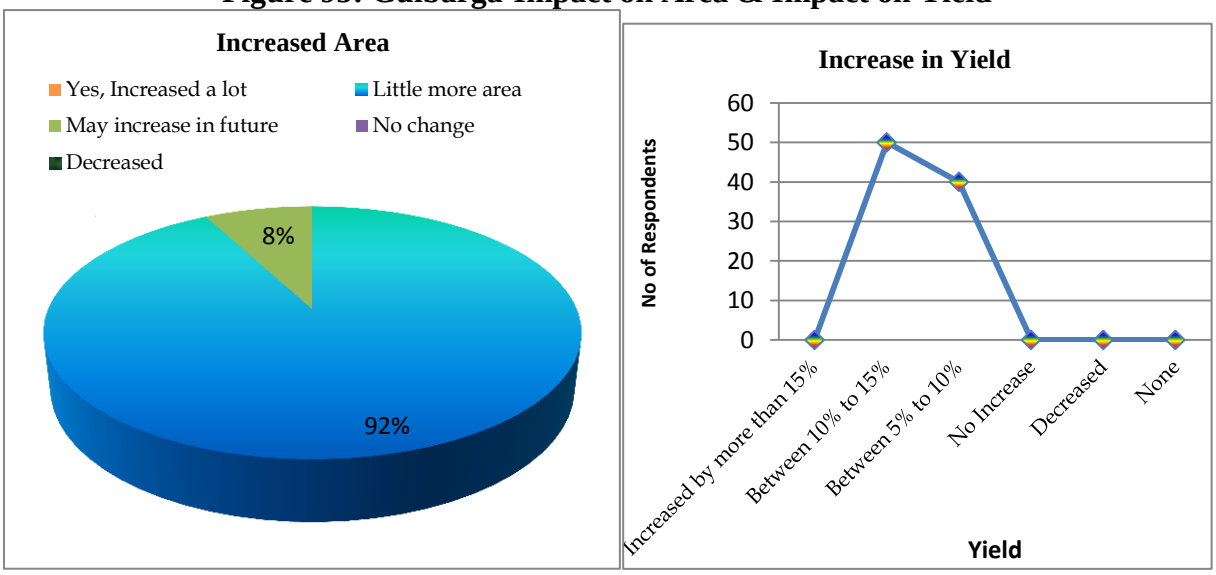
**Sustainability of technology:** Continuity of practices is an indication of its sustainability and the survey reveals 72% will continue top two most important practices followed by 14% to continue all practices and 13%top one practice (Fig 94).

**Figure 94: Gulbarga-Sustainability**




**Impact on Area:** One of the major objectives of the scheme is that the area under pulses should increase. The survey indicated 92% of the sample respondents gave rating of increase as "little more area" and 8% believe 'area may increase in future' (Fig 95).

**Figure 95: Gulbarga-Impact on Area & Impact on Yield**

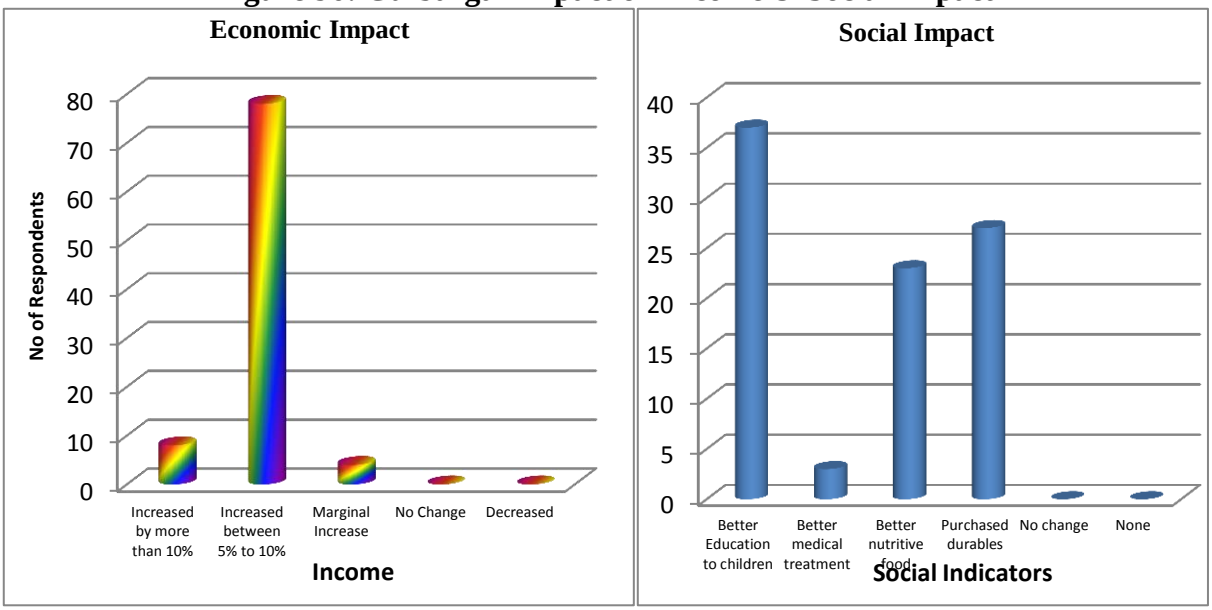



**Impact on Yield:** NFSM has generated benefits to the farmers in terms of enhancement of the productivity. From the Figure 95, about 55.60% believe that the increase in yields due to NFSM interventions was 10-15% and 44.40% recorded 5-10% increase.

**Non-beneficiaries:** About 40% non-beneficiaries indicated that their yields were at par with NFSM beneficiaries, 30% believed it was less than yields of beneficiaries and 20% not responded. Every non-beneficiary expressed that they were interested to know improved technologies used under NFSM and wanted to get benefited with NFSM scheme.

**Economic Impact:** NFSM has greatly helped the farming community in the overall economic upliftment. As shown in Figure 96, the majority (86.70%) respondents reported 5-10% increase in their income, 8.90% reported of more than 10% increased income and the balance 4.40% reported of marginal increase.

**Figure 96: Gulbarga- Impact on Income & Social Impact**



**Social Impact:** The majority of the farmers are facing poverty, undernourishment, health and education problems due to low agricultural incomes. The survey findings reported that there was significant increase in the productivity of pulses and consequential income level of farmers. As given in Figure 96, the survey report found that more than 41.10% of respondents used higher income for better education of their children.

**Focus Group Discussions:** Focus group discussion brought out an observation that the migrations reduced due to better employment opportunities in the villages with large number of schemes of the Government of Karnataka along with NFSM**.**

**12.41 What are major contributors for enhanced production?**

Integrated Nutrient Management (INM) interventions with micronutrients like zinc, boron etc. and soil improving gypsum are major contributors for the enhanced yields of pulses under NFSM.

**12.42 What are suggestions?**

More technical staff may be placed in the scheme for better technical support to farmers.

**VII**. **Bijapur (Vijayapura**)

The population of the district is more than 21 lakh. Around 20% of the people habitation is found in the urban regions (Bijapur, Indi etc.) and the rest of the 80% are in rural areas. Bijapur has semi-arid climate and is located at 16.83°N 75.7°E. The climate of Bijapur district is generally dry. In summer, especially in April and May it is too hot with temperatures of 40 to 42 Degree Celsius. The winter season is from November to January and the temperatures range between 15 to 20 Degree Celsius.

The average annual rainfall for the district is 552.8 mm with 37.2 rainy days. The monsoon generally reaches the district by June and lasts till October. Though the total rainfall is not high, the district benefits both from the South-West and the North-East monsoons. The annual rainfall varies from place to place within the district.

The district has two types of soils such as deep black and red soils. The major portion of the district consists of black soils which have a great moisture-holding capacity and crops like jowar, wheat, pulses, sunflower etc. are grown.

In Bijapur district agriculture forms the important source of livelihood for more than 70% population. Due to the untimely and inadequate nature of rainfall, Bijapur district has frequently suffered from famines and droughts. The total area sown is 8,42,586 hectares, out of which only 1,98,614 (23.5%) hectares is irrigated.

**12.43 What are physical and financial achievements against targets?**

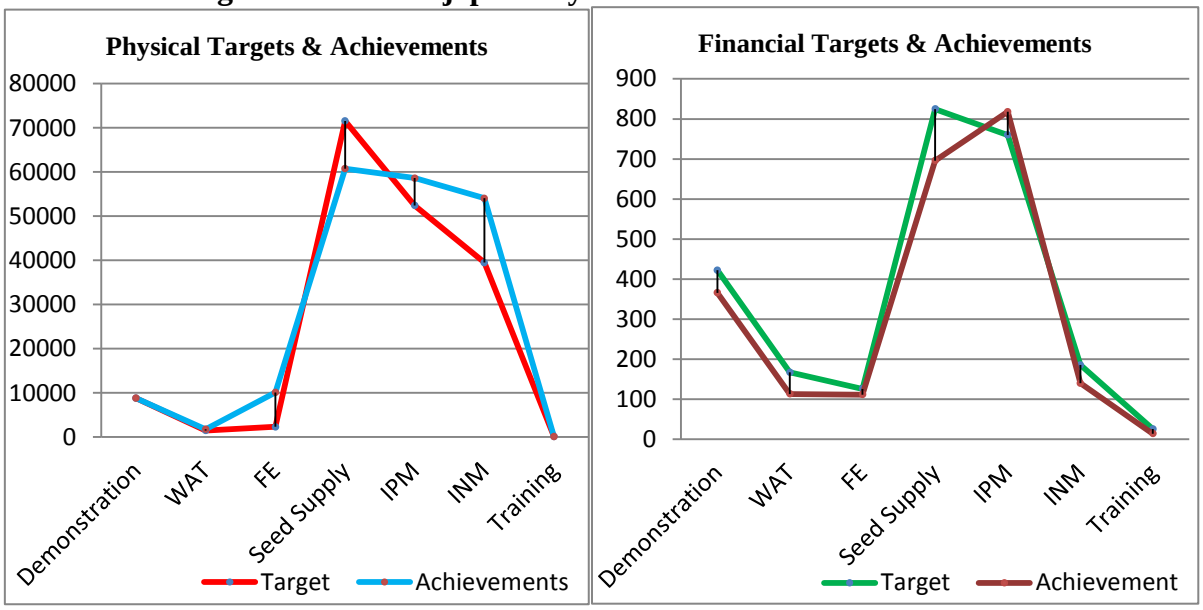
The overall physical and financial achievement works out to be 110.24% and 89.95% respectively. The extent of physical achievements was four fold in case of farm equipments with 434.58 percent with 88.55 percent financial achievements. The physical targets were fully achieved (100%) with regard to demonstrations and 86.67 percent financial. The physical achievements were more than 100% with water application tools, IPM and INM. Even financial achievements were more than 100% in the implementation of IPM component. Seed supply achievements were 84.91 and 84.39 percent physical and financial respectively. The training could achieve 96.97 percent physical and 55.29 percent financial targets (Table 51).

**Table 51: Bijapur-Physical and Financial Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (in lakh of Rs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievements | | Target | Achievement | |
| Demonstration | 8800 | 8800 | 100 | 422 | 365.72 | 86.67 |
| WAT | 1492 | 1795 | 120.31 | 167.18 | 113.39 | 67.83 |
| FE | 2331 | 10130 | 434.58 | 126.04 | 111.603 | 88.55 |
| Seed Supply | 71575 | 60765 | 84.91 | 824.6 | 695.918 | 84.39 |
| IPM | 52437 | 58632 | 111.81 | 759.79 | 817.637 | 107.61 |
| INM | 39491 | 54053 | 136.87 | 185.59 | 140.135 | 75.51 |
| Training | 165 | 160 | 96.97 | 25.65 | 14.181 | 55.29 |
| Total | 176291 | 194335 | 110.24 | 2510.85 | 2258.584 | 89.95 |

Source: Progress Report, Dept. of Agriculture, Karnataka

**Figure 97 & 98: Bijapur-Physical & Financial Achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan and analyzed their responses in this unit.

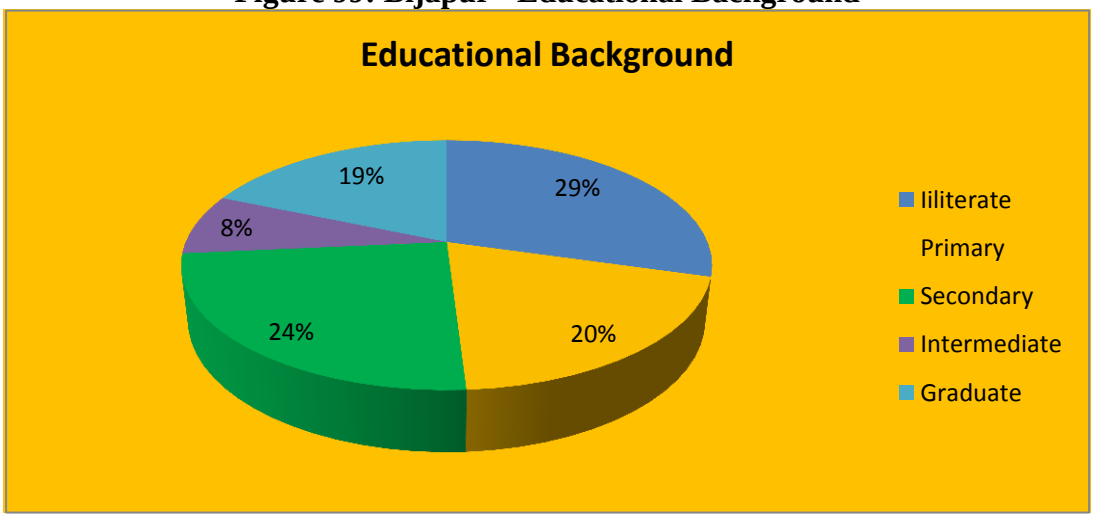
**12.44 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?**

**Gender and Age**: The proportion of male among the sampled respondents is 90 percent. The majority of the respondents 63% in the age group of 40 years and above, followed by 18% in the age of 30-35 years, 17% in the age group of 35-40 years, and the balance 2% are of 25-30 years old.

**Different Sections of Farmers:** The NFSM scheme is extended to all the categories of the farmers and 47% of the respondents selected for the present study are from OC/General category followed by 33% BC, 16% SC and 4% minorities. It shows, the coverage of different categories of farmers selected for primary survey in various villages under study were able to provide the benefits of NFSM scheme to all the categories of the farmers.

**Educational Status:** The education status of sampled farmers both beneficiaries and non-beneficiaries was enquired. This information is summarized in Figure 99 given below.

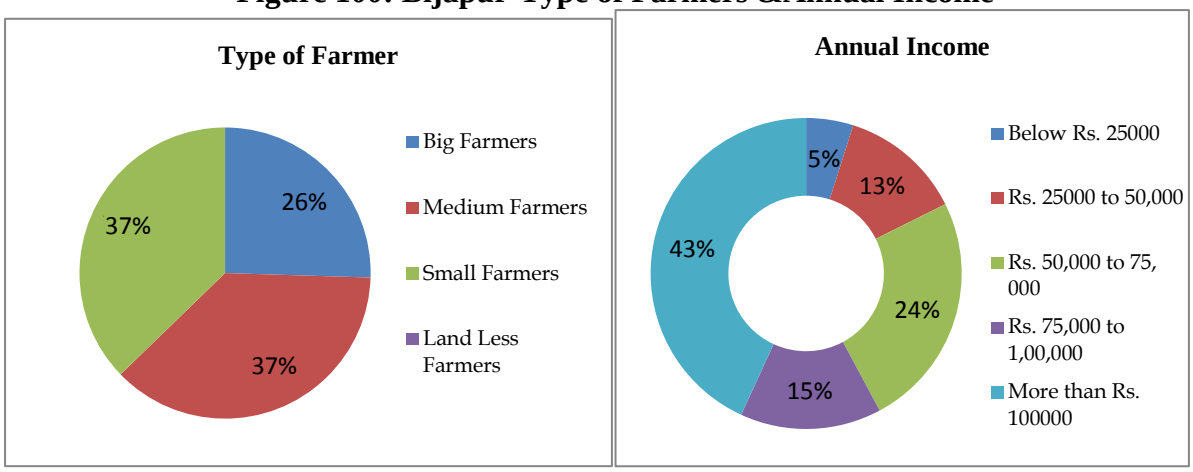
**Figure 99: Bijapur- Educational Background**




From the Figure, 29% of the sample respondents are illiterate followed by 24% secondary school educated, 20% primary school educated, 19% graduates and the remaining 8% intermediate educated.

**Land Holding**: The sampled farmers were categorized into four groups based on their land holdings such as small and marginal farmers under 2 hectares, medium between 2-4 hectares, large above 4 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding have been presented in the Figure 100 for both beneficiaries and non-beneficiaries. The Figure reveals that the proportion of small and medium farmers have almost equal representation with 37% each, followed by 26% big farmers.

**Figure 100: Bijapur-Type of Farmers &Annual Income**

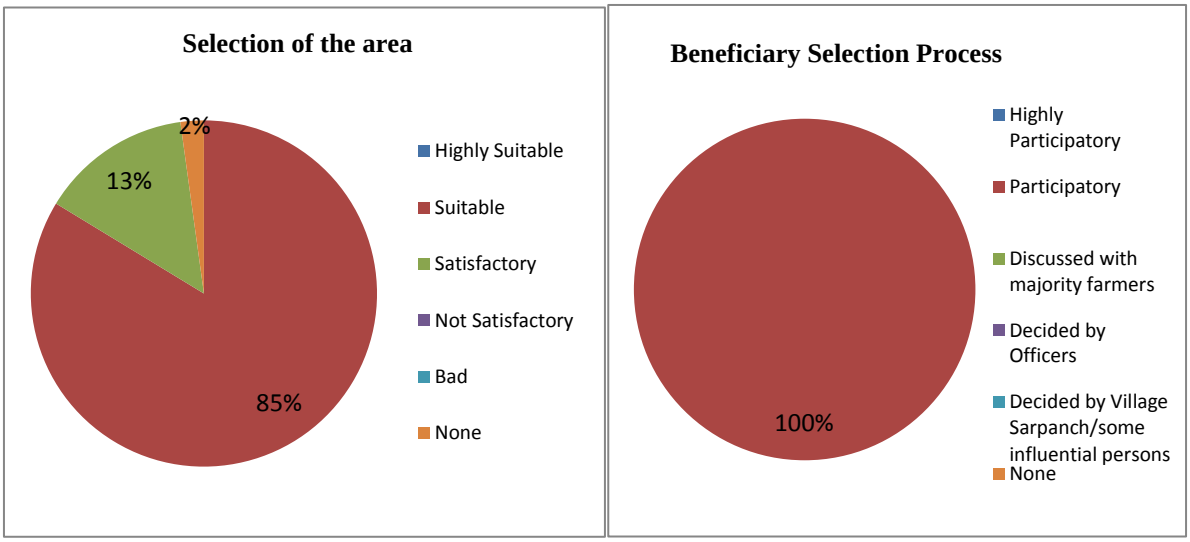



Annual income of 43% respondents is more than Rs 1,00,000, followed by 24% of them having income ranging from Rs 50,000 to Rs 75,000. Further 15% of the respondents had an income of Rs 75,000 to RS 1,00,000 and 13% respondents income is of Rs 25,000 to 50,000. Others (5%) are having less than Rs 25,000 income per annum.

**12.45 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area and Beneficiaries:** From the study 85 percent respondents reported that the selection of area under various interventions was done on the basis of it suitability, followed by 13 percent respondents opinion of 'satisfaction' and 2 percent have not responded on this issue (Fig 101).

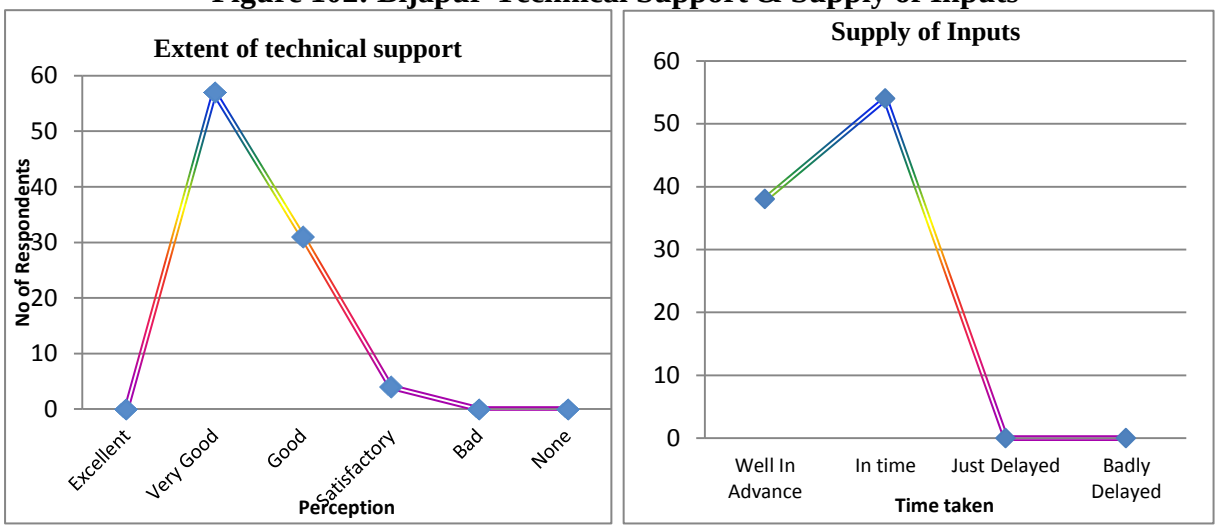
**Figure 101: Bijapur-Selection of Area & Selection of Beneficiaries**




The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in the village as everyone gave same opinion (Fig 101).

**Inputs supply:** The timely availability of inputs like seeds, fertilizers, pesticides etc. to the farmers is one of the crucial aspect for enhancing productivity. Proper planning for timely availability of inputs and advance tie-up with manufacturers & suppliers is essential for facilitating early procurement and supply. The survey reveals 58.90% respondents experienced of getting inputs on time. Balance 41.20% reported it was well in advance (Fig 102).

**Figure 102: Bijapur-Technical Support & Supply of Inputs**

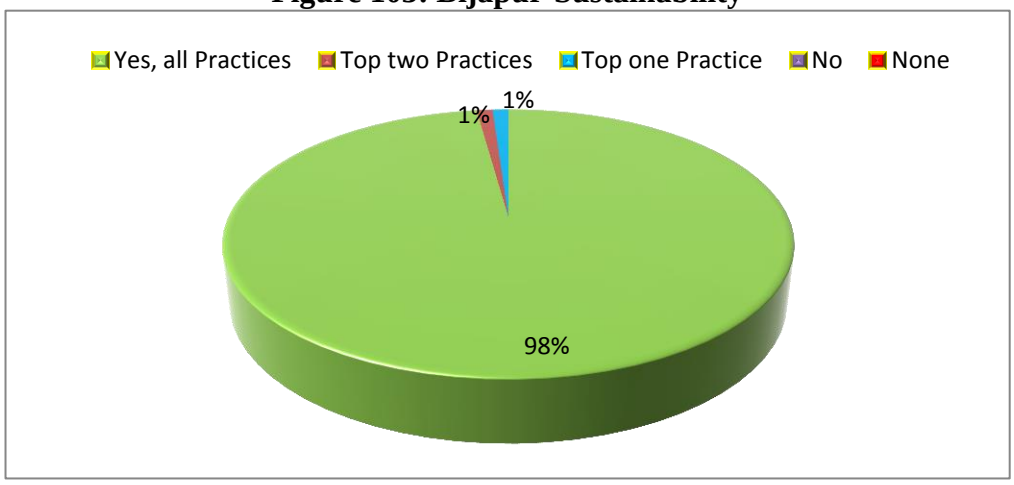



**Technical support:** The study reveals 62.30% of the total respondents rated very good in the technical support extended by the department of agriculture, followed by 33.40% rated "good" and 4.50% rating of "satisfactory". It is an indication that the respondents were very happy with technical support.

**12.46 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

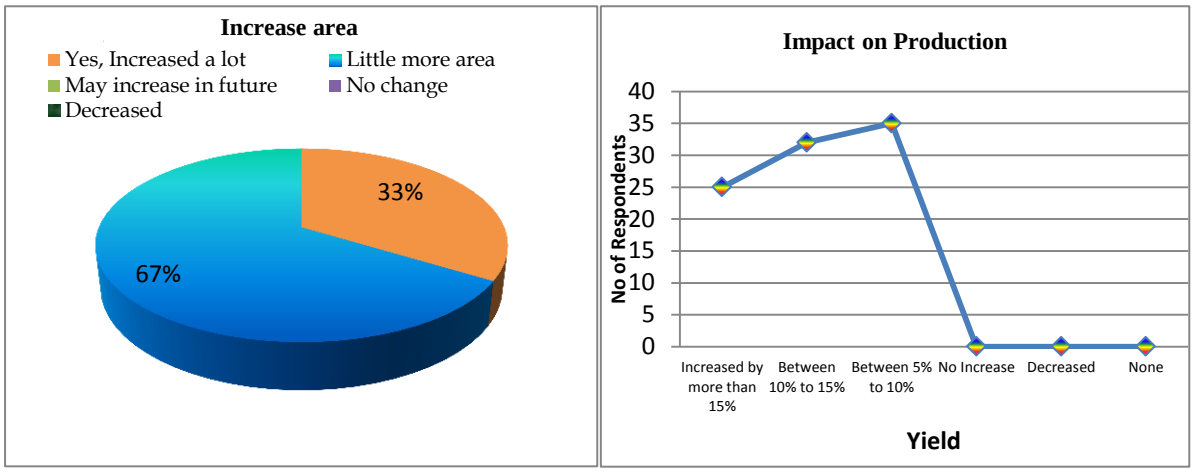
**Sustainability of Technology:** Continuity of practices is an indication of its sustainability and the survey reveals 98.00% will continue all recommended practices and 1% each will continue foremost important one and two practices (Fig 103).

**Figure 103: Bijapur-Sustainability**



**Impact on Area:** One of the major objectives of the scheme is to increase area under pulses. The survey indicated that about 67% sample respondents specified rate of increase was "little more" followed by 33% respondents opined area under pulses 'increased a lot'(Figure 104).

**Figure 104: Bijapur-Impact on Area & Yields**

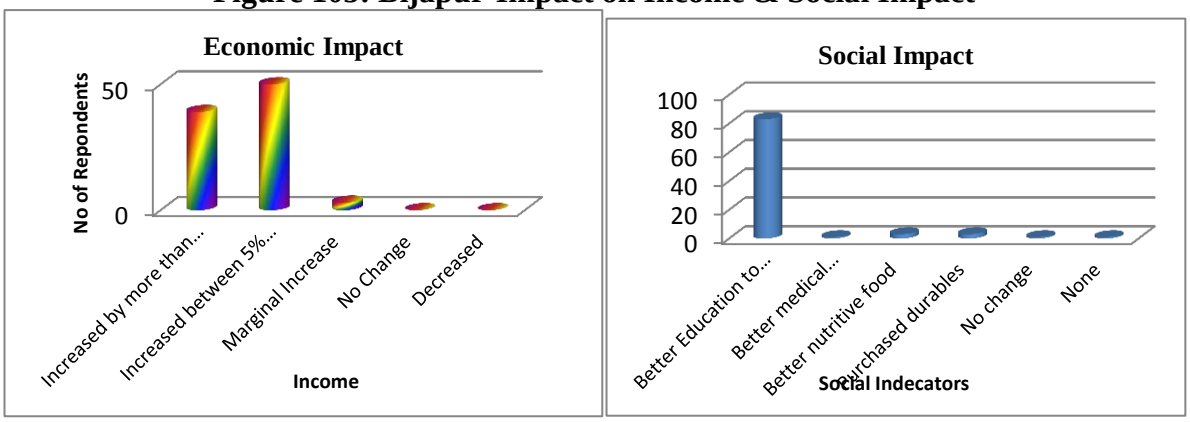



**Impact on Yield:** The major objective of the mission is to increase the yields of pulses with different interventions. From the Figure 104, it is evident that the increase in the yields due to NFSM interventions was 5-10% to 37.80% sample respondents, followed by 10-15% increase for 35.60% beneficiaries. The opinion of about 26.70% respondents was more than 15% increase in their yields.

**Non-beneficiaries**: The non-beneficiaries were not adopting the scheme because of lack of awareness and 84.4% of respondents felt that their yields were less than NFSM beneficiaries. Every non-beneficiary expressed that they wanted to get benefited with NFSM scheme.

**Economic Impact:** NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income enhancement of the majority 55.60% respondents was 5-10% more than control, followed by 42.30% reported 10% increase in their income. The response of 2.30% respondents was that there was a marginal increase in their income (Fig 105).

**Figure 105: Bijapur-Impact on Income & Social Impact**




**Social Impact:** The survey findings reported that there was significant increase in the productivity of pulses and consequential income levels of farmers. The survey report found 91.20% respondents could afford better education to their children, 3.40% each used higher income for better nutritive food and for the purchase of durables like motorcycle, refrigerator etc. Further, 1.20% respondents opined that they had better medical treatment.

**Focus Group Observation:** There was an increased employment and irrigation facilities due to NFSM interventions.

Earlier ICPL-8863 (Maruthi) of redgram used to give 4-5 qu/ha. The improved variety TS-3R seeds supplied under NFSM are giving 5-6qu/ha. The low market price for TS-3R due to bigger size, pink color of seeds is compensated with higher yields.

**12.47 What are major contributors for enhanced production?**

Micronutrients like boron and zinc foliar spray, gypsum application and *Trichoderma* seed treatment have contributed significantly in the productivity enhancement of pulses.

**12.48 What is the extent of convergence NFSM had with other schemes?**

NFSM scheme is integrated with Bhoochetna and RKVY for high tech equipments.

**12.49 What are constraints in implementing the scheme and suggestions for improvement of programme?**

**Problems:** There were complaints that the seed supplies have not taken place in time. Knapsack power sprayer subsidy and water pipes subsidy component under NFSM is far less than the subsidy given under the State Schemes.

**Suggestions:**

i) May provide a tablet computer costing about Rs.23,000/- with all package of practices, marketing and weather details as it was supplied by ICRISAT under Bhoochetana.

ii) Sprinklers and drip irrigation equipments may be supplied in large numbers as the district has limited irrigation facilities.

iii) Tarpaulin supplies may also be included under NFSM to protect harvested produce in the field from unforeseen rains and to keep the harvested produce to certain period until they get better price.

v) Bullock drawn seed drills may also be supplied in large numbers under NFSM.

## VIII. Gadag

Gadag a unique district located in the western part of northern Karnataka lies between 14º 56' to 15º 53' North latitude and 75º 17'to 76º 02' East longitudes. The district is bounded by six districts namely Dharwad on west, Belgaum on the North-West, Bagalkot on the north, Koppal on the east, Ballary on the South-East and Haveri on the South-West. Malaprabha River is in the north and Tungabhadra in south with the natural boundaries.

**Rainfall**: The average annual rainfall in the district is 612.5 mm and within the district the quantum of rainfall and the average number of rainy days decreases as one move from west to east. The annual rainfall occurs between June to September. Maximum rainfall occurs in the month of September.

**Agriculture**: Gadag is predominantly an agriculture-based district and cultivable land is the backbone of its economy. Agriculture contributes to about 65.5 percent of the income of the district. It has a semi-arid climate, which favors the growth of seasonal crops like maize, sorghum, greengram, groundnut, sunflower, onion, and chilli during kharif season. In rabi season, crops like jowar, bengal gram, and wheat are grown. Of the gross cropped area, cereals occupy about 39 per cent followed by pulses 15 per cent, oilseeds 34 per cent and commercial crops 12 percent.

### 12.50 What are physical and financial achievements against targets?

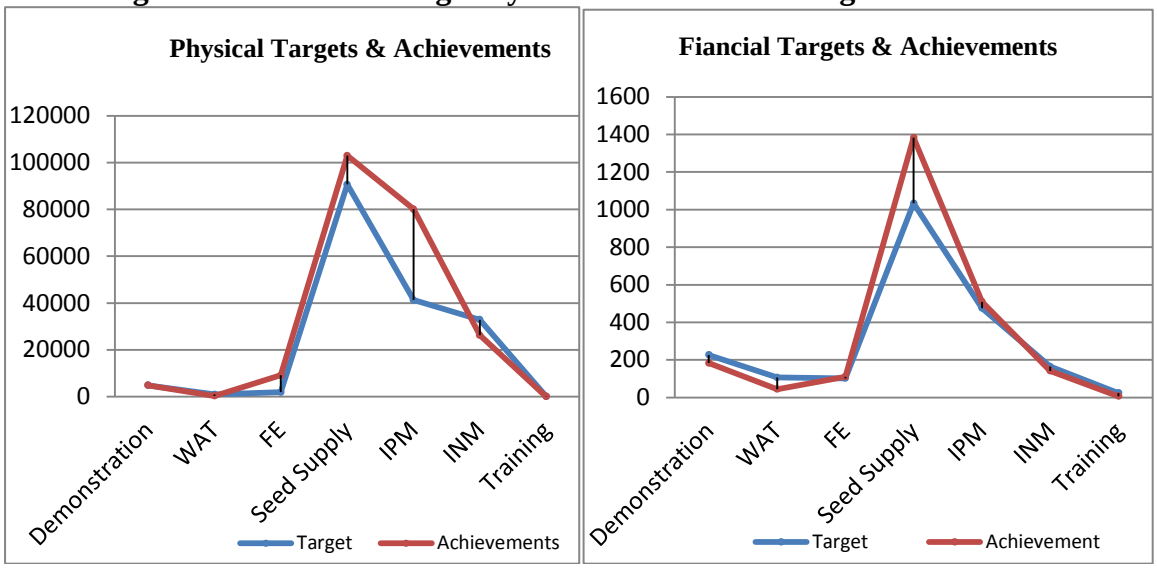
The overall physical and financial performance was outstanding with an achievement of 129.51 and 111.57 percent respectively. The farm equipments achievements were 469.46 percent physical and 108.81 percent financial. The extent of physical achievements were 194.04 percent for IPM, followed by 113.57 percent for seed supply, 100 percent for demonstrations, 79.77 percent for INM, 35.61 percent for water application tools and 32.90 percent for training component. The financial achievements were also of significant with 133.81, 107.18, 86.09, 80.59 and 41.77 percent for seed supply, IPM, INM, demonstrations and water application tools respectively. The lowest financial achievement was in training component with 29.94 percent (Table 52).

**Table 52: Gadag-Physical and Financial Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (in lakh of Rs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievements | | Target | Achievement | |
| Demonstration | 4900 | 4900 | 100.00 | 227 | 182.95 | 80.59 |
| WAT | 952 | 339 | 35.61 | 106.55 | 44.51 | 41.77 |
| FE | 1958 | 9192 | 469.46 | 101.95 | 110.93 | 108.81 |
| Seed Supply | 90638 | 102936 | 113.57 | 1033.45 | 1382.81 | 133.81 |
| IPM | 41297 | 80132 | 194.04 | 475.47 | 509.63 | 107.18 |
| INM | 32900 | 26244 | 79.77 | 164.5 | 141.62 | 86.09 |
| Training | 155 | 51 | 32.90 | 23.98 | 7.18 | 29.94 |
| Total | 172800 | 223794 | 129.51 | 2132.9 | 2379.63 | 111.57 |

Source: Department of Agriculture

**Figure 106 & 107: Gadag- Physical and Financial Targets & Achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan and the findings are given in this unit.

**12.51 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?**

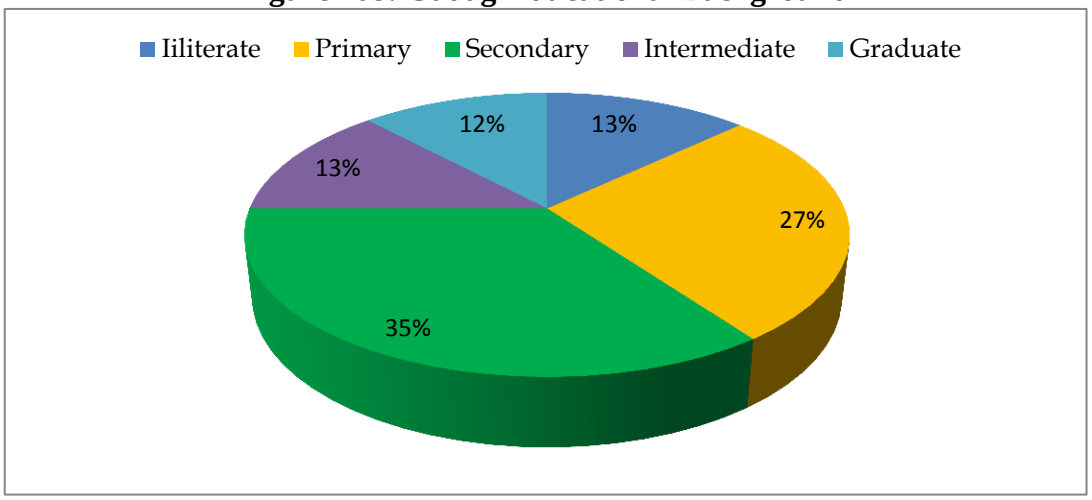
**Gender and Age:** The proportion of male among the sampled respondents is 85 percent and the majority (50%) respondents are 40 and above, followed by 27% under age group 35-40 years, 18% under 30-35 years, 3% in the age group 25-30 years, and 2% are 18-25 years old.

**Categories of Farmers:** The NFSM scheme is extended to all the categories of farmers and 74% of the respondents selected for the present study are from OC/General category followed by 11% SC category, 8% ST, 5% BC and 2% minorities. It shows the coverage of different

categories of farmers selected in the village was able to provide the benefits of NFSM scheme to all categories.

**Educational Status**: The education status of sampled farmers both beneficiaries and non-beneficiaries was enquired and summarized in Figure 108 given below.

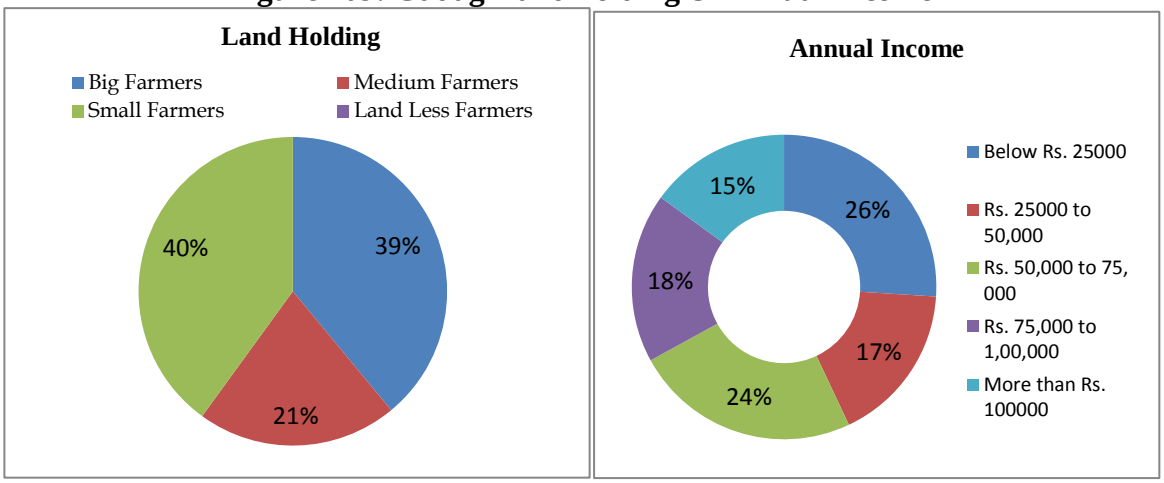
**Figure 108: Gadag-Educational Background**




From the Figure, 35% secondary school educated, 27% primary school educated, 13% intermediate educated, 12% graduates and the balance 13% illiterate.

**Land Holding:** The sampled farmers were categorized into four groups based on their land holdings such as small and marginal farmers under 2 hectares, medium between 2-4 hectares, large above 4 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding have been presented in the Figure 109 for both beneficiaries and non-beneficiaries.

**Figure 109: Gadag-Land holding & Annual Income**



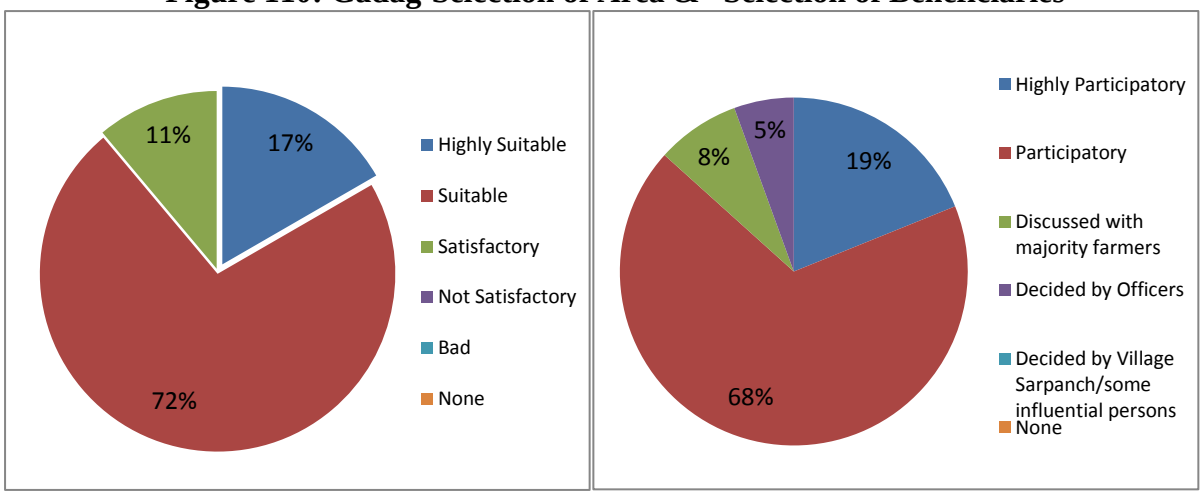

The above Figure reveals 40% respondents are small farmers, followed by 39% big farmers, and 21% medium farmers.

Annual income of 26% respondents was below Rs 25,000 followed by 24% having income Rs 50,000 to 75,000, 18% respondents income Rs 75,000 to 1,00,000 and 15% respondents income more than Rs 1,00,000. The balance 17% respondents' income was Rs 25,000 to 50,000 per annum (Fig 107).

**12.52What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area and Beneficiaries:** From the study 72 percent respondents reported that the selection of area under various interventions was done on the basis of 'its suitability', 17 percent felt 'highly suitable' and the balance 11 percent rated 'satisfactory' (Fig 110).

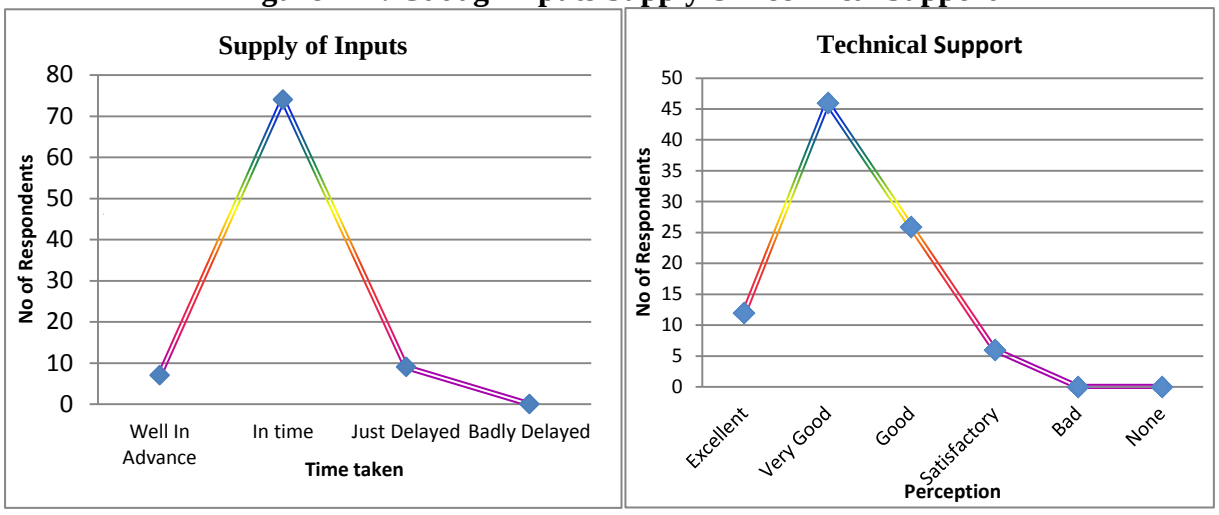
**Figure 110: Gadag-Selection of Area & Selection of Beneficiaries**




**Selection of Beneficiaries:** The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in the village. Majority (68%) respondents opined that the selection process was participatory, 19% opined highly participatory, 8% believed it was discussed with the majority of farmers, and 5% felt it was decided by officers (Fig 110).

**Inputs supply:** The timely availability of inputs like seeds, fertilizers, pesticides etc. to farmers is one of the critical aspects for enhancing productivity. The survey reveals 82.20% respondents experienced that it was supplied on time, 7.80% response 'well in advance' but 10% expressed it was 'just delayed'(Fig 111).

**Figure 111: Gadag- Inputs Supply & Technical Support**

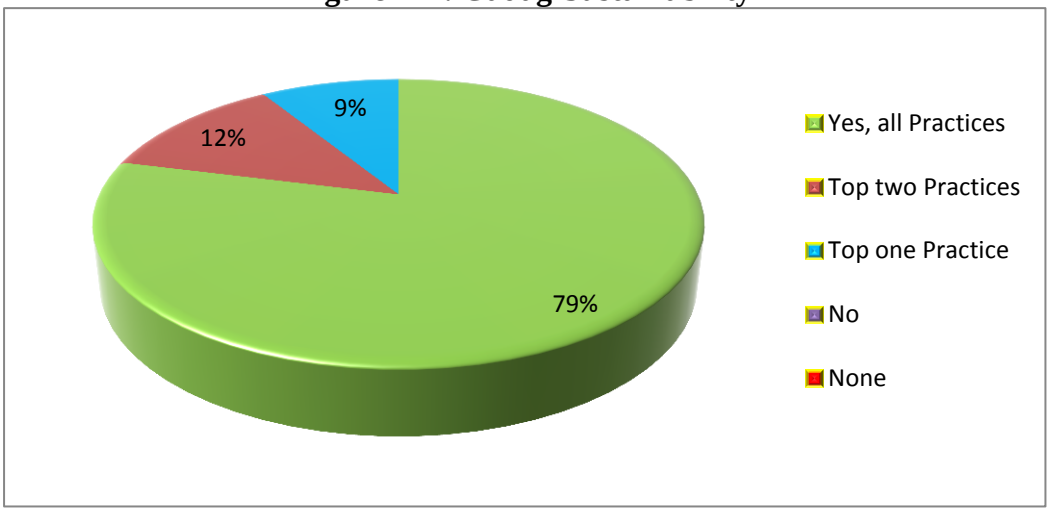



**Technical support:** The study reveals 51.10% respondents rated 'very good' on the technical support got from the department of agriculture, followed by 28.90% rating 'good', 13.30% 'excellent' and the balance 6.70% 'satisfactory'(Fig 111).

**12.53 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

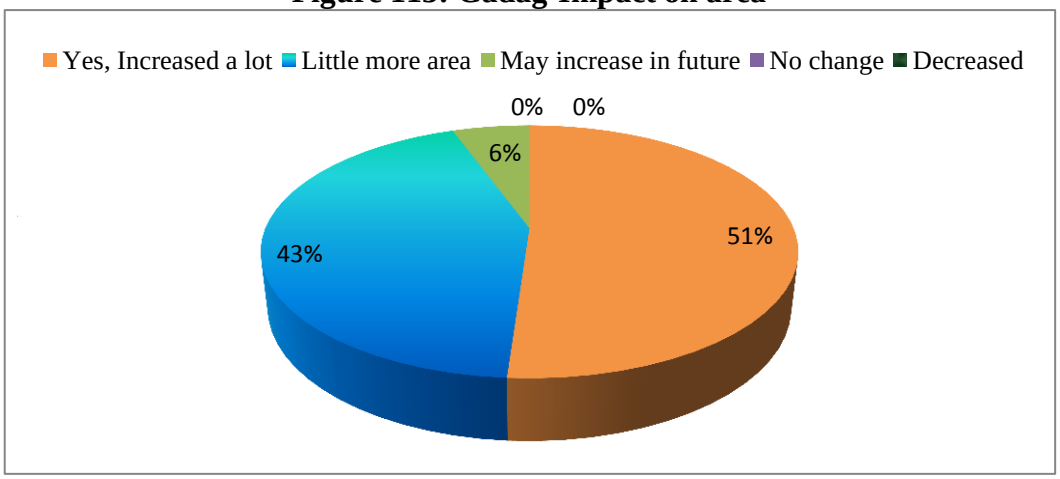
**Sustainability of technology:** Continuity of recommended practices is an indication of its sustainability and the survey reveals 79% will continue all practices followed by 12% continue top two practices and the balance 9% continue top one practice (Fig 112).

**Figure 112: Gadag-Sustainability**




**Impact on Area:** One of the major objectives of the scheme is that the area under pulses should increase. As per the survey 51% of the sample respondents indicated 'area increased a lot', followed by 43% felt the area increase "little more" and the balance 6% believe that the 'area may increase in future'(Fig 113).

**Figure 113: Gadag-Impact on area**



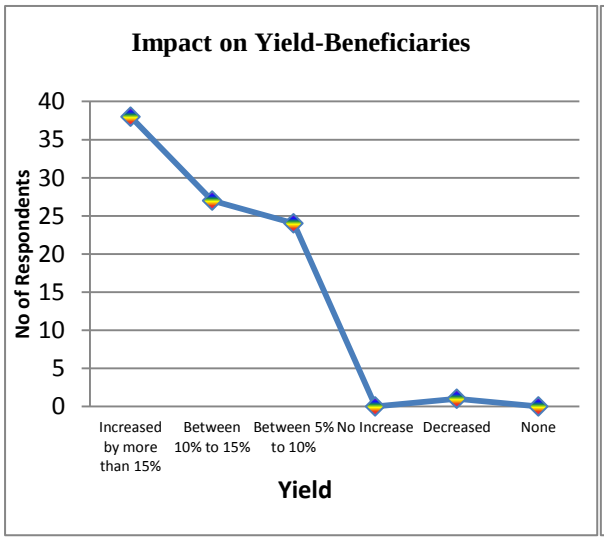

**Impact on Yield:** The major objective of the mission is to increase the yields of pulses with the NFSM interventions. The survey findings revealed that there was a significant increase in the productivity of pulses. From the Figure 114, about 42% believe that the increase in yields due to NFSM interventions was more than 15% followed by 30% with 10-15% increase and 26.70% with 5-10% increase in their yields.

**Non-beneficiaries**: As far as non-beneficiary farmers are concerned, 60% indicated that their yields were less than NFSM beneficiaries, 30% farmers' yields at par and the balance 10% felt it was far less yields.

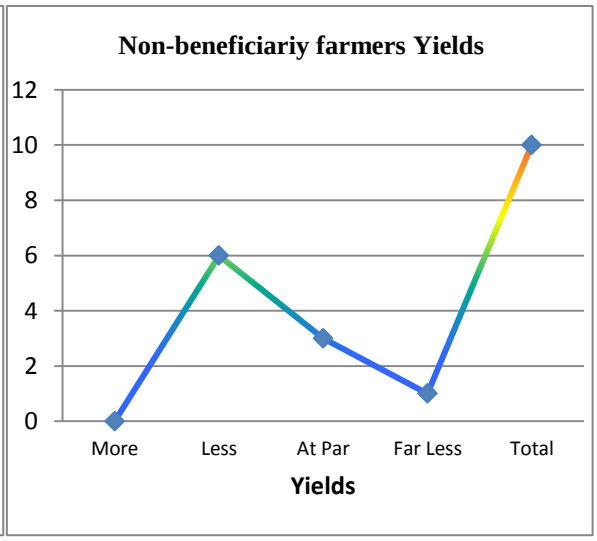
About 90% of non-beneficiaries were interested to know improved technologies used under NFSM and wanted to get benefited with NFSM scheme.

**Figure 114: Gadag-Impact on Yields**

**Beneficiaries**



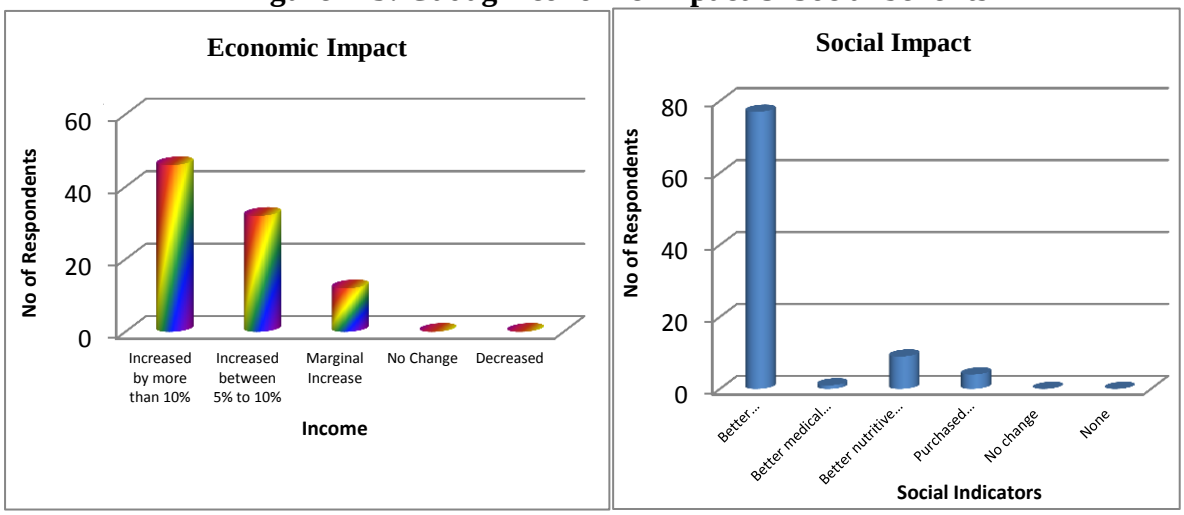

**Non-beneficiaries**




**Economic Impact:** NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income was higher on beneficiary farms. The majority

51.10% respondents reported more than 10% increase in their income, 35.60% reported 5-10% increase in their income and the balance 13.30% reported of marginal increase (Fig 115).

**Figure 115: Gadag-Economic Impact & Social benefits**




**Social Impact:** The survey findings reported that there was significant increase in the productivity of pulses and consequential income level of farmers. The figure113 illustrate more than 85.60% of respondents used higher income for better education to their children.

**Focus Group Findings: NFSM** helped to reduce migrations due to better employment opportunities in the village.

**12.54 What are Major contributors?**

*Trichoderma* seed treatment followed by application of boron, zinc and gypsum under INM contributed significantly in the enhancement of yields. Irrigated area has increased with water application tools supplied under NFSM.

**12.56 What is the extent of Conversion?**

NFSM program integrated with Bhoochetna and ATMA programs of the State.

## IX. Dharwad

Dharwad district is located in the Western sector of the Northern half of Karnataka State. The district is bounded on the North by the district of Belgaum, on the East by the district of Gadag, on the South Haveri and on the West by Uttara Kannada district. The district lies approximately about 800 meters above the sea level. The district may be divided into 3 natural regions, viz., Malnad, Semi-Malnad and Maidan. It consists of 5 taluks Dharwad, Hubli, Kalghatagi, Kundagol & Navalgund. It is the second most advanced district in the state. The district falls under northern transition, northern dry and hilly agro-climatic zones of Karnataka comprising of six taluks viz., Badami, Bagalkot, Bilagi, Hungund, Jamakhandi and Mudhol.

The total geographical area of the district is 6575 sq. km. The gross cropped area in the district is 6,46,797 ha of which 3,04,569 ha is under irrigation. The average annual rainfall is 772 mm. Agriculture is an important livelihood for the people of Dharwad district. More than 50 per cent of the population is engaged in agricultural activity. Major crops grown are sorghum, maize, paddy, wheat, groundnut, sunflower, green gram, red gram, bengal gram, sugarcane and cotton.

**12.57 What are physical and financial achievements against targets?**

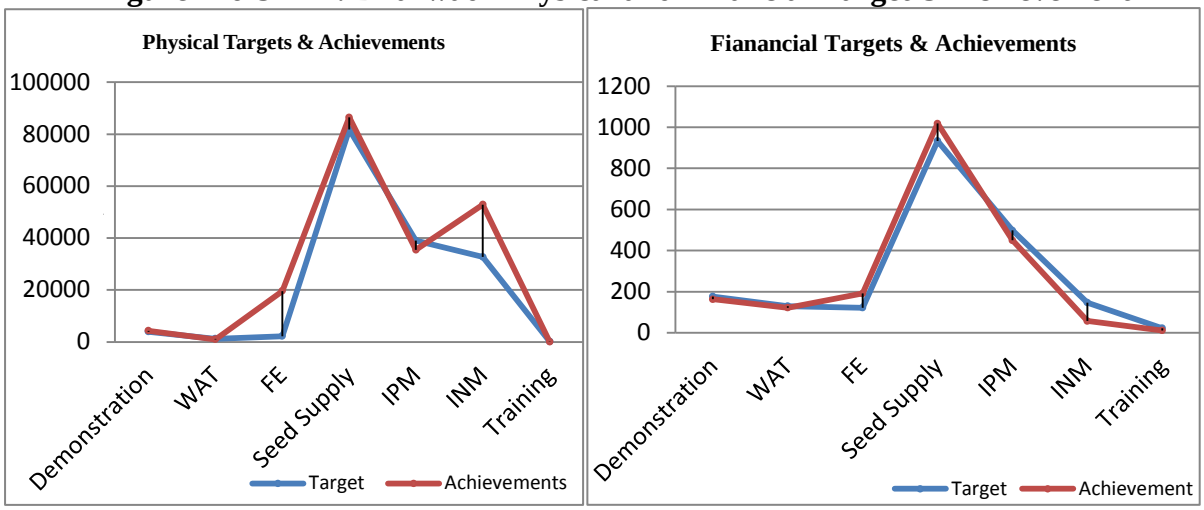
The overall physical and financial achievements were very good with 124.04 and 99.32 percent respectively as given in the table 53 and figures 116 and 117. The physical achievements were significant in implementation of demonstrations, farm equipments, seed supply and INM with more than 100 percent. The highest percentage of achievements in case of farm equipments was worth to note with 894.04% physical and 156.78% financial. Financial achievements were 109.12 percent in seed supplies, more than 90% in water application tools, demonstrations and IPM. The INM component had lowest financial achievement with 39.30 percent but had 161.48 percent physical achievements. The physical and financial achievements of training component were 55.56 and 52.84 percent respectively.

**Table 53: Dharwad-Physical and Financial Targets and Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (Rs in Lakh) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievements | | Target | Achievement | |
| Demonstration | 3950 | 4300 | 108.86 | 177 | 163.63 | 92.45 |
| WAT | 1199 | 1004 | 83.74 | 129.8 | 122.73 | 94.55 |
| FE | 2188.15 | 19563 | 894.04 | 122.29 | 191.73 | 156.78 |
| Seed Supply | 81745 | 86424 | 105.72 | 933.16 | 1018.24 | 109.12 |
| IPM | 38987 | 35408 | 90.82 | 497.94 | 450.27 | 90.43 |
| INM | 32737 | 52864 | 161.48 | 147.58 | 58 | 39.3 |
| Training | 144 | 80 | 55.56 | 22.56 | 11.92 | 52.84 |
| Total | 160950.15 | 199643 | 124.04 | 2030.33 | 2016.52 | 99.32 |

Source: Department of Agriculture

**Figure 116 & 117: Dharwad- Physical and Financial Target & Achievement**




Primary survey of 100 farmers was conducted in 10 villages to evaluate the overall impact created by the scheme and details are given in this unit.

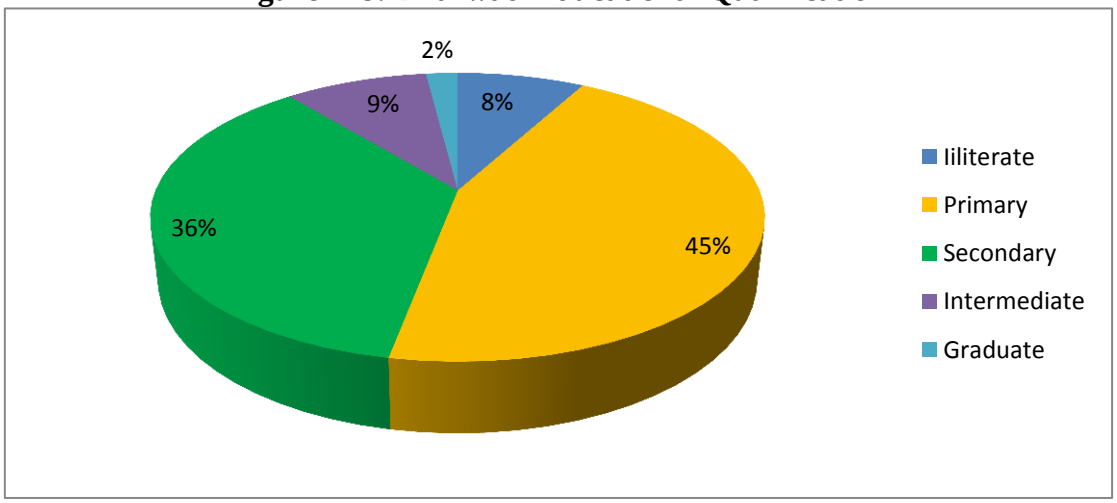
**12.58 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?**

**Gender and Age**: The proportion of male among the sampled respondents is 94 percent. A large number (32%) of respondents are in the age group of 40 years and above, 27% in 35-40 years, 21% under 30-35 years, 16% under 25-30 years and the balance 4% are of 18-25 years old.

**Categories of Farmers**: The NFSM scheme is extended to all the categories of the farmers. 78% of the respondents selected for the present study are from OC/General category followed by 8% ST, 5% SC, 2% BC and 7% minorities. It shows the village under study was able to provide the benefits of NFSM scheme to all the categories of the farmers.

**Educational Status**: The education status of sampled farmers both beneficiaries and non-beneficiaries was enquired and the information is summarized in Figure 118 below.

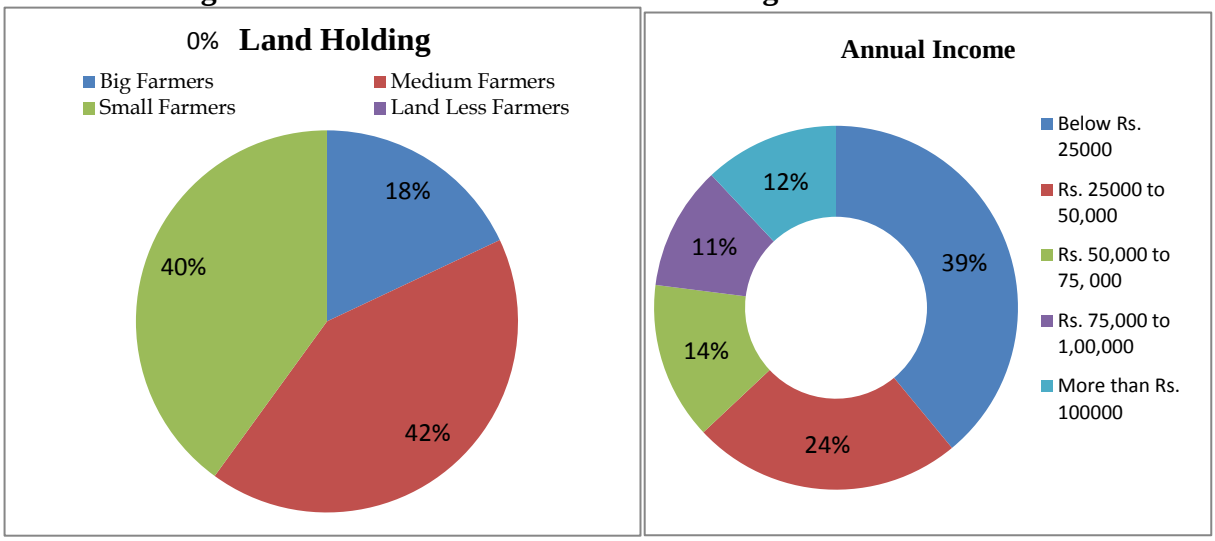
**Figure 118: Dharwad-Educational Qualification**



From the Figure, 45% of the sample respondents are primary school educated followed by 36% secondary educated, 9% intermediate, 2% graduates and the remaining 8% illiterate.

**Land Holding:** The sampled farmers were categorized into four groups based on their land holdings such as small and marginal farmers under 2 hectares, medium between 2-4 hectares, large above 4 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding category have been presented in the Figure 119 for both beneficiaries and non-beneficiaries.

**Figure 119: Dharwad-Farmers Landholding and Income Levels**



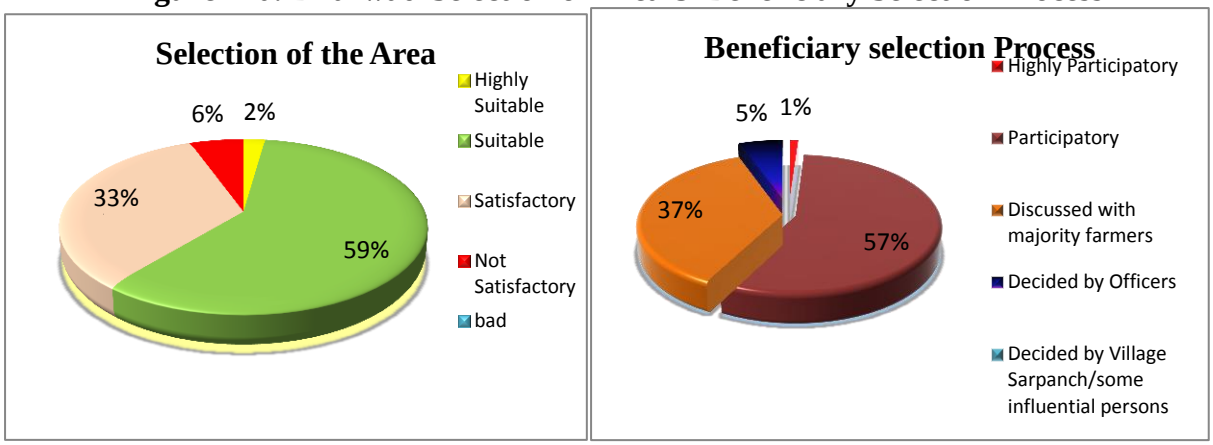

The above Figure reveals that the proportion of small and medium farmers have almost equal representation with 42% medium and 40% small farmers. The balance 18% is big farmers. Annual income of 39% of them is less than Rs 25,000 followed by 24% of them having income ranging from Rs 25,000 to 50,000, and 14% with Rs 50,000 to 75,000. Other 23%respondents income is Rs.75,000 and above per annum.

**12.59 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area:** From the study 59.80 percent respondents reported that the selection of area under various interventions was done on the basis of it suitability, followed by 33.30 percent respondents observation of satisfactory and 5.60 percent expressed ‘not satisfied’. But 2.23 percent felt that they have selected the highly suitable area (Fig 120).

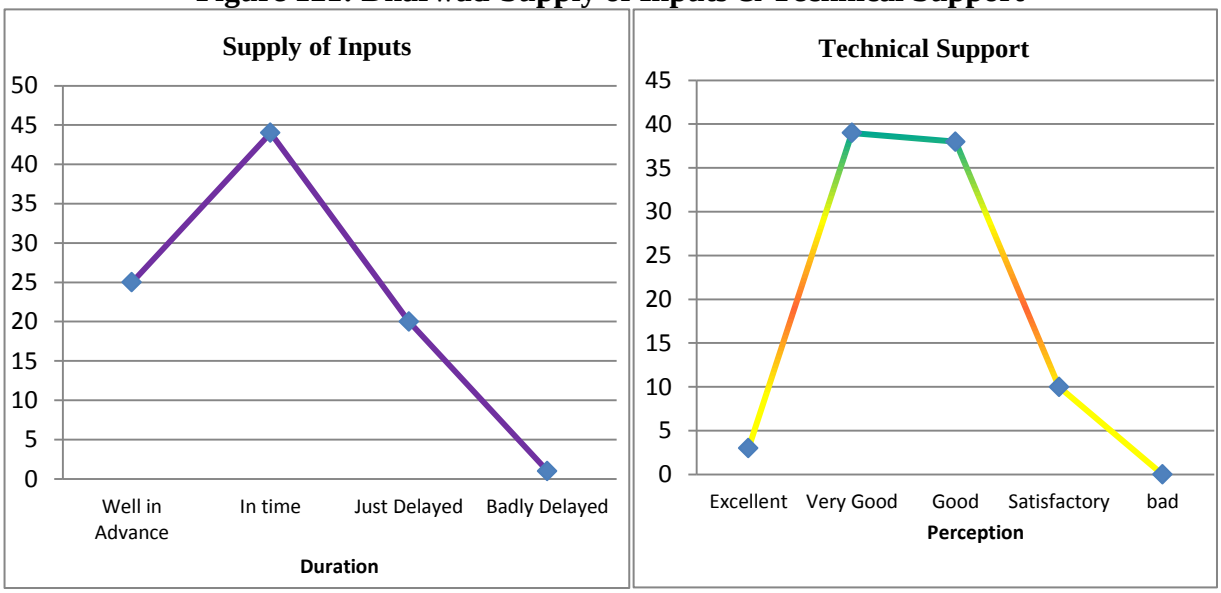
**Selection of Beneficiaries:** The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in the village (57%), followed by 37% of them felt it was discussed with majority of the farmers in the village, 7.40% felt it was decided by officers and 1.50% opined that it was highly participatory as shown in the Figure 120.

**Figure 120: Dharwad-Selection of Area & Beneficiary Selection Process**




**Inputs supply:** The survey reveals 48.90% respondents experienced the supply of inputs on time, 27.80% reported of supplies 'well in advance', 22.20% 'just delayed' and 1.1% experienced it was 'badly delayed' (Fig 121).

**Figure 121: Dharwad-Supply of Inputs & Technical Support**



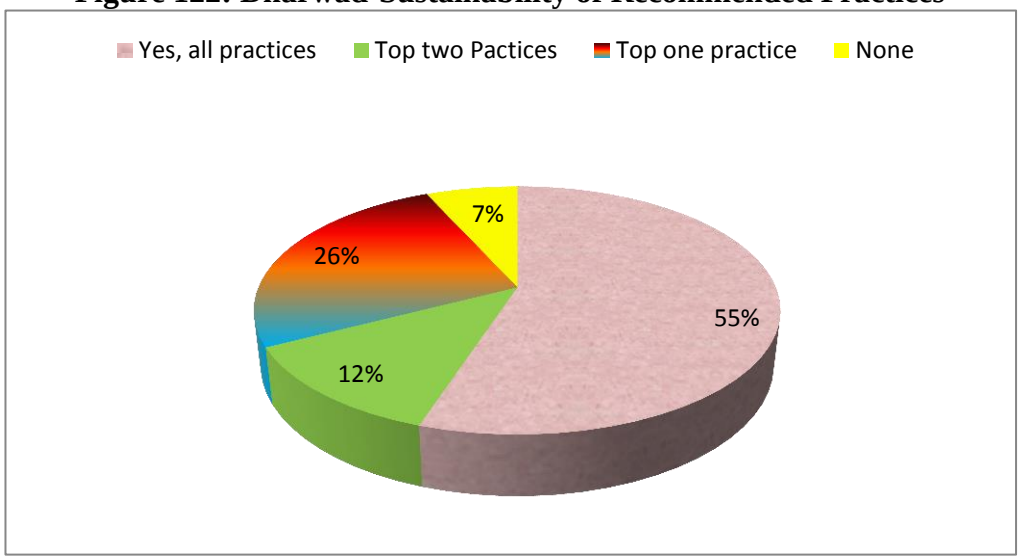

**Technical support:** The study reveals more than 85% of the total respondents rated 'good' to 'very good' in the technical support got from the department of agriculture, followed by 11.10% rated 'satisfactory' and 3.30% rated 'excellent'. It is an indication that the respondents were very happy with technical support (Fig 121). Farmers Field Schools (FFS) were conducted ranging from one to four in a cropping season.

**12.60 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

**Sustainability of technology:** Continuity of practices is an indication of its sustainability and the survey reveals 55% would continue all recommended practices and 26% will continue to

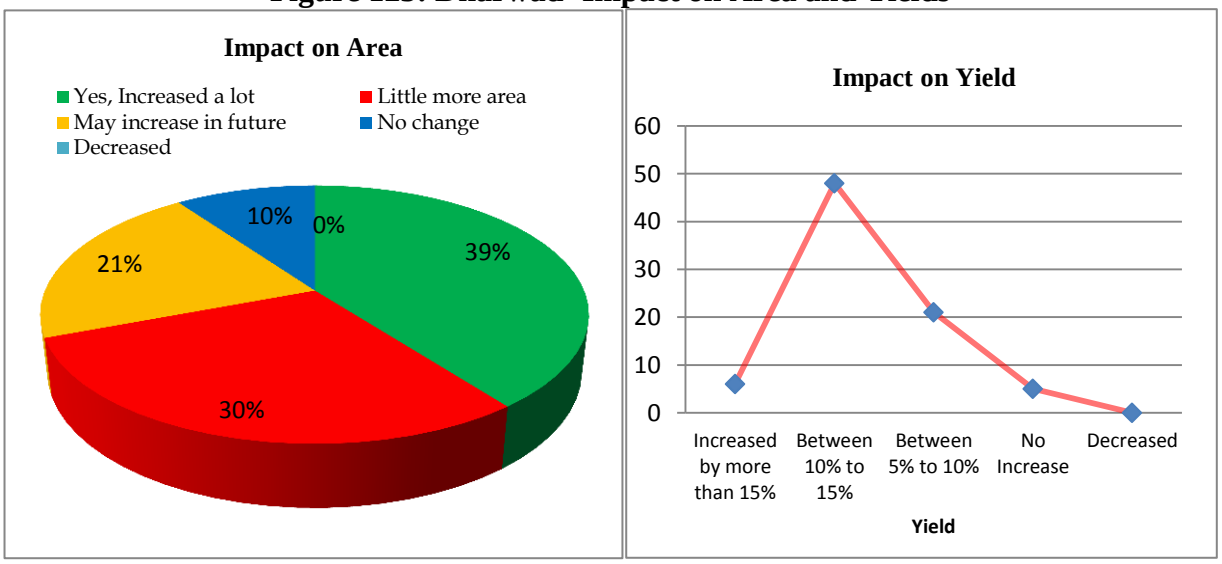
practice Top one recommendation. Further, 12% will practice Top two practices and 7% expressed that they don't practice any recommendation (Fig 122).

**Figure 122: Dharwad-Sustainability of Recommended Practices**




**Impact on Area:** One of the major objectives of the scheme is that the area under pulses should increase with increased productivity through improved technology adoption. The survey indicated, 40% sample respondents specified the rate of increase as "a lot" followed by 30% respondents' opinion of 'little more area'. Further, 21% opined that 'it may increase in future' and 10% felt that there was 'no change in area under pulse' (Fig 123).

**Figure 123: Dharwad- Impact on Area and Yields**

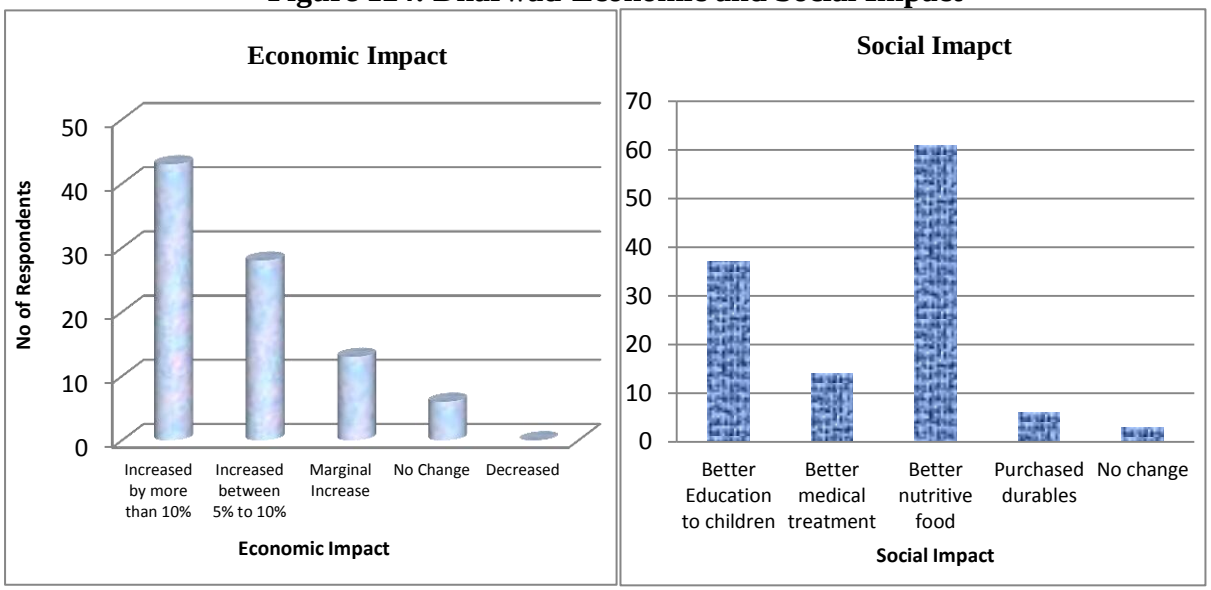



**Impact on Yield:** The major objective of the mission is to increase the yields of pulses with the NFSM interventions. The survey findings revealed an increase in the yields due to NFSM interventions was 10-15% for 68.10% of the sample respondents, followed by 5-10% increase for 21.80% beneficiaries and 5.50% of respondents believe that their yields increase was more than 15%. The opinion of about 13.60% was of no increase in their yields (Fig 123).

**Non-beneficiaries:** The non-beneficiary farmers (87.5%) were not aware of NFSM scheme. About 50% of the respondents revealed that their yields were less than NFSM beneficiaries, 25% respondents felt that their yields were at par with NFSM beneficiaries. Another 12.5% respondent's view was that they got more yields than the NFSM beneficiaries. May be they are progressive farmers. Non beneficiaries are interested to get benefited with NFSM scheme.

**Economic Impact:** NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income of beneficiaries has increased. A large number (47.80%) of respondents reported more than 10% increase in their income followed by 31.10% reported 5 to 10% increase and 14.40% reported marginal increase in their income. The response of 6.70% respondents was that there was no change in their income (Fig 124).

**Figure 124: Dharwad-Economic and Social Impact**




**Social Impact:** There was a significant increase in the productivity of pulses and consequential income level of farmers. The survey report found 67.77% respondents could afford better nutritive food, 41.11% gave better education to their children, 15.55% used extra income for better medical treatment. Further, 6.66% purchased durables like motorcycle, refrigerator etc. and the balance 3.33% respondents opined that it has not brought any improvement in their living conditions (Fig 124).

**Focus Group:** There was reduced migration from villages due to better employment with different schemes including NFSM.

**12.61 What are Major contributors?**

i) Jaki variety seed of bengal gram giving 10% more yields and it has replaced A1 variety. ii) Seed treatment and micronutrients have also contributed significantly in the productivity enhancement of pulses in Dharwad district.

### 12.62 What are Suggestions?

Farmers requested for the supply of inputs in time, to conduct more training programs and for the supply of extra harvesting machines.

## X. Yadgir

Yadgir district is having 3 revenue blocks namely Shahapur, Shorapur and Yadgir. The district has got 16 Hobalis, one City municipal, 3 Town Muncipals, 1 Town Panchayat, 3 Taluk Panchayats, 117 Grama Panchayats, 4 Assembly constituencies. There are two Parliamentary constituencies in the district. It is predominantly an agricultural district divided into two agro-climatic zones namely eastern transition and north eastern dry zone. The zones indicate the predominance of rain dependent dry land agricultural area. The normal rainfall of the district is 636 mm. The climate of Yadgir district is generally dry and healthy. The net sown area in the district is 72.1 per cent of the total cultivable land area, which is 3239.1 square kilometers.

**Agriculture**: The major crops grown in the district are jowar, red gram, sunflower and groundnut. In terms of productivity, the yields of principal crops are lesser than the state average. The variation in rainfall and endemic pest attack has affected productivity of red gram. The production and productivity of jowar has been improving because of better use of fertilizer and plant protection measures. In case of oil seeds the area and production has been decreased.

Krishna, Bhima rivers flow in the district but agriculture in the district mainly depends upon the rainfall. The net area irrigated to net area sown is 14%, which is below the state average of 24%. The medium irrigation projects in the district are Hattikuni and Soudhaghar. There are 36 lift irrigation schemes and 445 minor irrigation tanks in the district.

### 12.63 What are physical and financial achievements against targets?

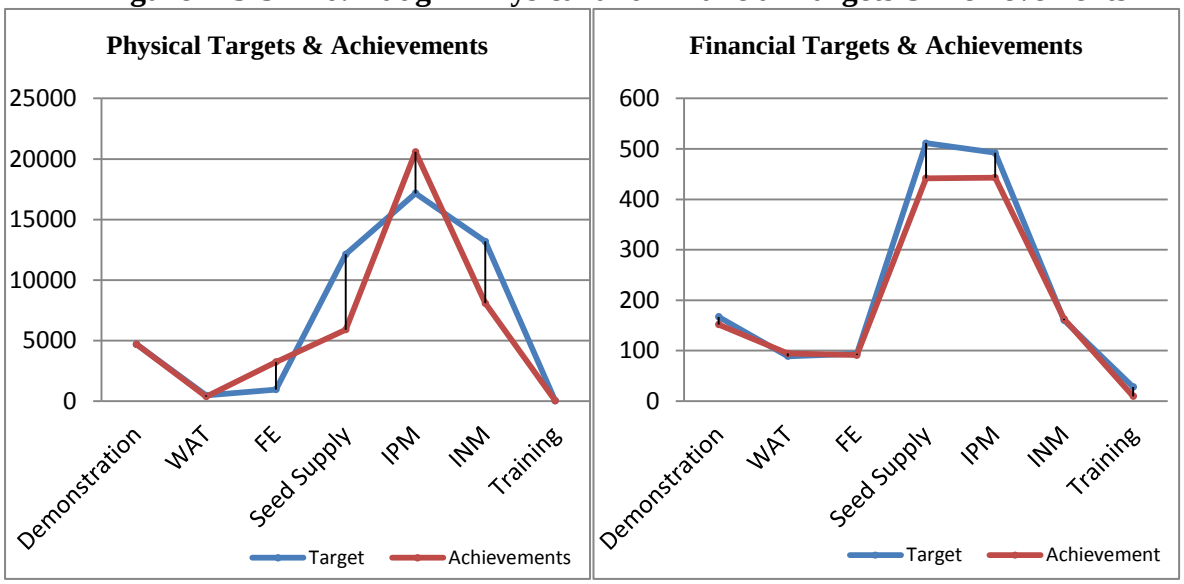
The overall physical and financial achievements were 88.24 and 90.43 percent respectively as shown in table 54 and figures 125 & 126. The physical achievement in farm equipments was excellent with 339.12 percent followed by IPM with 119.99 percent. The financial achievements were good in water application tools and INM with more than 100 percent followed by farm equipments, demonstrations with more than 90 percent. The seed supply physical and financial achievements were 48.64 and 86.41 percent respectively. Training could achieve 100 percent physical but 33.83 percent financial targets.

**Table 54: Yadgir-Physical and Financial Achievements**

| Interventions | Physical (Units) | | Percentage | Financial (in lakh of Rs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievements | | Target | Achievement | |
| Demonstration | 4700 | 4700 | 100 | 167 | 151.83 | 90.92 |
| WAT | 467 | 380 | 81.37 | 88.9 | 94.47 | 106.27 |
| FE | 951 | 3225 | 339.12 | 93.69 | 91.07 | 97.2 |
| Seed Supply | 12131 | 5900 | 48.64 | 511.3 | 441.75 | 86.41 |
| IPM | 17160 | 20591 | 119.99 | 492.36 | 442.91 | 89.96 |
| INM | 13190 | 8084 | 61.29 | 160.5 | 162.77 | 101.41 |
| Training | 49 | 49 | 100 | 28.08 | 9.5 | 33.83 |
| **Total** | **48648** | **42929** | **88.24** | **1541.83** | **1394.3** | **90.43** |

Source: Department of Agriculture

**Figure 125 & 126: Yadgir- Physical and Financial Targets & Achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan and findings are given in this unit.

**12.64 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?**

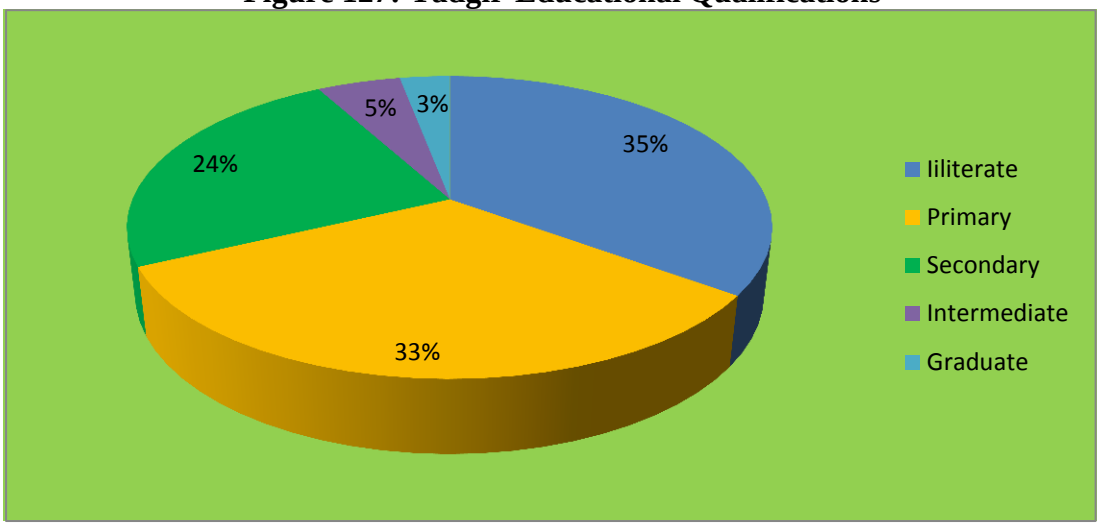
**Gender and Age**: The proportion of male among the sampled respondents is 90 percent and the balance 10 percent are female. The majority 46% respondents are 35-40 years old, followed by 41% under the age group 30-35 years. Further, 10% are 40 and above, 3% under 25-30 years age.

**Categories of Farmers**: The NFSM scheme is extended to all the categories of the farmers and 40% of the respondents selected for the present study are from OC/General category followed

by 28% BC, 14% SC, 8% ST and 10% minorities. It shows the coverage of different categories of farmers selected for primary survey in the village study.

**Educational Status:** Education plays an important role in the development and therefore, the education status of sampled farmers both beneficiaries and non-beneficiaries were enquired. This information is summarized in Figure 127 below.

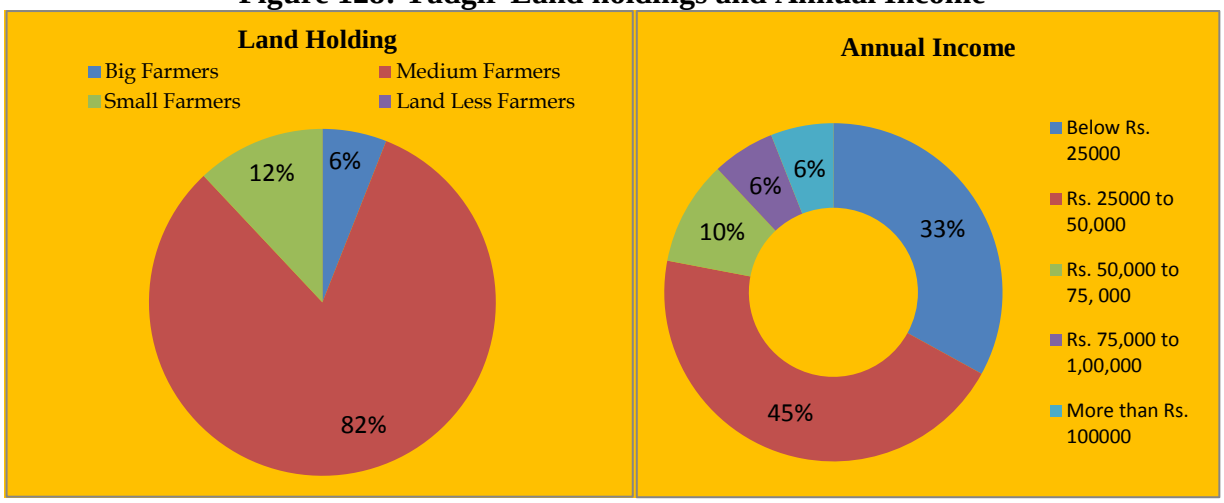
**Figure 127: Yadgir-Educational Qualifications**




From the Figure, 35% of the sample respondents are illiterate followed by 33% primary school educated, 24% secondary school educated, 5% intermediate and 3% graduates.

**Land Holding and Annual Income:** The sampled farmers were categorized into four categories based on their land holdings such as small and marginal farmers under 2 hectares, medium between 2-4 hectares, large above 4 hectares and landless leaseholders. The results on distribution of the farmers according to their land holding category have been presented in the Figure 128 for both beneficiaries and non-beneficiaries.

**Figure 128: Yadgir-Land holdings and Annual Income**



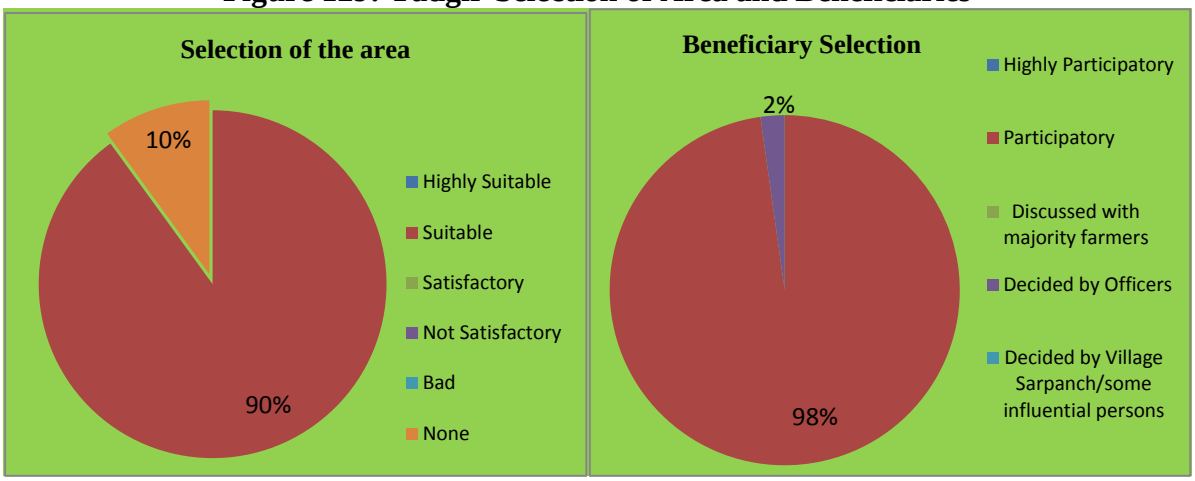
The above Figure reveals that the majority (82%) respondents are medium farmers, followed by 12% small farmers, and 6% big farmers.

Annual income of 45% of respondents was Rs 25,000 to 50,000 followed by 33% having income below Rs 25,000, 10% respondents income Rs 50,000 to 75,000 and 12% respondents income more than Rs 75,000 per annum.

**12.65 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area:** From the study 90 percent respondents reported that the selection of area under various interventions was done on the basis of its suitability and the balance 10 percent have not responded as shown in Figure 129.

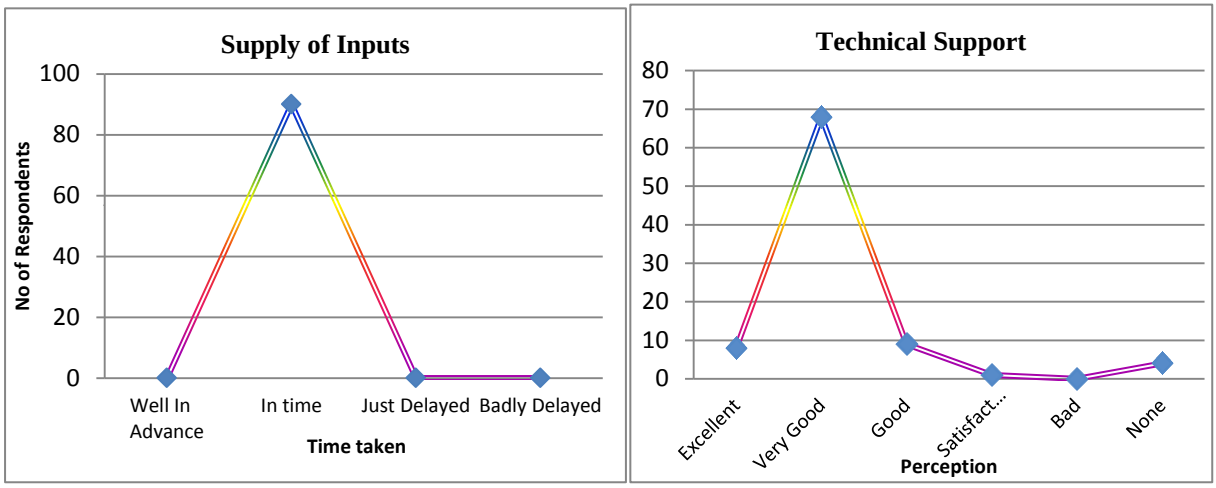
**Figure 129: Yadgir-Selection of Area and Beneficiaries**




**Selection of Beneficiaries:** The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in the village. Majority of 97.80% respondents opinioned that the selection process was participatory and the balance 2.20% felt it was decided by officers (Fig 129).

**Inputs supply:** The timely availability of inputs like seeds, fertilizers, pesticides etc. to the farmers is one of the critical aspects for enhancing productivity. The survey reveals everyone received inputs on time as shown in Figure 130.

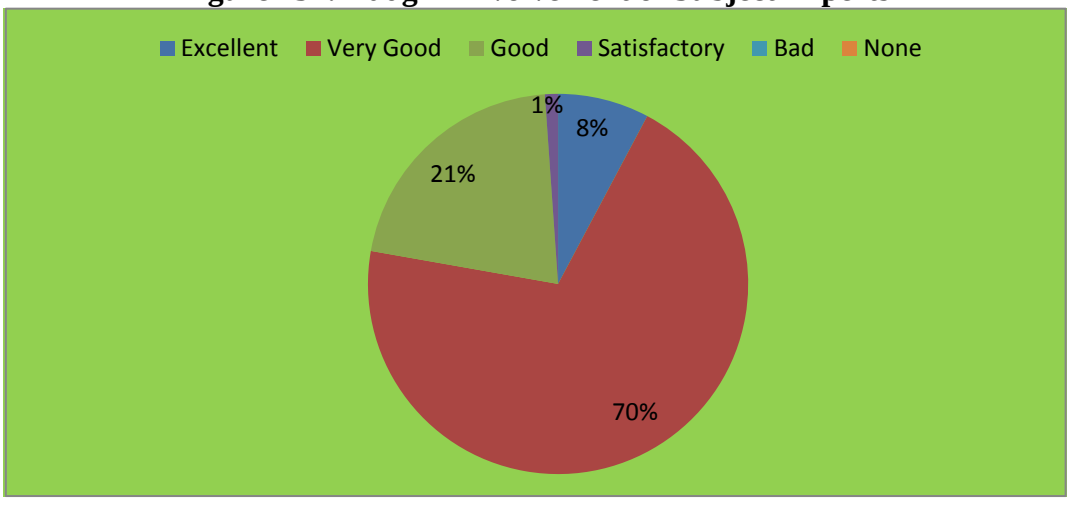
**Figure 130: Yadgir- Supply of Inputs & Technical Support**




**Technical support:** As per the study, 75.60% respondents rated 'very good' in the technical support got from the department of agriculture, followed by 10% rated as 'good', 8.90% rated 'excellent' and 1.10% 'satisfactory'. The balance 4.40% not responded (Fig 130).

**Involvement of Subject Experts:** From the Figure (131), 70% of the respondents gave rating of 'very good' on the involvement of subject experts in extension aspects related to NFSM followed by 21% 'good', 8% 'excellent', 1% 'satisfactory'.

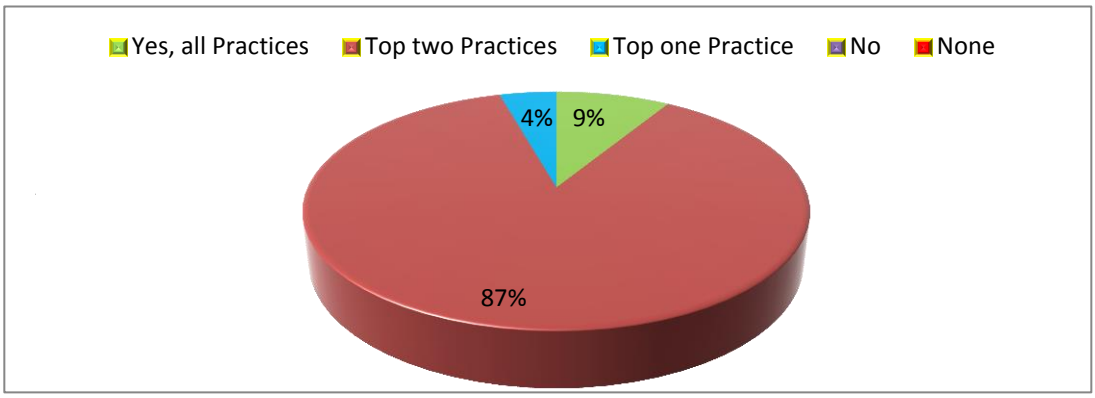
**Figure 131: Yadgir- Involvement of Subject Experts**




**12.66 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

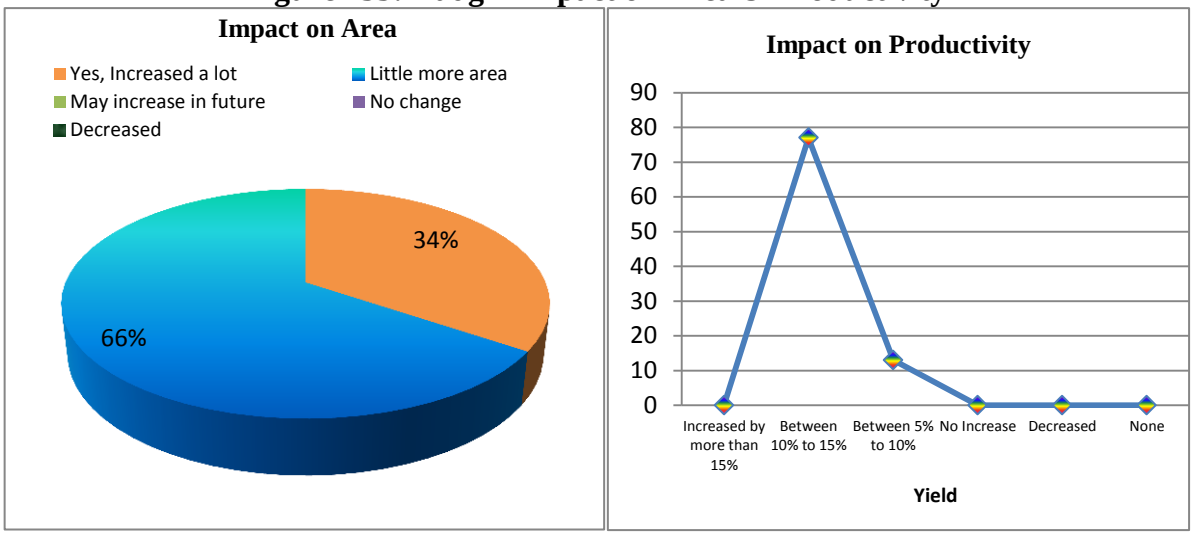
**Sustainability of technology:** Continuity of practices is an indication of its sustainability and the survey reveals 87% will continue top two most important practices followed by 9% continue all practices and 4% practice the top one practice (Fig 132).

**Figure 132: Yadgir-Sustainability**




**Impact on Area:** One of the major objectives of the scheme is that the area under pulses should increase and the survey indicated 66% sample respondents gave rating of increase was "little more area" and 34% considered 'area increased a lot' (Fig 133).

**Figure 133: Yadgir-Impact on Area & Productivity**

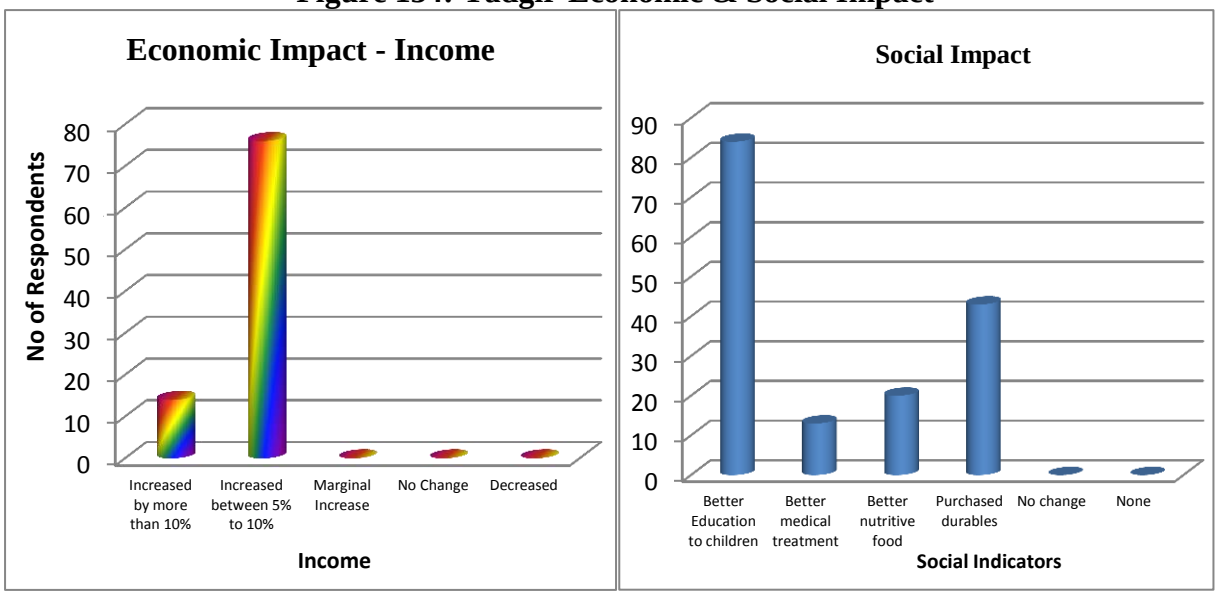



**Impact on Yield:** The major objective of the mission is to enhance the productivity. The survey findings revealed that there was significant increase in the productivity of rice. From the Figure (133), 85.60% believe that the increase in yields due to NFSM interventions was 10-15% and 14.40% opined of 5-10% increase.

**Non-beneficiaries**: A majority of the non-beneficiary farmers (80%) indicated that their yields were at par with NFSM beneficiaries, 10% each believed of more yields and less yields to NFSM beneficiaries. Every non-beneficiary expressed that they were interested to know improved technologies used under NFSM and wanted to get benefited with NFSM scheme.

**Economic Impact:** NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income was higher to NFSM beneficiaries. The majority 84.40% respondents reported 5-10% increase in their income and the balance 15.60% reported of more than 10% increase in their income (Fig 134).

**Figure 134: Yadgir-Economic & Social Impact**




**Social Impact:** The survey findings reported that there was a significant increase in the productivity of pulses and consequential income level of farmers. The survey report found that more than 93.40% of respondents used higher income for better education to their children.

**Focus Group Discussions**: It was informed that the area under irrigation increased due to NFSM interventions.

**12.67 What are Major contributors?**

*Trichoderma* seed treatment, micronutrients, improved variety Jaki 9218 of bengal gram have contributed for higher productivity.

**12.68 What is the extent of conversion with other schemes?**

State Govt. sponsored farm mechanization scheme had integrated with NFSM.

**12.69 What are Suggestions?**

May include HTP Sprayers in NFSM and equipments may be supplied through RSK instead of dealers.

## XI. Raichur

The district is bounded on the north by the district of Gulbarga, on the west by the districts of Bijapur and Dharwad, on the east by the district of Mahaboobnagar of Telangana State, and on the south by the districts of Kurnool of Andhra Pradesh and Bellary of Karnataka. The two rivers, the Krishna and the Tungabhadra form the entire northern and southern boundaries of the district. The general slope of the district is from the North-West towards the South-East, its average height above the Mean Sea-Level being just 1,311 feet. The district has a population density of 228 inhabitants per square kilometer (590/sq mile). Raichur District has five taluks: Raichur, Devadurga, Sindhanur, Manvi and Lingsugur.

**Climate**: The region around Lingsugur, gets the least amount of rainfall in the district and it increases towards the south as well as the east. During the South-West monsoon months, viz., June to September, the district receives about 71% of the annual rainfall, September being the month with the highest rainfall. In the post-monsoon months of October and November also, the district receives some rain. The variations in the annual rainfall from year to year are large. The district on the whole has a dry climate, the period from November to May being the driest part of the year. Even during the South-West monsoon period, the humidity is not very high.

### 12.70 What are physical and financial achievements against targets?

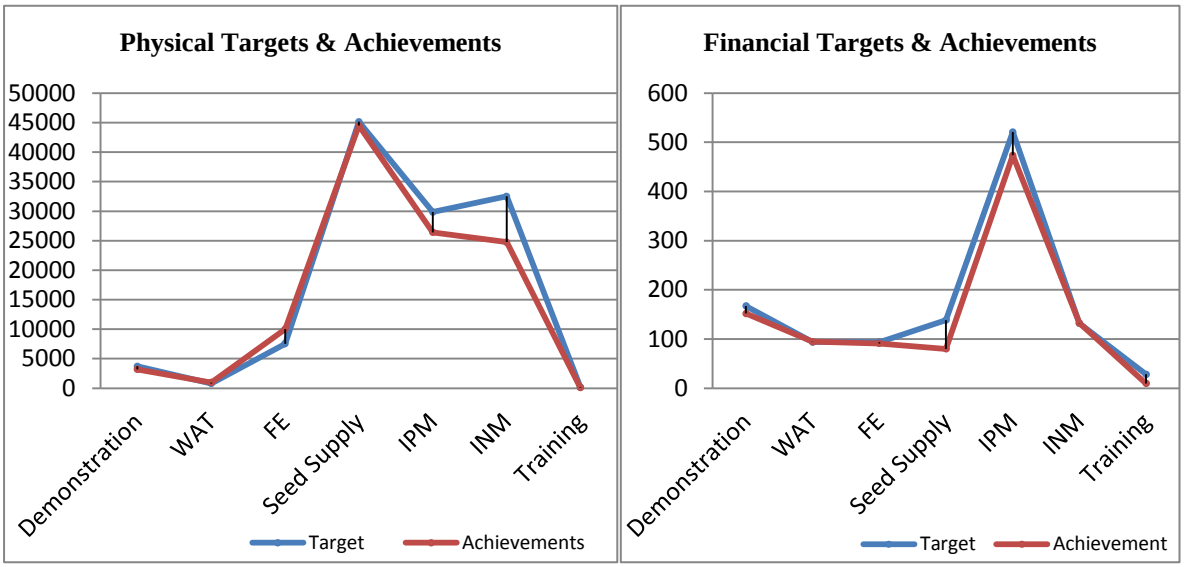
The overall physical and financial achievements were 91.81 and 87.94 percent respectively (Table 55, Figures 135 &136). The physical achievements for demonstrations were 3200 ha against the targeted 3700 ha. The targets and achievements for financial outlay were Rs.167 lakh and Rs.151.83 lakh respectively. Water application tools achievements were 121.93 and 100.61 percent physical and financial respectively. Farm equipments physical and financial achievements were 132.82% and 97.20% respectively. Seed supply achievements against the set physical and financial targets were 98.55 and 57.73 percent respectively. Integrated Pest Management (IPM) achievements were 88.44 percent physical and 90.89 percent financial against targets. The Integrated Nutrient Management (INM) achievements were 76.16 percent and 100.21 percent physical and financial respectively. The training could achieve 48.89 percent physical and 33.83 percent financial targets.

**Table 55: Raichur-Physical and Financial Achievements against Targets**

| Interventions | Physical (Units) | | Percentage | Financial (in lakh of Rs) | | Percentage |
|---|---|---|---|---|---|---|
| | Target | Achievements | | Target | Achievement | |
| Demonstration | 3700 | 3200 | 86.49 | 167 | 151.83 | 90.92 |
| WAT | 798 | 973 | 121.93 | 93.9 | 94.47 | 100.61 |
| FE | 7522 | 9991 | 132.82 | 93.69 | 91.07 | 97.2 |
| Seed Supply | 45147 | 44493 | 98.55 | 138.57 | 79.99 | 57.73 |
| IPM | 29848 | 26398 | 88.44 | 520.86 | 473.42 | 90.89 |
| INM | 32500 | 24751 | 76.16 | 132 | 132.26 | 100.21 |
| Training | 180 | 88 | 48.89 | 28.08 | 9.5 | 33.83 |
| **Total** | **119695** | **109894** | **91.81** | **1174.1** | **1032.54** | **87.94** |

Source: Department of Agriculture

**Figure 135 & 136: Raichur-Physical and Financial Targets and Achievements**




Primary survey of 100 farmers was conducted in 10 villages as per the sampling plan and the findings are given in this unit for Raichur District.

**12.71 What are Demographic and Socio-Economic Characteristics (Gender, Education, Age, SC, ST, BC, Women, Minorities, Land holdings) of beneficiaries?**

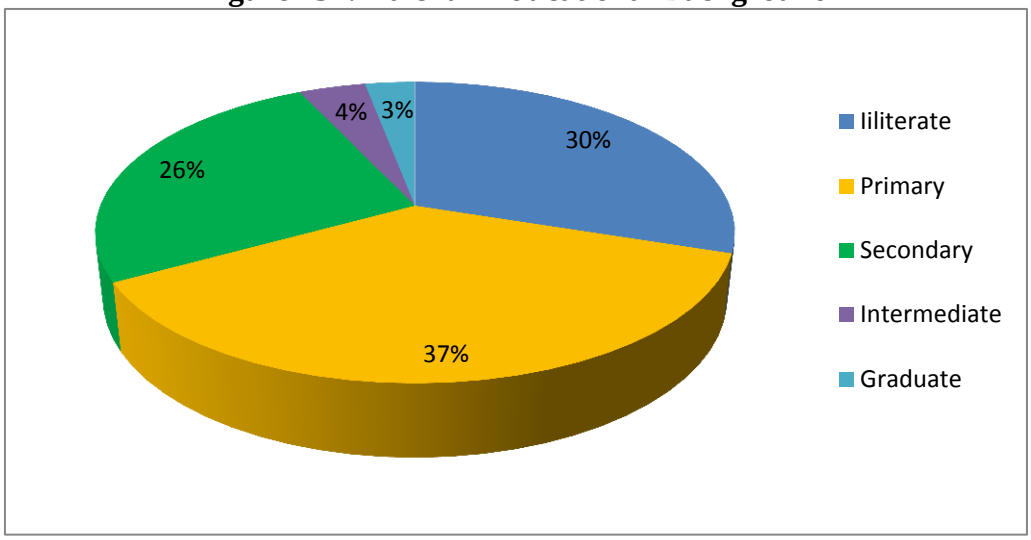
**Gender and Age**: The proportion of male among the sampled respondents is 91 percent. The majority (84%) respondents are more than 35 years old followed by 16% under the age group of 25-35 years.

**Categories of Farmers**: The NFSM scheme is extended to all the categories of the farmers and 53% of the respondents selected for the present study are from OC/General category followed

by 17% ST, 15% BC, 9% SC and 6% minorities. It shows, the mission was able to provide the benefits of NFSM scheme to all the sections of farmers.

**Educational Status**: The education status of sampled farmers both beneficiaries and non-beneficiaries was enquired and the information is summarized in Figure 137 below.

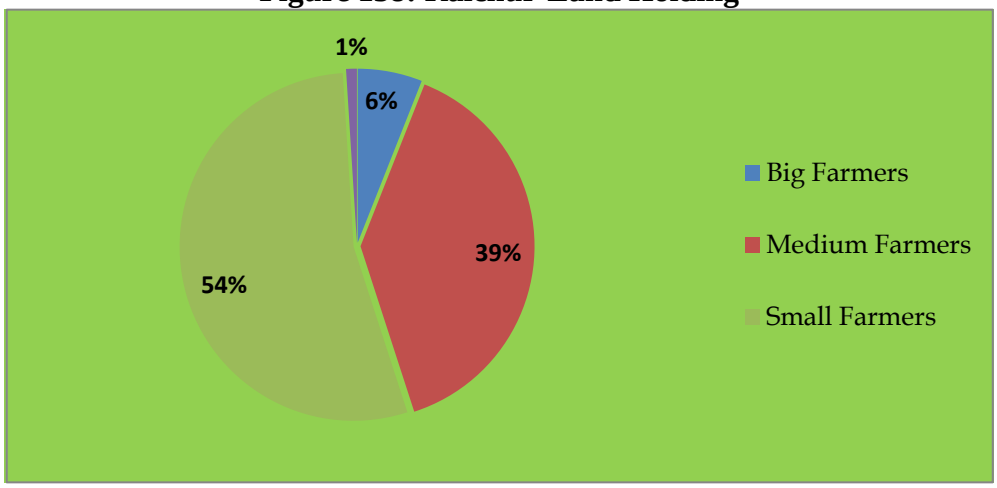
**Figure 137: Raichur-Educational Background**




From the Figure, 37% of the sample respondents are primary school educated followed by 30% illiterate, 26% secondary school educated, 4% intermediate and 3% graduates.

**Land Holding and Income:** The sampled farmers are categorized into four categories based on their land holdings such as small and marginal farmers under 2 hectares, medium between 2-4 hectares, large above 4 hectares and landless leaseholders. The results on distribution of the farmers according to their land holdings have been presented in the Figure 138 for both beneficiaries and non-beneficiaries.

**Figure 138: Raichur-Land Holding**



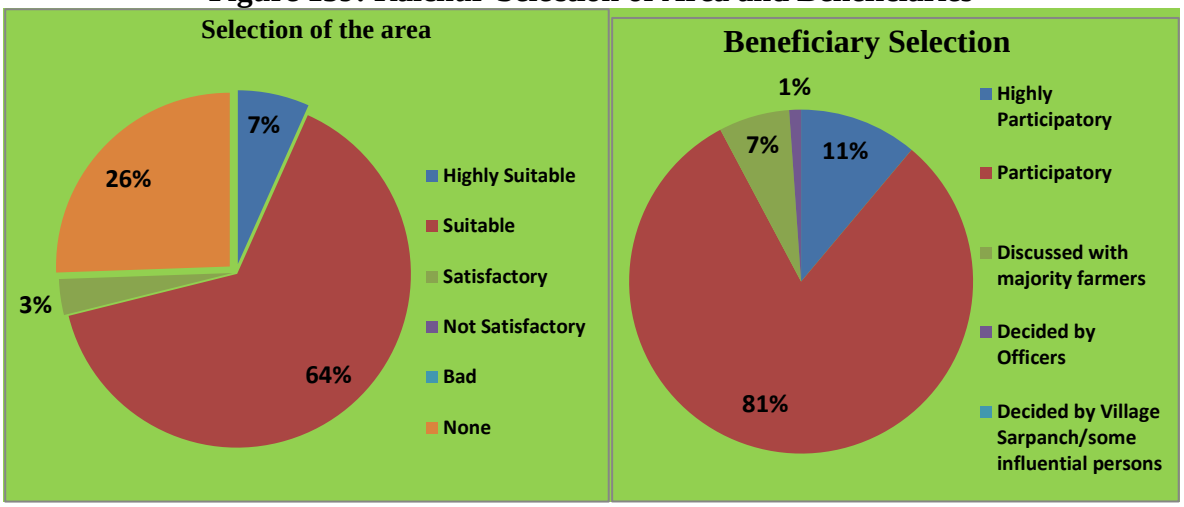

The above Figure reveals that the majority (54%) respondents are small farmers, followed by 39% medium farmers, 6% big farmers and 1% landless farmers.

Annual income of 44% respondents is Rs 25,000 to 50,000 followed by 38% farmers income below Rs 25,000, 13% respondents income Rs 50,000 to 75,000 and 5% farmers income more than Rs 75,000 per annum.

**12.72 What is the process of selection of area, beneficiaries, supply of inputs, extent of technical support, and involvement of subject experts?**

**Selection of Area and Beneficiaries:** From the study 64 percent respondents reported that the selection of area under various interventions was done on the basis of its 'suitability', followed by 7 percent respondents opinion of 'highly suitable' and 3% gave their 'satisfaction' on the suitability of land selected. Balance 26 percent has not responded (Fig 139).

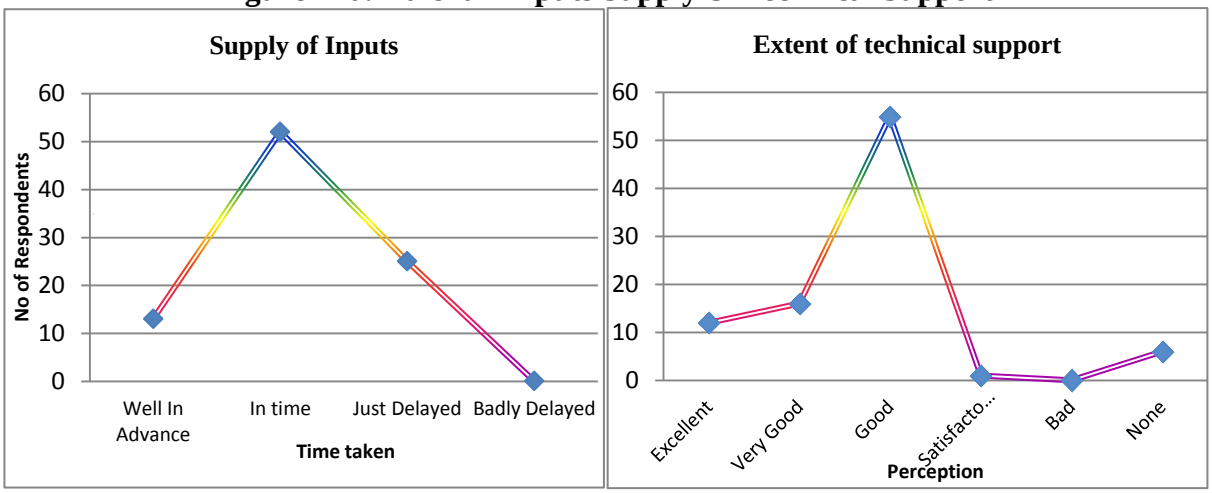
**Figure 139: Raichur-Selection of Area and Beneficiaries**




The study found that the selection of the beneficiaries under various interventions was done in a participatory manner by holding meetings in the village. Majority (81%) respondents opined that the selection process was 'participatory' and 11% felt it was 'highly participatory'. Further, 7% observed it was discussed with majority of farmers and 1% opined it was decided by officers (Fig 139).

**Inputs supply:** The survey reveals that the experiences of 57.80% respondents was that the supplies were on time, followed by 27.80% information of 'just delayed' and 14.40% opined that they were supplied 'well in advance' (Fig 140).

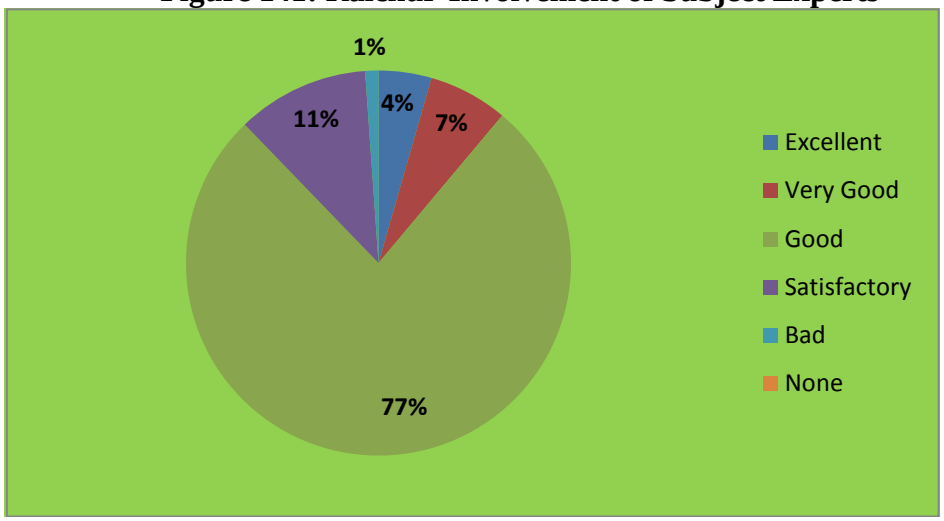
**Figure 140: Raichur-Inputs Supply & Technical Support**




**Technical support:** The study reveals 61.10% respondents rated 'good' in the technical support got from the department of agriculture, followed by 17.80% rated as 'very good', 13.30% rated 'excellent' and 1.10% 'satisfied'. The balance 6.70% has not responded (Fig 140).

**Involvement of Subject Experts:** The subject experts' involvement is very important in the context of conducting training programs and in the transfer of technologies. From the data, 77% respondents gave rating on this aspect as 'good' followed by 11% rated 'satisfactory', 7% rated 'very good', 4% gave 'excellent' and 1% rated the involvement was 'bad' (Fig 141).

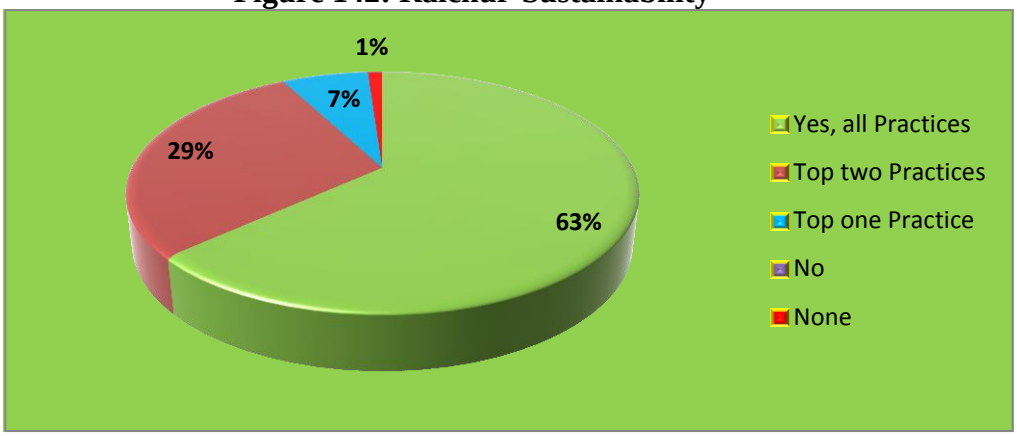
**Figure 141: Raichur-Involvement of Subject Experts**




**12.73 What is the impact NFSM on sustainable use of technology, area, productivity and socio- economic conditions of beneficiaries?**

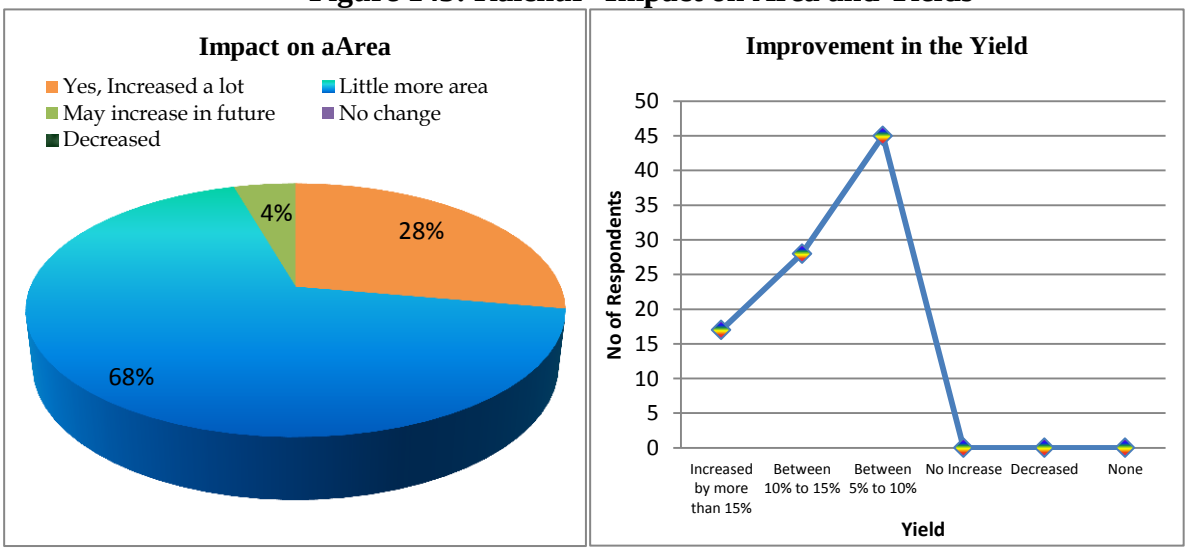
**Sustainability of technology:** Continuity of practices is an indication of its sustainability and the survey reveals 63% will continue all recommended practices followed by 29% practice top two most important practices, and 7% practice only the top one practice (Fig 142).

**Figure 142: Raichur-Sustainability**




**Impact on Area:** One of the major objectives of the scheme is that the area under pulses should increase. As shown in Figure 143, the majority (68%) sample respondents gave rating of increase as "little more" followed by 28% opined 'area increased a lot', 4% felt it 'may increase in future'.

**Figure 143: Raichur- Impact on Area and Yields**



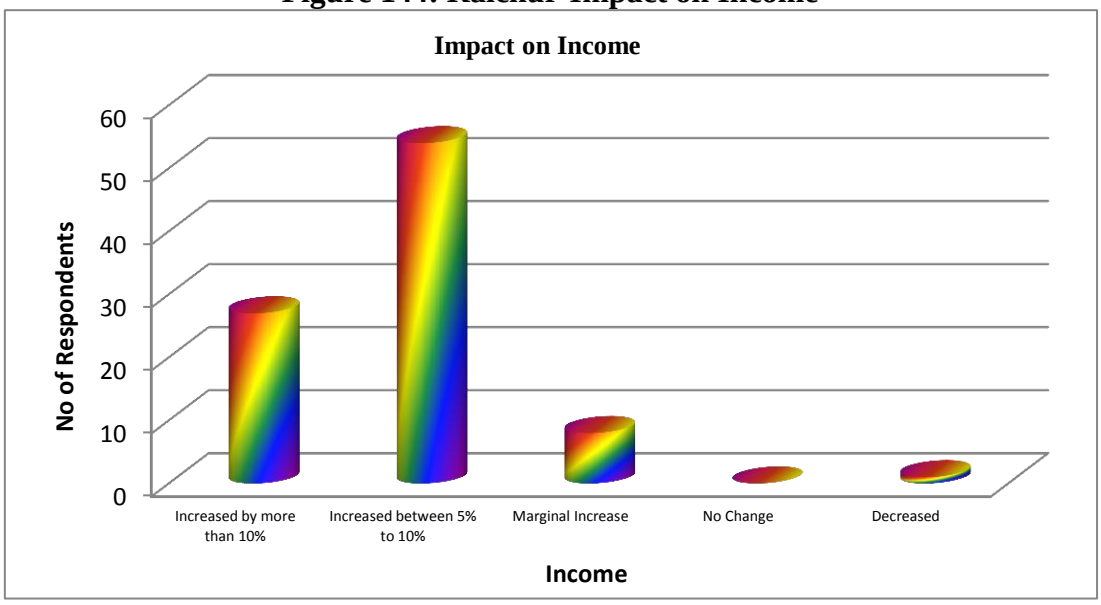

**Impact on yield:** The major objective of the mission is to increase the yields of pulses. The survey findings shown in Figure 143 reveal that there was significant increase in the productivity of pulses. From the study, 50.00% believe that the increase in yields due to NFSM interventions was 5-10% followed by 31.10% opinion of 10-15% increase, and 18.90% view of more than 15% increase in yields. It was a significant outcome.

**Non-beneficiaries**: The non-beneficiary farmers 40% indicated that their yields were less than NFSM beneficiaries, 30% each believed of more yields and at par to NFSM beneficiaries yields.

Majority (80%) non-beneficiaries expressed that they were interested to know improved technologies used under NFSM and wanted to get benefited with NFSM scheme.

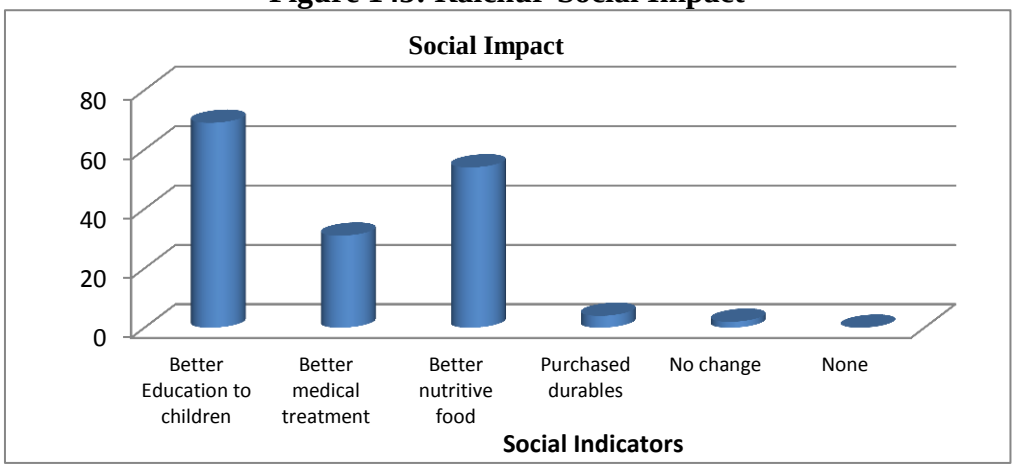
**Economic Impact:** NFSM has greatly helped the farming community in the overall economic upliftment. The study revealed that the income was higher for beneficiaries. The majority (60%) respondents reported 5-10% increase in their income, followed by 30% beneficiaries reported income of more than 10% and 8.90% farmers got marginal increase in their income. The response of 1.10% respondents was that there was decrease in their income (Fig 144).

**Figure 144: Raichur-Impact on Income**




**Social Impact:** The survey findings reported that there was a significant increase in the productivity of pulses and consequential income level of farmers in Raichur district. The majority 76.70% respondents as shown in Figure 145 felt that they could afford better education to their children with the extra income generated. Some of them could utilize the extra income for better nutritive food and medical treatment.

**Figure 145: Raichur-Social Impact**




**Focus Group Discussion:** Focus group discussion brought out an observation that there was an increased employment and reduced migrations due to NFSM interventions.

**12.74 What are Major contributors?**

Seed treatment with *Trichoderma* contributed significantly in the enhancement of yields in Raichur district.

**12.75 What are Suggestions?**

Farm implements component is not required under NFSM as farmers are getting higher subsidized farm equipments under other schemes of the Government of Karnataka.

Recently NFSM-rice scheme was withdrawn in Raichur district but farmers wanted that it may be continued along with pulses.

## 13. EMPLOYMENT, CONVERGENCE AND FORWARD & BACKWARD LINKAGES

### 13.1 Is the scheme created employment in selected villages?

Improved farm practices have encouraged the farmers to increase in the utilization of the labor in farm operations. The implementation of NFSM scheme in the different districts generated employment opportunities mainly due to increase in production which requires more of the labor for sowings/plantations, inter-cultivation, harvesting, pre-processing, handling, transportation and disposal of the produce. The net human labor demand increased due to multiple cropping, greater intensity of cultivation and higher yields. Farm equipments and water application tools supplied under NFSM are being used not only for rice and pulse crops but also for all crops and plantations. The year round field work with the cultivation of different crops has generated more employment.

On the other hand, the demand for nonfarm labour for rural manufacture, services, distribution, repair and maintenance as well as other complementary functions increased significantly and helped in relieving rural unemployment to some extent. Mechanization in agriculture provided indirect employment to skilled and unskilled persons engaged in operation, repair and maintenance of farm equipments.

### 13.2 How much convergence has NFSM had with other schemes in the State?

All the districts have reported convergence of Mission interventions with different schemes of the State level programmes. Most of the districts have converged Boochetana , ATMA, Farm Mechanization with NFSM Scheme.

**13.3 Bhoochetana**: Scheme envisages increasing the yield of major rainfed crops of the State through the adoption of agricultural technologies, application of major and micro nutrients based on soil analysis and taking up of inter crops and mixed cropping. Techniques and Technologies are widely published through pamphlets, street plays and wall paintings. Facilitators are engaged to motivate fellow farmers to adopt the technologies properly and at right time. Micronutrients are supplied on subsidized cost.

### 13.4 Agricultural Technology Management Agency (ATMA):

Agricultural Technology Management Agency is an autonomous body with a focal point for integrating research and extension activities and decentralizing day to day management of the public agricultural technology system. It is responsible for technology dissemination at the district level. It would be able to receive expected project funds, entering into contracts and agreements and maintaining revolving accounts that can be used to collect fees, thereby recovering operating cost. ATMA has linkage with all the departments, research organizations,

non-government organizations and agencies associated with agricultural development in the district.

### 13.5 Farm Mechanization Programme:

The productivity of farms depends greatly on the availability and judicious use of farm power by the farmers. Agricultural implements and machines enable the farmers to employ the power judiciously for production purposes. Agricultural machines increase productivity of land and labor by meeting timeliness of farm operations and increase work out-put per unit time. Besides its paramount contribution to the multiple cropping and diversification of agriculture, mechanization also enables efficient utilization of inputs such as seeds, fertilizers and irrigation water.

### 13.6 Rashtriya Krishi Vikas Yojana (RKVY):

The RKVY programme is being implemented in Karnataka since 2007-08 just like NFSM with the objectives of increase public investment in agriculture, reduce the yield gaps in important crops and to maximize returns to the farmers.

### 13.7 What are forward and backward linkages of the scheme and institutional arrangements to support these linkages?

Government Input supply Agencies like Karnataka State Seeds Corporation (KSSC), Karnataka State Cooperative Marketing Federation (KSCMF) and Private Farm Machinery and Micro Irrigation system agencies have been associated in backend operations for the supply of high quality agricultural inputs under NFSM scheme. The department of agriculture has been keeping check over the quality and timely completion of supplies and services to farmers. They are ensuring best after sales services to farmers particularly from water application tools and farm equipment suppliers.

The department of agriculture has been providing marketing information to farmers and linking up with established Market Yards through Agricultural Produce Market Committees (APMC). Farmers are being facilitated in respect of sale of agricultural produce to ensure competitive prices. Necessary arrangements are being provided from time to time in the MSP procurements through Karnataka State Cooperative Marketing Federation.

## 14. SUGGESTIONS AND RECOMMENDATIONS

### (A) Short Term Practicable Recommendations:

1. Inadequate availability of seeds of varieties of pulses released within 10 years for demonstrations and seed distribution components under National Food Security Mission (NFSM) leading to shortfall in achievements. Hence, the age limit of varieties may be relaxed beyond 10 years for demonstrations and seed distribution components under NFSM.

2. It was reported that the subsidy given under NFSM is far below the incentive given under State Mechanization Scheme for farm equipments and water application tools. The subsidy for Knapsack power sprayer is Rs.3,000/- under NFSM as compared Rs.7,500/- under Farm Mechanization Scheme. Similar discrepancy found with water pipes and rotavators. The subsidy component of these inputs under NFSM may be enhanced on par with subsidies under State schemes for full utilization of allocations.

3. Timely release of rate contract agreements may be ensured for timely procurement and distribution of inputs to farmers.

4. A number of farmers had availed assistance for more than one intervention of the Mission. The beneficiary of one intervention may not be given another intervention benefit to reach the benefits of NFSM to large number of farmers.

5. The study found that the conducting of 100 hectares extent of demonstrations in a contiguous blocks in a village is difficulty in districts like Hassan and Udipi and this condition may be relaxed as per the local conditions.

### (B) Long Term Practicable Recommendations:

**1.** While fixing the targets, it is suggested to consider the opinion of field level implementing officers for need based components so as to be realistic about the attainability of targets; for example, diesel pump sets and rotavators are in more demand in Belgaum district. In case of Udipi district, there was no demand for diesel pump sets but heavy demand for electrical motors.

**2.** Integrated farming may be encouraged.

**3.** Agricultural Universities and Research Institutes have to play an important role in bring out high yielding hybrids and varieties suitable to local conditions. Also make sure enough quantities of seeds are made available in association State Seeds Corporation.

C**) Recommendations requiring change in policy:**

2. It is essential to work out area wise need based assessment and prepare district-wise requirements specific to those regions needs instead of general allocation of funds for common component-wise allotment to all districts.
3. May use an appropriate Technology (IT/MIS/GIS) for better monitoring of the project implementation.
4. It is suggested that the provisions may be made in future for concurrent monitoring and evaluation of such schemes.

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## Term of Reference (ToR) for External Evaluation of National Food Security Mission scheme (NFSM) in Karnataka State

**1. Title of the Study**

Evaluation of "*National Food Security Mission (Rice) and National Food Security Mission (Pulses) Schemes in Karnataka".*

**2. Department/Agency Implementing the Scheme/Programme**

State Agriculture Management Agency (SAMA) in the Department of Agriculture.

**3. Background and the Context**

The National Development Council (NDC) in its 53rd meeting held on 29th May, 2007 adopted a resolution to launch a Food Security Mission comprising rice and pulses to increase the production of rice by 10 million tons, wheat by 8 million tons and pulses by 2 million tons by the end of the Eleventh Plan (2011-12). Accordingly, A Central Sector Scheme, 'National Food Security Mission (NFSM)' was launched from 2007-08 to operationalize the above mentioned resolution. The NDC resolved that agricultural development strategies must be reoriented to meet the needs of farmers and called upon the Central and State governments to evolve a strategy to rejuvenate agriculture. The NDC reaffirmed its commitment to achieve 4 per cent annual growth in the agricultural sector during the 11th plan.

The growth in food grains production is marginal during recent past while the consumption need of the growing population is increasing. In order to bridge the gap between food grain availability and requirement, Karnataka state has to achieve additional Production of 10 lakh tones of Rice and 2 lakh tones of Pulses in the State under National Food Security Mission.

The Government of India has launched National Food Security Mission during 2007-08 under two components in Karnataka State namely, NFSM (Rice) and NFSM (Pulses) is a centrally sponsored scheme being implemented in the state form 11th plan period (2007-2008 to 2011-2012) and it is continued during 12th plan for increasing production of rice and pulses through area and yield enhancement to achieve food security. The achievement in enhancement of pulses & rice is 62 % and 8% respectively during the 11the plan. The total amount allocated under NFSM scheme since inception was Rs.554.31 Crores of which Rs.440.48 Crores is the expenditure up to March 2014.

**4. Objectives of the NFSM Programme**

a. Increasing production of rice and pulses through area expansion and productivity enhancement in a sustainable manner.
b. Restoring soil fertility and productivity at the individual farm level.
c. Creation of employment opportunities.
d. Enhancing farm level economy and to restore confidence amongst the farmers.

**5. The districts covered under NFSM scheme are**

a. NFSM Rice: Belgaum, Dakshina Kannada, Hassan, Raichur, Shimoga, Udupi and Uttara Kannada.
b. NFSM Pulses: Bagalkot, Belgaum, Bellary, Bidar, Bijapur, Chitradurga, Dharwad, Gadag, Gulbarga, Koppal, Mysore, Raichur and Tumkur upto 2009-10 and from the year 2010-11 the scheme was extended to all 30 districts of the state.

**6. Evaluation Scope, Purpose and objectives**

**(B) Scope of Work :**

The study shall be conducted in 7 districts namely Belgaum, Dakshina

Kannada, Hassan, Raichur, Shimoga, Udupi and Uttara Kannada for rice for the period 2009-10 to 2013-14 and in all the 30 districts for pulses for the period 2010- 11 to 2013-14.

The study on concurrent evaluation of NFSM Programme will help to know what extent this scheme has become popular, how the distribution of inputs takes place in the State, which component is in demand by the farmers, and what is the impact on Agricultural Productivity; and what problems the beneficiaries are facing in the process of implementation and later etc.

Analysis of the District-wise, Taluk-wise beneficiaries covered under the NFSM Scheme will help to arrive at conclusion on the following points.

a. Extent of Technical support provided to farmers
b. Effect of Trainings and Demonstrations
c. Improvement of economic status of the farmers.
d. Analysis of current status of the programme.

**(C) Purpose:**

A substantial amount is being spent on these schemes and several components viz., certified seeds, Plant Protection equipments, Plant Protection Chemicals, lime, Gypsum, Micronutrients, Agricultural farm implements, water conveying pipes, pump sets were distributed to the farmers at subsidized rates for improvement of economic status of farmers and to improve the farm income. The purpose of the concurrent study is to assess the extent of increase in production of rice and pulses, improvement in economic status of the farmers and to suggest midcourse corrections, if any for better interventions in implementation so that the objectives are met fully.

**(C ) Objectives:**

1. To study the effect of NFSM (Rice) and NFSM (Pulses) schemes implemented in the State during the year 2013-14
2. To ascertain proportion of SC,ST and women farmers who were benefited from the programme.
3. To evaluate the forward and backward linkages of the scheme and institutional arrangements to support these linkages.
4. To suggest measures for improvement of programme and to identify the constraints in implementing scheme.

**7. Evaluation Questions/points (Inclusive not exhaustive)**

**The questionnaire prepared for the evaluation should cover the following aspects:**

**C.** Is the planning at the taluk, District and State level effective and adequate for enhancing the productivity of rice and pulses in the State? If not, what are the suggestions made to improve it?

**D.** Is the existing administrative and technical setup with the Food Security Mission in the State effective in administering the scheme at the district and Panchayath levels? If not, what are the suggestions made to improve it?

**E.** Is the existing timeliness of fund flow and delivery mechanism in the State adequate? If not, what are the suggestions made to improve it?

**F.** Are the interventions being made in the State under NFSM adhering to the specified norms? If not, where are they lacking and why?

**G.** Is there an intervention that is inadequate/redundant/ not conforming to the agricultural practices followed or unsuitable to the weather conditions anywhere in the State? Please list that, for deletion or inclusion of a modification.

**H.** How much convergence has NFSM had with other schemes in the State? Please list all good examples for being followed as best practices. If there is scope for more, specify

them?

**I.** Is the existing monitoring & reporting mechanism efficient and adequate? If not, what are the suggestions made to improve it?

**J.** Please analyze and report, if possible district wise, the following-

**K.** intervention specific contribution of change in yield of the component crops/ resource endowment,

a. intervention specific physical and financial achievements vis-à-vis targets,
b. extent of improvement in area, production and productivity of rice and pulses over the base year (Base Year: 2006-07),
c. the extent to which employment opportunities have been created, and,
d. the estimated change in the farm level income over the base year (Base Year: 2006-07).

1. The study should evaluate the district wise progress of physical and financial achievement vis-à-vis targets. The reasons of shortfall, if any, along with remedial measures should be highlighted.
2. In case of the intervention of "demonstration" of NFSM, the study should reflect and comment on (suggesting means to improve wherever there is a deficiency/lacuna)-

a. Delineation of area for demonstrations of improved package of practices.
b. Methods adopted for selection of beneficiaries and the agencies involved in it.
c. Timeliness of supply of input kits to the beneficiary farmers in each season.
d. Timeliness of the laying of demonstrations.
e. Timeliness and conductance of field days.
f. Average number of farmers participated in field days.
g. Number of demonstrations vis-à-vis area under rice & pulses separately.
h. Quality of demonstrations in terms of yield advantage.

1. In case of the intervention of "lime/liming in rice and pulses" of NFSM, the study should analyze the physical and financial performance against the targets and select sample districts (Shimoga for rice and Gulbarga for pulses) and reflect and comment on (suggesting means to improve wherever there is a deficiency/lacuna)-
   a. Methods adopted for selection of beneficiaries and the agencies involved in it.
   b. Adequacy of pre-positioning/availability of lime/liming material in the sample districts.
   c. Basis of application of lime i.e. soil test based or empirically.
   d. Share of incentivized supply of lime/liming in the total supply of lime/liming material in the sample district.
   e. Adequacy of treated area with lime/liming in the sample district under NFSM.
   f. Response of lime on crop yield based on feedback from beneficiaries.
   g. Crop wise adoption rate of the lime/liming application by the beneficiary farmers at their cost without incentive in subsequent years after the year of availing of incentive under NFSM.
   h. Reduction in area affected by acidity in comparison with base year (TE: 2006-07) in the sample districts.
2. In case of the intervention of "*Assistance for gypsum in pulses*" of NFSM, the study should analyze the physical and financial performance against the targets in Gulbarga district and reflect and comment on (suggesting means to improve wherever there is a deficiency/lacuna)-
   a. Methods adopted for selection of beneficiaries and the agencies involved in it.
   b. Adequacy of pre-positioning/availability of gypsum material in the sample districts.
   c. Basis of application of lime i.e. soil test based or empirically.

d. Share of incentivized supply of gypsum in the total supply of lime/liming material in the sample district.
e. Adequacy of treated area with gypsum in the sample district under NFSM.
f. Response of gypsum on crop yield based on feedback from beneficiaries.
g. Crop wise adoption rate of the gypsum application by the beneficiary farmers at their cost without incentive in subsequent years after the year of availing of incentive under NFSM.
h. Reduction in area affected by alkalinity/salinity in comparison with base year (TE: 2006-07) in the sample district.

3. In case of the intervention of "*micronutrients for rice and pulses*" of NFSM, the study should analyze the physical and financial performance against the targets and in the sample districts (Hassan for rice and Bidar for pulses) reflect and comment on (suggesting means to improve wherever there is a deficiency/lacuna)-

a. Methods adopted for selection of beneficiaries and the agencies involved in it.
b. Adequacy of pre-positioning/availability of micronutrient material in the sample districts.
c. Basis of application of micronutrient i.e. soil test based or empirically.
d. Share of incentivized supply of micronutrient in the total supply of lime/liming material in the sample districts.
e. Adequacy of treated area with micronutrient in the sample district under NFSM.
f. Response of micronutrient on crop yield based on feedback from beneficiaries.
g. Crop wise adoption rate of the micronutrient application by the beneficiary farmers at their cost without incentive in subsequent years after the year of availing of incentive under NFSM.
h. Reduction in micronutrient deficient area in comparison with base year (TE: 2006-07) in the sample districts.

4. In case of the intervention of "*Incentivized supply of conoweeders, power weeders and other small farm implements in rice*" of NFSM, the study should analyze the physical and financial performance against the targets in Uttar Kannada district and reflect and comment on (suggesting means to improve wherever there is a deficiency/lacuna)-

a. Implement wise suitability in the sample districts.
b. Implement wise level of awareness of beneficiaries on their utility & operation.
c. Methods adopted for selection of beneficiaries and the agencies involved in it.
d. Implement wise adequacy of pre-positioning/availability in the sample districts.
e. Implement wise number of implements per 1000 farmers in comparison with base year (TE: 2006-07) in the sample districts.
f. Implement wise share of the incentivized supply in the total supply thereof in the sample districts.
g. Implement & crop wise adoption rate among the non-beneficiary farmers after launch of NFSM.
h. Implement/crop wise saving of time in farm operations/change in yield based on the feedback from the beneficiaries.
i. Reasons for low adoption.

5. In case of the intervention of "*Training on Farmers Field School (FFS) pattern in rice & pulses*" of NFSM, the study should analyze the physical and financial performance against the targets in Hassan for rice and Bijapur for pulses and reflect and comment on (suggesting means to improve wherever there is a deficiency/lacuna)-

a. Methods adopted for selection of beneficiaries and the agencies involved in it.

b. Adequacy in terms of number of sessions conducted per FFS.
c. Adequacy in terms of number of farmers per FFS per season.
d. Number of beneficiary farmers adopting improved production technologies.
e. Farmer's feedback on the relevance, coverage of topics, skill of trainers, quality of literature, duration and scheduling of FFS.

6. In case of the intervention of "*Incentivized supply of diesel pump sets in rice and pulses "* of NFSM, the study should analyze the physical and financial performance against the targets in Shimoga for rice and Belgaum for pulses and reflect and comment on (suggesting means to improve wherever there is a deficiency/lacuna)-

a. Suitability of diesel pump sets in the sample districts.
b. Methods adopted for selection of beneficiaries and the agencies involved in it.
c. Adequacy of pre-positioning/availability of diesel pump sets in the sample districts.
d. Number of diesel pump sets per 100 Ha in comparison with base year (Base year: 2006-07) in the sample districts.
e. Share of the incentivized supply of diesel pump sets in the total supply thereof in the sample district.
f. Crop wise change in gross irrigated area in comparison with base year (TE: 2006-07) in the sample districts.

7. In case of the intervention of "*Incentivized supply of rotavators in rice & pulses*" of NFSM, the study should analyze the physical and financial performance against the targets in Shimoga for rice and Gulbarga for pulses and reflect and comment on (suggesting means to improve wherever there is a deficiency/lacuna)-

(a) Suitability of rotavators in the sample districts.
(b) Level of awareness of beneficiaries on utility & operation of rotavators.
(c) Methods adopted for selection of beneficiaries and the agencies involved in it.
(d) Adequacy of pre-positioning/availability of rotavators in the sample districts.
(e) Number of rotavators per 1000 farmers in comparison with base year (Base Year: 2006-07) in the sample districts.
(f) Share of the incentivized supply of rotavators in the total supply thereof in the sample districts.
(g) Change in number of ploughings required after adoption of rotavators in the sample districts based on the feedback of beneficiaries.
(h) Crop wise adoption rate of rotavators by the non-beneficiary farmers after launch of NFSM.
(i) Saving of time in farm operations/change in yield based on the feedback from the beneficiaries.

8. In case of productivity of rice in the districts of Dakshina Kannada, Udupi and Uttar Kannada districts, has the productivity of rice increased due to NFSM in the past five years as compared to non coastal districts? If not, why not?

9. In case of area under rice in the districts of Dakshina Kannada, Udupi and Uttar Kannada districts it is said that it is declining over the years despite NFSM? Is this a fact? What are the reasons for this?

**8. <u>Evaluation Methodology and Sampling</u>:**

In case of rice and pulses, though NFSM is implemented in all districts of the state since 2010-11 for pulses and is confined to the districts of Belgaum, Dakshina Kannada, Raichur, Shimoga, Udupi, Uttar Kannada and Hassan for rice. But all the districts in case

of pulses are not uniform. But for South Karnataka, the extent of agricultural lands under pulses is too scattered and thin. Since the objective of the study is to evaluate the impact of NFSM measures, it was felt that taking district having very rare (in fact pulses may be grown only if all other crops are not doing well or merely as an experiment) or less area under pulses may be draining the study resources. Thus, in consultation with Mr.G.Devarajaiah of the line department, other than where specified above in evaluation questions, the sample districts will be-For rice – Belgaum, Shimoga, Udupi and Hassan.For pulses – Gulbarga, Bidar, Bijapur, Yadagir, Raichur, Dharwad and Gadag.

The study will be done using individual interview of farmers covered under NFSM. In each district, ten villages may be selected at random, but with the condition that each taluk is represented. In each of the villages, ten farmers may be interviewed selecting than at random (every nth met interviewed say) such that large, medium and small farmers are covered. At least one of them may be a man NFSM covered one. In case that is not possible the one tenth farmers can be nearby village non NFSM farmer. Going thus, a total of 1100 farmers will need to be interviewed individually, within them 110 being non NFSM or "control" farmers.

Individual interviews may be followed by Focused Group Discussions (FGDs) of farmers, officials of agriculture department, Panchayath members and other stake holders. In all FGDs the implementing agricultural department officers should be invited and in at least about 10% of the individual interviews they be present.

**9. <u>Deliverables and Time schedule for the study:</u>**

The Director of Agriculture and Mission Director (NFSM) will issue necessary instructions to the Joint Directors/Assistant Directors of the concerned districts to co-operate and facilitate for collection of the necessary data during the course of study. It is expected to complete the study in 6 months time excluding the time taken for approval. The evaluating agency is expected to adhere to the following timelines and deliverables.

a. Work plan submission : One month after signing the agreement.
b. Field Data Collection : Three months from date of work plan approval.
c. Draft report Submission : One month after field data collection.
d. Final Report Submission : One month from draft report
e. Total duration 6 months : submission.

**The Consultant Evaluation Organization is required to submit the final evaluation reports as under:**

**FIFTY** hard copies in ENGLISH and **FIFTY** hard copies in Kannada along with **THREE** soft copies of the approved final report (in English as well as Kannada) along with **THREE** soft copies of raw field data, data collection instruments, and processed data outputs should also be submitted to the KEA.

**10. <u>Qualities Expected from the Evaluation Report :</u>**

The following are the points, only inclusive and not exhaustive, which need to be mandatorily followed in the preparation of evaluation report:-

a) By the very look of the evaluation report it should be evident that the study is that of Agriculture department of the Government of Karnataka, and Karnataka

Evaluation Authority (KEA) which has been done by the Consultant. It should not intend to convey that the study was the initiative and work of the Consultant, merely financed by the Agriculture department of the Government of Karnataka, and Karnataka Evaluation Authority (KEA).

b) Evaluation is a serious professional task and its presentation should exhibit it accordingly. Please refrain from using glossy, super smooth paper for the entire volume overloaded with photographs, graphics and data in multicolor fancy fonts and styles.
c) The Terms of Reference (ToR) of the study should from the first Appendix or Addenda of the report.
d) The results should first correspond to the ToR. In the results chapter, each question of the ToR should be answered, and if possible, put up in a match the pair's kind of table, or equivalent. It is only after all questions framed in the ToR that is answered, that results over and above these be detailed.
e) In the matter of recommendations, the number of recommendations is no measure of the quality of evaluation. Evaluation has to be done with a purpose to be practicable to implement the recommendations. The practicable recommendations should not be lost in the population maze of general recommendations. It is desirable to make recommendations in the report as follows:-

(A)**Short Term practicable recommendations**

These may not be more than five in number. These should be such that it can be acted upon without major policy changes and expenditure, and within say a year or so.

(B) **Long Term practicable recommendations**

There may not be more than ten in number. These should be such that can be implemented in the next four to five financial years, or with sizeable expenditure, or both but does not involve policy changes.

(C ) **Recommendations requiring change in policy**

There are those which will need lot of time, resources and procedure to implement.

**11. Cost and Schedule of Budget release**

Output based budget release will be as follows-

a. The **First instalment** of Consultation fee amounting to 30% of the total fee shall be payable **as advance** to the Consultant after the approval of the inception report, but only on execution of a bank guarantee of a scheduled nationalized bank valid for a period of at least 12 months from the date of issuance of advance.
b. The **Second instalment** of Consultation fee amounting to 50% of the total fee shall be payable to the Consultant after the approval of the Draft report.
c. The **Third and final installment** of Consultation fee amounting to 20% of the total fee shall be payable to the Consultant after the receipt of the hard and soft copies of the final report in such format and number as prescribed in the agreement, along with all original documents containing primary and secondary data, processed data outputs, study report and soft copies of all literature used to the final report.

Tax will be deducted from each payment as per rates in force. In addition, the evaluator is expected to pay statutory taxes at their end.

**12. Qualification of the consultant**

The Evaluating Agency/Consultant should have the following personnel-

a. An Agriculture post graduate with extensive knowledge and experience in the fields of rice and pulses cultivation(Principal Investigator),

b. Statisticians having experience of applying qualitative and quantitative evaluation methods in the field of agriculture technology (Member 1), and,
c. Social scientists/Sociologists (Member 2),

Fluent in Kannada and in such numbers as would be able to complete the study in the prescribed time.

**And in such numbers that the evaluation is completed within the scheduled time prescribed by the ToR.**

**Consultants not having these number and kind of personnel will not be considered as competent for evaluation.**

**13. Ensuring quality**

The evaluation report and its findings must demonstrate highest professional standards on par with national and international studies.

**14. Providing oversight**

Karnataka Evaluation Authority will provide the funding. All technical aspects of the study will be monitored by the Agriculture department.

**15. Contact person to get further details about the study**

Sri Devarajaiah. G (Mobile no: 07259004042) Assistant Director of Agriculture, National Food Security Mission (NFSM) Section, Department of Agriculture, No,1 Seshadri Road, Bangalore–560 001. Ph: 080 22112840, Fax: 080 22112858 e-mail: nfsm.karnataka@rediffmail.com

**The entire process of evaluation shall be subject to and conform to the letter and spirit of the contents of the government of Karnataka order no. PD/8/EVN(2)/2011 dated 11 th July 2011 and orders made there under.**

**Sd/-**
**Chief Evaluation Officer Karnataka Evaluation Authority**
Chief Evaluation Officer Karnataka Evaluation Authority

# INCEPTION REPORT

**Evaluation of "*National Food Security Mission (Rice) and National Food Security Mission (Pulses) Scheme in Karnataka*"**

***Submitted To***
***Karnataka Evaluation Authority (KEA)***
***542, 2nd Gate, 5th Floor,***
***M S Building,***
***Bangalore-560 001***
***By***

**INSTITUTE OF PUBLIC ENTERPRISE**
**OU CAMPUS, HYDERABAD – 500 007**
**ANDHRA PRADESH, INDIA**
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## National Food Security Mission in Karnataka

The Government of India has launched National Food Security Mission during 2007-08 under two components in Karnataka State namely, NFSM (Rice) and NFSM (Pulses) is a centrally sponsored scheme being implemented in the state from 11th plan period (2007-2008 to 2011-2012) and is continued into the 12th plan. This is for increasing production of rice and pulses through area and yield enhancement to achieve food security. The total amount allocated under NFSM scheme since inception is Rs.554.31 Crores of which Rs.440.48 Crores is the expenditure up to March 2014.

**Districts covered under NFSM scheme:**

**NFSM Rice:** Belgaum, Dakshina Kannada, Hassan, Raichur, Shimoga, Udupi and Uttara Kannada.

**NFSM Pulses:** Bagalkot, Belgaum, Bellary, Bidar, Bijapur, Chitradurga, Dharwad, Gadag, Gulbarga, Koppal, Mysore, Raichur and Tumkur upto 2009-10 and from the year 2010-11 the scheme was extended to all 30 districts of the state.

**Objectives of the Evaluation Study:**

The evaluation of NFSM is to assess the extent of increase in production of rice and pulses, improvement in economic status of the farmers and to suggest midcourse corrections if any for better interventions in implementation so that the following objectives are met fully.

1. To study the effect of NFSM (Rice) and NFSM (Pulses) schemes implemented in the State during the year 2013-14.
2. To ascertain proportion of SC, ST and women farmers who were benefited from the programme.
3. To evaluate the forward and backward linkages of the scheme and institutional arrangements to support these linkages.
4. To suggest measures for improvement of programme and to identify the constraints in implementing scheme.

The evaluation is commissioned to study the extent of the popularity of the scheme, distribution of inputs, which component is in demand by the farmers, and what is the impact on Agricultural Productivity; and what problems the beneficiaries are facing in the process of implementation and later etc.

Analysis of the District-wise, Taluk-wise beneficiaries covered under the NFSM Scheme will help the study to arrive at conclusion on the following points.

a. Extent of Technical support provided to farmers
b. Benefits accrued with the inputs supplied under the scheme
c. Effect of Trainings and Demonstrations
d. Improvement of economic status of the farmers
**e.** Analysis of current status of the programme

**Methodology of Study**

The methodology of the proposed study includes an intensive, participatory and on-the-field study and series of consultations and discussions at local, taluk, district and state level.

**The primary data** from beneficiaries will be collected from village level with the simple questionnaire that is attached at **Annexure-I.** It covers mainly on the technical and input supplies and its impact on the productivity of rice and pulses. The focus group discussions with open ended questionnaires will be collected for socio-economic impact of the program and for broad understanding of the results of the scheme at village level. A checklist for carrying out FGDs is attached at **Annexure-II**.

The feedback from village, taluk, district and state level officers of the implementing agency on its planning, implementation, monitoring, significant results and observations will be collected with open ended questionnaire that is attached at **Annexure-III.**

**The secondary data** will be collected from the department of agriculture with regard to the present structure of the implementing agency- State Agriculture Management Agency **(SAMA)**, guidelines to implement the scheme, delivery of services, record keeping, funds disbursal mechanism, report and monitoring systems, physical and financial achievements against targets (district wise and intervention wise), budget allotted and used so far etc. Proforma data collection formats are attached at **Annexure-IV.**

**IPE study team has already met the concerned officers at State level, made formal request for necessary support and the collection of information is in progress.**

This type of evaluation is the treatment effects model *impact evaluations*, which quantify the effects of programs on individuals, households, and communities.

**Selection of location and beneficiaries**

The Evaluation Study will be taken up in 11 districts such as Belgaum, Shimoga, Udupi and Hassan for Rice; Gulbarga, Bidar, Bijapur, Yadagir, Raichur, Dharwad and Gadag for Pulses.

In each district 10 villages will be selected randomly such that each one will be representing one Taluk. From these 10 villages, 10 farmers from each village will be selected such that there is a balanced representation of small and marginal farmers, SC/ST farmers, minority farmers, women farmers etc.

In the selected villages, non beneficiaries' data will be collected and it will constitute 10% of the number of beneficiaries in the selected or a nearby village.

**The team has already visited two districts such as Raichur and Yadgir and had detailed discussions with the concerned officers and also selected 10 villages randomly for the primary data collection.**

| **District** | **Taluka** | **Name of the village** |
|---|---|---|
| **Raichur** | Raichur | Raghunathanahalli |
| | | Ganadal |
| | Manvi | Kavital |
| | | Pamanakallur |
| | Deodurga | Verragota |
| | | Mudagot |
| | Lingasagur | Gudadanal |
| | | Honnalli |
| | Sindhanur | Sindhanur |
| | | RH Colony |
| **Yadgir** | Yadgir | Ramasamudra |
| | | Hosalli |
| | | Rachinalli |
| | | Madvar |
| | Surpur | Naganoor |
| | | Khanapur S K |
| | Sholapur | Sirwal |
| | | Dornahalli |
| | Gogi | Hoskera |
| | Doranalli | Chattanapalli |

**Prof V Anji Raju, Principle Investigator is responsible for the evaluation job with the support of the following faculty working with the Institute of Public Enterprise, Hyderabad.**

| **Name of the faculty** | **Designation** | **Specialization** | **Districts to be** |
|---|---|---|---|

| | | | |
|---|---|---|---|
| | | | **covered** |
| Dr K V Ananth Kumar | Assistant professor | Statistician & Kannada Mother tongue | Dharwad and Gadag |
| Dr T Anil Kumar | Assistant Professor | Biology Background & Kannada Mother tongue | Raichur and Yadgir |
| Dr V Srikanth | Assistant Professor | Marketing Specialization & Kannada Mother tongue | Udipi, Shimoga and Hassan |
| Dr MLN Rao | Associate Professor | Botany and Marketing Background | Bidar and Gulbarga |
| Dr Anand Akundy | Senior Faculty | Sociologist | Belgaum and Bijapur |

**Recently, project based research coordinator Dr M. Maschendar Goud was recruited under NFSM.** Data collection will be started under the supervision of the faculty through field level data collection assistants. The selection of field level data collection assistants is in progress and we are working different options including involving the NGOs such as Manav Charities, **Rural Literacy and Health Programme,** Janodaya Seva Trust located in Karnataka State.

**Data Processing and Data Preparation**

The quantitative data obtained from field will be tabulated and edited so as to check for any inconsistencies. Data will be verified at two levels, first at field level and finally at head quarters by the evaluation team. Any discrepancy or inconsistency that may be found would be rectified by visiting the field and collecting the data again. Subsequently, data will be structured and prepared in the Statistical Package for Social Sciences (SPSS) 15.0 to compare outcomes for beneficiaries and non-beneficiaries. The data analysis will also be done keeping in view the benefits accrued to the farmers as a result of the NFSM interventions.

**Time Lines**

**30 days** –Work plan (preparation of questionnaires for the collection of primary and secondary data and meeting of state level officers, agencies and finalization of team visits to districts, talukss, villages);

**90 days** -collection of primary and secondary data from state, districts, taluks and farmers;

**15 days** -verification and compilation of data, data analysis and preparation of draft report;

**15 days** -submission of draft report with charts, tables, photos etc. and presentation;

**30 days** -final report preparation with the incorporation of suggestions and modifications wherever necessary.

| List of Individuals Interacted at District Level | | | |
|---|---|---|---|
| **Sl. No** | **District** | **Name of the Officer** | **Designation** |
| 1. | Bidar | Putra G.T | Joint Director of Agriculture |
| | | M.S. Katagi | Technical Assistant |
| | | Rajkumar | Technical Officer |
| 2. | Bijapur | B. Manjunath | Joint Director of Agriculture |
| | | Vamadeva K Gajare | Consultant |
| | | Vittal S Natekar | Technical Assistant |
| | | Neelamma R Kolageri | Technical Assistant |
| 3. | Dharwad | Sharanabasappa Mudgol | Joint Director of Agriculture |
| | | Pushpa K Hosalli | Technical Assistant |
| | | Rajeswari N Ambannavar | Technical Assistant |
| 4. | Gadag | C.B. Bala Reddy | Joint Director of Agriculture |
| | | Ningaraddi Kallimani | Technical Assistant |
| | | Radhakrishna R A | Technical Assistant |
| 5 | Gulbarga | J.H. Mokashi | Joint Director of Agriculture |
| | | Sunil | Technical Officer |
| 6 | Raichur | Kiran Kumar | Joint Director of Agriculture |
| | | Suguna | Technical Assistant |
| 7 | Yadgir | Chetana Patil | Joint Director of Agriculture |
| | | Savita Ravadi | Technical Assistant |
| | | Sandeep Pujari | Technical Assistant |
| 8. | Shimoga | Madhusudhan. K | Joint Director of Agriculture |
| | | Chandrakumar | Technical Officer |
| 9. | Udupi | Antony | Joint Director of Agriculture |
| | | Vidya Babu | Technical Assistant |
| | | Manjushri | Technical Assistant |
| 10. | Hassan | Shivraj | Joint Director of Agriculture |
| | | Shruthi S | Technical Assistant |
| | | Shoba D M | Technical Assistant |
| 11. | Belgaum | Venkatarama Reddy | Joint Director of Agriculture |
| | | Ashok Dondiba Ghatavade | Technical Assistant |
| | | Mahesh Dhandrashekar Mathad | Technical Assistant |

## Profile of Principal Investigator

**Mr V. Anji Raju** is a post graduate in Agriculture with specialization in Agronomy and having 36 years experience. Underwent long term training programmes in Oxford University, London, UK and Hebei Academy of Sciences, China.

**Past Affiliations:**

Duncans Biotech Ltd., Kolkata. (5 years as Chief Project Manager)
A.P. Co-operative Oilseeds Growers Federation, Hyderabad (10 years as GM)
Godavari Fertilisers and Chemicals Ltd.,Secunderabad (1 year in marketing)
Advanced Teachers College, Oju, Nigeria (3 years in Teching)
IDL Chemicals Ltd., Hyderabad (2 years as Agronomist)

**Areas of expertise / competence:**

Leadership, Agribusiness, Marketing, Rural Development, Cooperatives, Project Management, Entrepreneurship Development etc.

**Projects completed:**

1."Evaluation of survival of seedlings planted by Dept. of Forestry, Shimoga district, Government of Karnataka" (2008). National Afforestation and Eco-development Board, Ministry of Forest and Environment, GOI.

2. **"**Recruitment and training of Customer Care Executives for Margadarsi Marketing Pvt. Ltd.(2009)

3. Corporate Plan (2009)- A.P. Cooperative Oilseeds Federation Ltd. Government of Andhra Pradesh, Hyderabad.

4. Training needs assessment and MoUs for Assam Seeds Development Corporation Ltd. (2011): Government of Assam.

5.Training needs assessment and MoUs for Assam State Warehousing Corporation. Guawahathi (Government of Assam). (2013).

**Research Project**:

ICSSR sponsored "Rural Urban Migration in Andhra Pradesh: A Study on Socio-Economic Impact on Families of Migratory Farmers"(2014).

**Number of Trainings Programs/Seminars/Conferrences conducted** Marketing, Leadership and Change Management

**Books Written**: i) Services Marketing (2012) ii)Leadership (2014)

## Brief Resume of Team members

**1. Dr M L N Rao, Associate Professor**

Dr M L N Rao is obtained Post Graduate and Doctoral Degrees in the faculties of Science, Law and Business Management from Osmania University

He was a recipient of Junior Research Fellowship and Senior Research Fellowship and Post Doctoral fellowship from ICAR and CSIR. He was recipient of Netherlands Fellowship for Overseas Students from the Ministry of External Affairs, The Government of the Netherlands.

He has about 24 years of professional experience in research, teaching and research management. Published about 25 research papers in peer reviewed journals of National and International repute and edited proceedings of National Seminars published by University Press.

He was associated with implementation/Management of Netherlands Biotechnology Programme during 1997 to 2007 for sustainable development of dryland agriculture. He organized more than 20 National/International Seminars, Workshops and Conferences in the area of International Cooperation, Project Management, Agricultural Marketing, Micro enterprises, Biotechnology policy and IPRs.

He visited several research and managements institutes in countries like Belgium, Kenya, Malaysia, the Netherlands Singapore, Srilanka, Uganda and United Arab Emirates.

He has been a resource person in the area of Micro enterprises, Rural Development, Participatory processes, Consumer Rights, Biotechnology & Biosafety, Research Management, WTO and Intellectual Property Rights in training programs organized by the different universities, academic & research institutions and civil society organizations.

Currently Dr Rao is an Associate Professor at Institute of Public Enterpise, Hyderabad.

**2.Dr. V. Srikanth, Assistant Professor**

**Dr. V. Srikanth** has been awarded Ph.D., for his thesis titled**, "**Marketing Strategies of Software Export Industry - A Study of Select Companies**",** by Osmania University, Hyderabad, India.

- Has got a total of **23 years** of **industry, teaching** and **research experience.**
- Is working as Marketing Faculty in Institute of Public Enterprise, Hyderabad since 6th May, 2005.
- **Coordinator (Research), IPE, Hyderabad.**
- **Advisor -** Post Graduate Diploma in Management – Retail Marketing (**PGDM-RM**)**, IPE, Hyderabad**
- Has worked as Assistant Professor in the College of Management Studies, GITAM, Visakhapatnam for **six years**.
- Has done **M.B.A.** specializing in **Marketing and Human Resource Management.**
- Has worked in **Directorate General : Doordarshan**, New Delhi for **three years.** He had also worked in brief stints in LIC of India, Hyderabad and Aurora P.G. College, Hyderabad
- Has published articles in national and international journals.
- Is also on the Guest Speaker panel of Winrock International, a Swiss based International Consortium.
- Is on the Guest Faculty panel of MANAGE, Ministry of Agriculture, Govt. of India.
- Is on the Guest Faculty panel of Acharya N.G. Ranga Agricultural University, Hyderabad.
- Is a resource person for a number of Management Development Programmes, organized by various institutes.

- Has presented a paper on Indian Information Technology industry at an International Conference organized by International Academy of Business and Economics, held at **Las Vegas, Nevada, USA** in October, 2005.
- Has presented a paper on Indian Software Exports at an International Conference organized by International Academy of E-Business conference, held at **Orlando, Florida, USA** in March, 2006.
- Had interacted with the Marketing Guru, Dr. Philip Kotler on his visit to India.
- Has conducted an AICTE sponsored Two weeks Faculty Development Programme titled "Marketing Management Instruction : Usage of Effective Pedagogical Methods" for faculty of Business Schools of Andhra Pradesh and Maharashtra in March, 2007.
- Has completed an AICTE Research Project titled "Customer Relationship Management : A Comparative Study of Select Public and Private Sector Organizations.
- Has conducted an AICTE sponsored National Conference on Cyber Marketing in July, 2007.
- Has conducted an AICTE sponsored National Conference on Customer Relationship Management – A Financial Services Perspective in August, 2008.
- Has organized an AICTE sponsored National Conference on Customer Oriented Services Management from 5-6 March, 2009.
- Conducted a Consultancy Project for evaluation of **Karnataka Soaps and Detergents Ltd.,** from Government of Karnataka.
- Did a Consultancy Project for evaluation of **Karnataka Agriculture and Marketing Board**, from Government of Karnataka.
- Completed a Consultancy Project for evaluation of **HOPCOMS**, from Government of Karnataka.
- Carried out a Consultancy Project on MoU for **Assam Government Marketing Corporation**, Govt. of Assam.
- Completed a Consultancy Project for **A.P. Rajiv Swagruha Corporalation Ltd.,** on "Affordable Housing : Demand Assessment of Rajiv Swagruha Housing Scheme".
- Completed a Market Research Project for **Mineral Exploration Corporation Limited (MECL)**.
- Carried out a Consultancy Project on Training Needs Analysis & MoU for **Assam State Text Book Publishing Corporation**, Govt. of Assam.
- Completed a Study on Customer Requirement Analysis for **National Mineral Development Corporation (NMDC)**.
- Completed a Study on Planning & Functioning of Excise Training Academy, A.P. Prohibition & Excise Department, Govt. of Andhra Pradesh.
- Carrying out a Study on P&E Enforcement Manual, A.P. Prohibition & Excise Department, Govt. of Andhra Pradesh.
- Carrying out a Study on Manpower Planning for Telangana State Beverages Corporation Ltd (TSBCL), Govt. of Telangana.
- Organized a two day National Conference on "**Modern Retailing – Social & Economic Perspectives**", sponsored by Indian Council of Social Science Research.


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ಕರ್ನಾಟಕ ಮೌಲ್ಯಮಾಪನ ಪ್ರಾಧಿಕಾರ
Karnataka Evaluation Authority

# Evaluation of National Food Security Mission Scheme in Karnataka