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Government of Kerala

**Total Paddy Mechanisation
(Food Security Army)
Angadippuram Grama Panchayath
In Malappuram District**

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Kerala State Planning Board
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Abstract

A considerable increase in the area of land under paddy cultivation is the need of the hour as it is shrinking every year due to many reasons. Paddy cultivation needs appropriate mechanisation to cope with the increased cost of cultivation due to high wages and scarcity of labourers. It is the only way to bring back the farmers who turned away from paddy cultivation. The present study is an effort to know the effectiveness and impact of training programme and the formation of Food Security Army (FSA) in the cultivation of paddy and thereby the decrease in the area of barren land in Angadippuram Grama Panchayath. For the present study, interview schedule is used as a tool for gathering the data on the project 'Total Paddy Mechanisation' from the members of Food Security Army and Grama Panchayath Authorities. The investigator also collected secondary data on 'Total Paddy Mechanisation' from the project records in Krishi Bhavan, Angadippuram.

The investigator could reach at the conclusion from the investigation that though paddy cultivation is facing several constraints particularly labour availability and smaller holdings, which are not easily amenable for farm mechanisation, Food Security Army has shown the way to tackle most of these problems. Not only the cost of production in paddy has been reduced, but also the farmers have been able to effectively implement the scientific crop production technologies, thus reviving paddy cultivation in the grama panchayath. The detailed report of the study is given below.

Disclaimer

This working paper is prepared by Shri. Mohamed Ansal Babu N.K, Research Assistant, District Planning Office, Malappuram. The facts and figures in the report are based on quick field survey done by the author and do not reflect the views or policies of the State Planning Board. The purpose of this document is to provide a comprehensive overview of the scheme/projects implemented by the Local Self Government during XI Five Year Plan.

TOTAL PADDY MECHANISATION (Food Security Army)

Introduction

Paddy cultivation was part of the proud culture of Kerala State. Rice is the most important cereal and staple food produced and consumed in Kerala. In Kerala you can see vast green paddy fields. Kuttanad is called as rice bowl of Kerala because of rice cultivation. Trichur and Palakkad are the other two places in Kerala where large scale cultivation is done. In the earlier days rice used to be cultivated almost in all parts of Kerala in three seasons. They were Mundakan, Viruppu and Puncha. Kerala government has implemented novel schemes under food security programme for special rice production areas like Kuttanadu, Purakkad Kari, Kattampalli, Palakkad, etc.

In the present scenario, it is difficult to do paddy cultivation in the state due to high labour cost and shortage of labour. Mechanised transplanting is attracting more and more paddy farmers in Kerala. By adopting good quality seedlings, adequate use of organic manure, integrated water and pest management Kerala farmers can increase paddy yield and thereby profit from it. Also, paddy fields are being converted into filled up land.

Paddy fields are slowly diminishing from Kerala, creating threat to food security of the State. For conversion of paddy fields, Kerala government had made law to stop filling the paddy fields for uses like construction and cultivation of cash crops like rubber, coconut, etc.

Scenario in Malappuram District

Malappuram district lying in the mid-region of the state has witnessed an increase in productivity of paddy due to introduction of improved varieties and use of scientific technologies. However, the total production of paddy is gradually decreasing mainly due to declining the area of cultivation. The cost of production especially for that of labour is also on an increasing trend. The following

reasons contribute to the decrease in production and increase in production cost.

a) Decrease in Area Under Paddy Cultivation: Conversion of paddy field to horticultural crops/cash crops and non- agricultural purposes is wide spread in the district.

b) High Labour Cost: The younger generation, particularly the literate are reluctant to adopt agriculture as a profession.

c) Migration: Migration to foreign countries, especially to gulf countries is another reason for the rise in cost of production. Migration has badly affected the labour availability in agriculture sector.

d) Rapid Growth of Real Estate Sector: The real estate sector is growing rapidly in Malappuram due to inflow of Gulf money. Attracted by better prospects labourers in agricultural sector are shifting to building- construction works.

All the above factors result in the shortage of farm labourers, which increase labour cost and increase in cost of cultivation.

Considerable reduction in labour requirement can be achieved through selective mechanization with appropriate farm machinery systems to change rice production as economically viable. At present, tillage operations in paddy cultivation are mechanised to a greater extent with the help of tractor and power tillers. However, other labour intensive operations such as transplanting and harvesting are performed manually. Commercial paddy farming machines like mechanical paddy transplanter, reaper and thresher are yet to be adopted widely in the farms in Malappuram district mainly due to their high investment cost and sophisticated technology for operation and maintenance. Large scale adoption of this kind of machines in paddy farming is possible only through government support to co-operative groups of farmers to make them economically viable and to enable the farmers to meet local requirements. In Malappuram, there are large number of Padashekhara Samithies and Kole Vikasana Samithies which

concentrate wholly on paddy crop and take up group farming activities including distribution of inputs and incentives. But their activities are restricted due to lack of skilled labour to operate farm machineries.

Impact of Mechanisation on Selected Quantitative Indicators

Impact of Mechanisation on selected Quantitative Indicators is furnished below.

Sl. No.	Parameters	Mechanisation	Local Check
1	Yield (t/Ha)	4.50	2.0
2	Input Requirement a. Seeds (Kg/Ha)	50	75
3	Savings in Labour for per Ha cultivation	1 for Transplanting 1 for Reaping	45 numbers for Transplanting 17 numbers for Reaping
4	Cost of Cultivation	Rs.23,230/Ha	Rs. 29,900/Ha

Problems in Mechanisation of Paddy Cultivation

1. The farmers are not aware of these machines due to limited number of demonstrations by government agencies.
2. There is not much publicity by media like television and radio regarding these machines.
3. Big private companies are not coming forward to manufacture the implements for which no demand has been created.
4. The implements and machinery are used only limited period of 15-30 days.
5. Farmers do not want to invest large amount on costly machines.
6. Natural calamities withdraw the farmers from investing more in machineries.
7. Problems of repair and maintenance of these machines at village level.
8. Many implements and machines are not profitable due to single crop use.

‘TOTAL PADDY MECHANISATION’- A Project of Angadippuram Grama Panchayath

Project Profile

A considerable increase in the area of land under paddy cultivation is the need of the hour as it is shrinking every year due to many reasons. According to the official records of Krishi Bhavan, Angadippuram, 175 hectors of land are available in the entire grama panchayath for paddy cultivation during 2011-12. Out of these, 135 hectors of land were being used for paddy cultivation. The remaining 40 hectors of land were barren. The governing body of Angadippuram grama panchayath has decided to change this sorry state of affairs and conducted discussions with various agencies at various level. Finally, this project was prepared based on the following objectives as a part of people’s plan 2011-12.

Objectives of the Project

- To attain the objective of barren-less cultivable land in Angadippuram grama panchayath.
- To solve the problem of scarcity of agricultural labourers in Angadippuram grama panchayath.
- To form an agricultural labour army in Angadippuram grama panchayath.

The project was aimed to form well trained agricultural labourers in farm machineries to solve the problem of high labour cost and shortage of labour. The trained labourers will be called as ‘Food Security Army’. Training in the operation and servicing of various agricultural machineries especially used in paddy cultivation was organised by the grama panchayath in association with Central Training Institute, Mannuthy for selected members whose age between 18-50 years of old.

Project Cost

The estimated cost of the project was ₹ 1.50 lakh. Training was absolutely free of cost for the members of Food Security Army.

Grama panchayath has spent ₹ 7500 per trainees. It includes all the expenses for the training for a period of 20 days.

Implementation of the Project

The period of training was from 23/01/2012 to 18/02/2012. The training schedule comprised of 20 hours of theory class and 140 hours of field training. The training classes were scheduled from 9.00 AM to 5.00 pm with lunch break between 1.00 pm to 2.00 pm. Morning tea, working lunch and evening tea were provided to each trainee. Each trainee was provided with FSA uniform (army green shirt, cargo pant, FSA cap, ID card and shoes, teaching material, note book and pen).

Trainees were given gradual training for road running of the transplanter, field running of the machine, blank transplanting and actual paddy transplanting. Thereafter, care and servicing of the machine, storage, lubrication, assembling and dissembling of the machine, repair, etc. were taught. The trainees were also taught about the KAMCO power tiller, its various parts, working and operation and attachments available for the various farm uses. They had practical class on starting the machine and running it. The trainees could start the power tiller on their own. They were also able to run the machine. The trainees were used the implements for weeding – cono weeder, different types of dry weedres, etc.

The trainees were taught the operation of the power sprayer, brush cutter, sit and climb type coconut climber, etc. Trainees were trained for operation and maintenance of KAMCO power reaper. Trainees were taught the driving of tractor on road, field operation of tractor with attachments like rotovator and cultivator.

It was expected that the training programme may motivate many farmers, who had abandoned paddy cultivation due to labour scarcity, to take it up in the next season, provided they get the work force with machinery.

Background of Evaluation Study

The State Panning Board has directed to conduct an evaluation study on any of the projects implemented by any of the local bodies of Malappuram District during 11th Five Year Plan.

Importance of the Study

Paddy cultivation needs appropriate mechanisation to cope with the increased cost of cultivation due to high wages and scarcity of labourers. It is the only way to bring back the farmers who turned away from paddy cultivation. The project was a brave effort shown by Angadippuram grama panchayath to organise training in agricultural machineries especially used in paddy cultivation to reduce the percentage of barren cultivable land in the Panchayath. In this situation, as a part of regular evaluation study of State Planning Board, an effort to know the effectiveness and impact of training programme and the formation of Food Security Army (FSA) in the cultivation of paddy and thereby the decrease in the area of barren land in Angadippuram grama panchayath is of great importance. The result of this study may be a torch bearer in the process of policy making in the Agricultural sector. It may also help the authority to find the solution for some of the immediate problems existing in the primary sector.

Objectives of the Study

Following are the important objectives of the Study;

1. To evaluate the effectiveness of the training on agricultural machineries.
2. To assess whether the project help to reduce the area of fallow cultivable land.

Limitations of the Study

Following are the important limitations of the study;

1. The investigator could not collect data from the farmers who used the service of FSA.
2. The investigator could not conduct on the spot assessment on the effectiveness of the training programme.
3. The investigator could not visit the paddy land in which the services of FSA are being used due to insufficient time along with routine office work.

Methodology

Methodology is the procedure or techniques adopted in research and it occupies a very important place in any types of research. A suitable method helps the researcher to explore the diverse strands of the study and adequately measures them so as to satisfy the requirement.

Method Adopted for the Study

As the present study involves a process of collecting data from a specific population, the normative survey method is most appropriate.

Survey method is very useful in getting descriptive data which people can contribute from their own experience. It is the best means through which opinions, attitudes, suggestions for improvement of instruction and such other data can be obtained.

Tools Used for the Study

For each and every type of study we need certain instruments to gather new facts or to explore new fields. The instrument thus employed as a means is called a tool. For the present study, interview schedule is used as a tool for gathering the data on the project 'Total Paddy Mechanisation' from the members of Food Security Army and the grama panchayath authorities. The investigator also collected secondary data on 'Total Paddy Mechanisation' from the project records in Krishi Bhavan, Angadippuram.

Sample for the Study

Sampling is the process by which a relatively small number of individuals, objects or events is selected and analysed in order to find out something about the entire population or universe from which it was taken. The term sample refers to a small group of individuals taken from a large population. The sample for the present study consists of 20 members of Food Security Army and span of

authority of Angadippuram grama panchayath like the President, the Secretary, Agricultural officer and the President and Secretary of Paddy Development Society of Angadippuram grama panchayath. The distribution of sample is presented in Table.1.

Table No.1
Distribution of Samples

No of Members of Food Security Army	Span Authority of the Grama Panchayath
20	5

Source: Sample Survey

Statistical Techniques Used in the Study

The data collected were analysed using statistical technique such as percentage. Percentages were calculated for each item for deciding the proportions of members of Food Security Army giving the responses.

Administration of Tool and Collection of Data

The present study is intended to evaluate the effectiveness of the project 'Total Paddy Mechanisation' implemented by the Angadippuram grama panchayath during the financial year 2011-12 in achieving its stated objectives. The investigator visited the Krishi Bhavan, Angadippuram and collected all relevant details of the project. The investigator had a discussion with Agricultural Officer, President of the grama panchayath, the Secretary and the President of Paddy Development Society of Angadippuram grama panchayath. The investigator collected data from members of Food Security Army through personal and telephonic interview. The investigator was fortunate enough to receive sincere co-operation from all members.

Analysis and Interpretation of Data

Analysis and interpretation of the collected data is the major step in the process of any study. The mass of data collected may be in raw form. It needs to be systematized and organized for meaningful analysis. The response of members of FSA to the questions in the schedule is analysed as follows.

1. Response of members of FSA to the question 'Are you a farmer by tradition?'

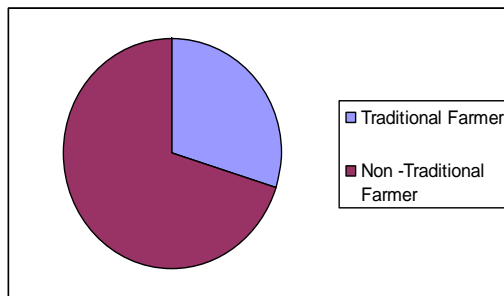
The below given table shows the response of the members of FSA to the question 'are you a farmer by tradition'.

Table No. 2

Total	Response	
	Yes (%)	No (%)
20	06 30%	14 70%

Source: Sample Survey

The above given table indicates that 6 out of 20 members of FSA are farmers by tradition. 14 out of 20 members are not farmers by tradition. It can be depicted in the following pie diagram.



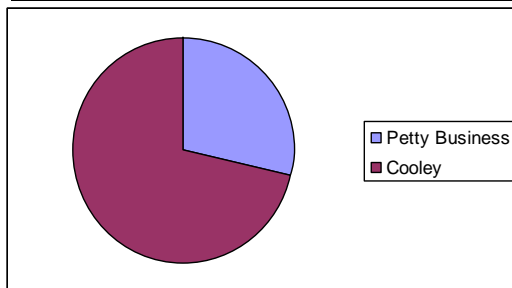
The above table and Pie diagram show that only 30% of the members in FSA are farmers by tradition. 70 % of FSA are not farmers by tradition.

2. Response of members of FSA to the question ‘If you are not a farmer by tradition, what was your major livelihood before training?’

The below given table depicts the response of the members of FSA to the question ‘If you are not a farmer by tradition, what was your major livelihood before training’

Table No. 3

Total	Response	
	Petty Business (%)	Cooley (%)
14	04 (28.57%)	10 (71.43%)



The above table and pie diagram reveal that 71.43 % out of 14 members of FSA were cooleys to meet their livelihood. 28.57 % of 14 Members of FSA were doing petty business to meet their livelihood.

3. Response of members of FSA to the question ‘What was your motive behind the registration to become a member in FSA?’

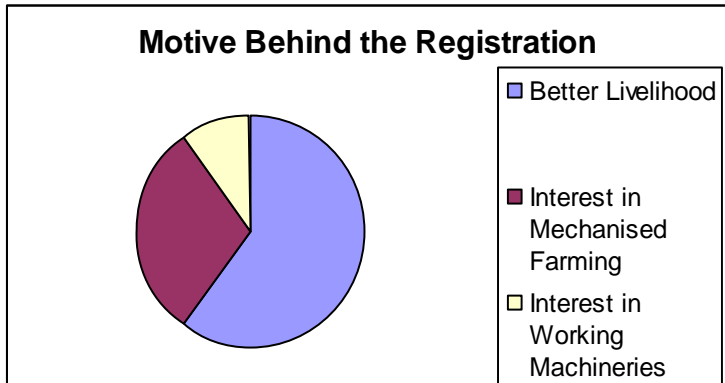
Following table reveals the response of the members of FSA to the question ‘What was your motive behind the registration to become a member in FSA?’

Table No.4

Total	Response		
	Better Livelihood	Interest in Mechanised Farming	Interest in working machineries
20	12 (60.00%)	06 (30.00%)	02 (10.00%)

Source: Sample Survey

The above table points out the motive behind the registration for FSA. The table indicates that out of 20 members, 12 subscribed to the view that 'better livelihood'. 6 members opined that they registered in FSA due to their interest in 'mechanised farming' and 2 members marked 'interest in working machineries' as their motive in becoming a member of FSA. The following pie diagram also reveals the motives of the members of FSA.



The above table and Pie diagram show the motive behind the registration for FSA. The table indicates that out of 20 members, 12 (60.00%) subscribed to the view that 'better livelihood'. It means that majority of the members registered to become a member in FSA

for their better livelihood. 06 (30.00%) members opined that they registered in FSA due to their interest in ‘mechanised farming’. 02 members (10.00%) marked ‘interest in working machineries’ as their motive in becoming a member of FSA.

4. Response of members of FSA to the question ‘How will you rate the effectiveness in Agricultural Machineries on a 5 point scale?’

The options given were 1-poor, 2-average, 3-above average, 4-good and 5-excellent. 20 out of 20 (100%) members of FSA are of the opinion that the training on agricultural machineries was ‘Excellent’.

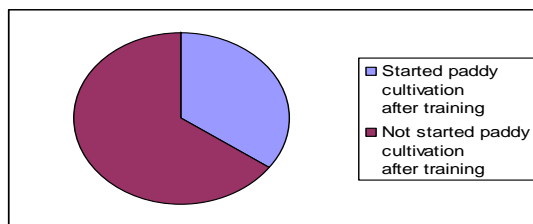
5. Response of members of FSA to the question ‘Have you started paddy cultivation individually or collectively after training?’

Table No. 5

Total	Response	
	Yes (%)	No (%)
20	07 35%	13 65%

Source: Sample Survey

The above table indicates that only 07 out of 20 members in FSA have started paddy cultivation individually or collectively after training. 13 out of 20 members in FSA could not start paddy cultivation even after training. The response can further be understood from the below given pie diagram.



It is understood from the Pie diagram that only 35% of the members in FSA have started paddy cultivation individually or collectively after training. 65 % of the members in FSA could not start paddy cultivation even after training.

6. Response of members of FSA to the question ‘Do you think that paddy cultivation has increased after training in your grama panchayath during this season?’

The below given table indicates the response of the members of FSA to the question ‘Do you think that paddy cultivation has increased after training in your grama panchayath during this season’

Table No. 6

Total	Response	
	Yes (%)	No (%)
20	20 100%	0

Source: Sample Survey

20 out of 20 (100%) members of FSA are of the opinion that the paddy cultivation has increased after training in Angadippuram grama panchayath during this season.

7. If yes, what would be the probable reason for this increase in paddy cultivation?

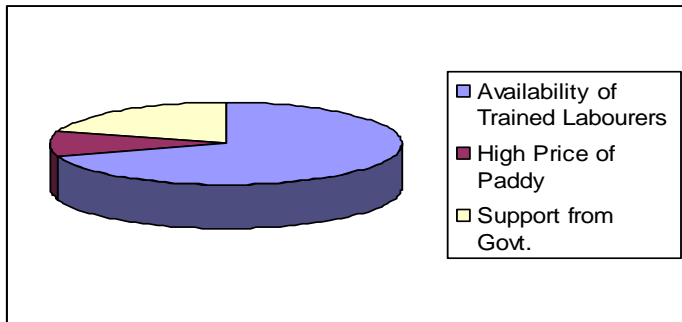
The below given table indicates the response of the members of FSA to the question ‘If yes, what would be the probable reason for this increase in paddy cultivation’.

Table No. 7

Total	Response		
	Availability of Trained Labourers	High Price of Paddy	Support from Govt.
20	14 (70.00%)	02 (10.00%)	04 (20.00%)

Source: Sample Survey

It can be understood from the table that 14 out of 20 of the members of FSA opined ‘availability of trained labourers’ as the major reason behind the increase in the paddy cultivation in Angadippuram grama panchayath. 04 out of 20 members of FSA responded the reason as ‘support from government’. 02 out of 20 members of FSA have attributed ‘high price of paddy’ as the reason behind the increase in paddy cultivation. The response can also be understood from the below given pie diagram.



According to 70 % of the members of FSA, ‘availability of trained labourers’ is the major reason behind the increase in the paddy cultivation in Angadippuram grama panchayath. 20% of members of FSA opined the reason as ‘support from Government’. 10% members of FSA have attributed ‘high price of paddy’ as the reason behind the increase in paddy cultivation.

8. Response of members of FSA to the question ‘Do you think that mechanisation is helpful for profitable paddy cultivation?’

The given table reveals the response of the members of FSA to the question ‘Do you think that mechanisation is helpful for profitable paddy cultivation?’.

Table No. 8

Total	Response	
	Yes (%)	No (%)
20	20 100%	0

Source: Sample Survey

20 out of 20 (100%) members of FSA have commented that the mechanisation is helpful for profitable paddy cultivation.

9. Response of members of FSA to the question ‘Do you have adequate number of machineries under Grama Panchayath to meet the entire demand of farmers?’

The given table reveals the response of the members of FSA to the question ‘Do you have adequate number of machineries under grama panchayath to meet the entire demand of farmers?’.

Table No. 9

Total	Response	
	Yes (%)	No (%)
20	0	20 100%

Source: Sample Survey

20 out of 20 (100%) members of FSA have commented that the present status of agricultural machineries in the Grama

Panchayath cannot meet the entire demands of farmers in the Panchayath.

10. Response of members of FSA to the question ‘Were you employed continuously in agriculture during the last season?’

The below given table reveals the response of the members of FSA to the question ‘Were you employed continuously in agriculture during the last season’.

Table No. 10

Total	Response	
	Yes (%)	No (%)
20	18 (90.00%)	02 (10.00%)

Source: Sample Survey

18 out of 20 (90.00%) members of FSA were employed continuously in agriculture during the last season. 10% of the members are of the opinion that they were not employed continuously in agriculture during the last season even after training.

11. Response of members of FSA to the question ‘What is your livelihood when you do not have work for paddy cultivation?’

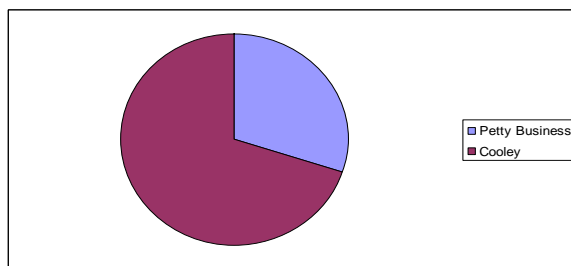
The below given table reveals the response of the members of FSA to the question ‘What is your livelihood when you do not have work for paddy cultivation’.

Table No. 11

Total	Response	
	Petty Business (%)	Cooley (%)
20	6 (30.00%)	14 (70.00%)

Source: Sample Survey

The above table reveals that 06 out of 20 members of FSA will be engaged in petty business to meet their livelihood when they do not have employment in paddy cultivation. 14 out of 20 Members of FSA were doing Cooley to meet their livelihood when they do not have employment in paddy cultivation. The response can be easily understood from the below given diagram.



The above table and pie diagram reveal that 30% out of 20 members of FSA will be engaged in petty business to meet their livelihood when they do not have employment in paddy cultivation. 70% of out of 20 Members of FSA were doing Cooley to meet their livelihood when they do not have employment in paddy cultivation.

12. Response of members of FSA to the question ‘Do you think that your income has increased after the training in agricultural machineries?’

The below given table shows the response of the members of FSA to the question ‘Do you think that your income has increased after the training in agricultural machineries’.

Table No. 12

Total	Response	
	Yes (%)	No (%)
20	18 (90.00%)	02 10.00%

Source: Sample Survey

18 out of 20 (90%) members of FSA think that their income has increased after the training in agricultural machineries. 10% of the members are of the opinion that training in agricultural machineries has nothing done to increase their income.

13. Response of members of FSA to the question ‘Do you have a plan to purchase agricultural machineries individually or collectively?’

The below given table shows the response of the members of FSA to the question ‘Do you have a plan to purchase agricultural machineries individually or collectively?’.

Table No. 13

Total	Response	
	Yes (%)	No (%)
20	02 (10.00%)	18 (90.00%)

Source: Sample Survey

18 out of 20 (90%) members of FSA do not have a plan to purchase agricultural machines individually or collectively. 10% of the members (02 out of 20) of FSA have a plan to purchase agricultural machines individually or collectively.

14. Response of members of FSA to the question ‘Have you got work order from neighbouring grama panchayaths?’

20 out of 20 (100%) members of FSA have stated that they are getting work order from neighbouring gram panchayaths.

15. As a member of FSA, what are the major problems in utilizing your service effectively in the paddy cultivation?’

The below given table shows the response of the members of FSA to the question ‘As a member of FSA, what are the major problems in utilizing your service effectively in the paddy cultivation?’.

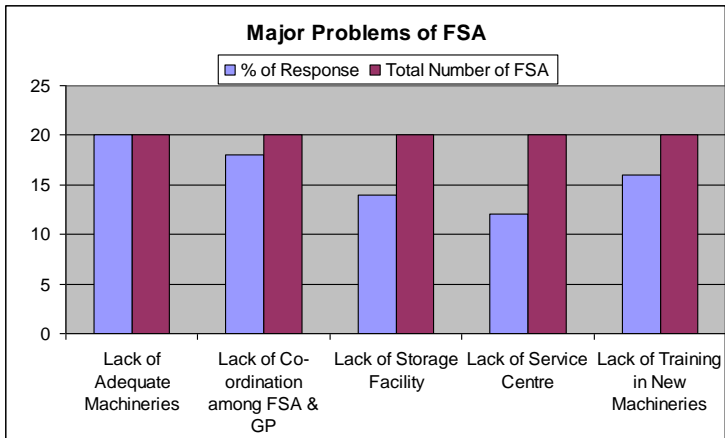
Table No. 14

Total	A (%)	B (%)	C (%)	D (%)	E (%)
20	20 (100%)	18 (90%)	14 (70%)	12 (60%)	16 (80%)

Source: Sample Survey

- A. Lack of adequate number of machineries.
- B. Lack of co-ordination among FSA and the grama panchayath.
- C. Lack of proper storage facility.
- D. Lack of service center for the machineries.
- E. Lack of training in latest and heavy machineries.

The above given table clearly depicts the major problems in utilizing the service of FSA effectively in the paddy cultivation. All Members of FSA have cited ‘lack of adequate machineries’ as the major problem in utilizing their service effectively in the paddy cultivation. 18 out of 20 members of FSA have stated ‘lack of co-ordination among FSA and grama panchayath as another problem that they experience in their function. The other major problems stated by the members of FSA and their corresponding numbers are; lack of storage facility - 14, lack of service centers – 12 and lack of training in new machineries - 16.



The above given table and the diagram clearly depicts the major problems in utilizing the service of FSA effectively in the paddy cultivation. All Members of FSA have cited 'lack of adequate machineries' as the major problem in utilizing their service effectively in the paddy cultivation. 90% of members of FSA have stated 'lack of co-ordination among FSA and grama panchayath as another problem that they experience in their function. The other major problems stated by the members of FSA and their corresponding percentage are; Lack of storage facility - 70%, Lack of service centers - 60% and Lack of training in new machineries - 80%.

Major Findings and Conclusions of the Study

Major Findings of the Study

- ✘ Majority of the members 14 (70%) of FSA were not farmers in tradition before registration for FSA.
- ✘ Majority of the members of FSA who were not farmers in tradition (71.43%) were coolies to meet their livelihood. 28.57% of 14 Members of FSA were doing petty business to meet their livelihood.
- ✘ The main motive of the majority of members (60%) in registering for FSA was better Livelihood. 06 (30.00%) members opined that they Registered in FSA due to their 'Interest in Mechanised Farming'. 02 (10.00%) marked 'Interest in working machineries' as their motive in becoming a member of FSA.
- ✘ All members of FSA are of the opinion that the training on agricultural machineries was 'excellent'.
- ✘ 70% of the members in FSA could not start paddy cultivation even after training. Only 35% of the members in FSA have started paddy cultivation individually or collectively after training.
- ✘ All members of FSA are of the opinion that the paddy cultivation has increased after training in Angadippuram grama panchayath during this season.
- ✘ Majority of the members of FSA (70%) attribute 'Availability of Trained Labourers' is the major reason behind the increase in the paddy cultivation in Angadippuram grama panchayath.

- ✗ All members of FSA have commented that the mechanisation is helpful for profitable paddy cultivation.
- ✗ All members of FSA have opined that the present status of agricultural machineries in the grama panchayath cannot meet the entire demands of farmers in the Panchayath.
- ✗ Almost all members of FSA (90%) were employed continuously in agriculture during the last season.
- ✗ 70% of out of 20 Members of FSA are doing Cooley to meet their livelihood when they do not have employment in paddy cultivation. 30% members of FSA are engaged in petty business to meet their livelihood when they do not have employment in paddy cultivation.
- ✗ Almost all members of FSA (90%) think that their income has increased after the training in agricultural machineries.
- ✗ Almost all members of FSA (90%) do not have a plan to purchase agricultural machines individually or collectively.
- ✗ All members of FSA have stated that they get work order from neighbouring grama panchayaths.
- ✗ All members of FSA have cited 'lack of adequate machineries' as the major problem in utilizing their service effectively in the paddy cultivation. 90 % of members of FSA have stated 'lack of co-ordination among FSA and grama panchayath as another important problem that they experience in their function.

Conclusion from the Data Collected from Span of Authority of Angadippuram Grama Panchayath.

The investigator could reach at the following conclusion from the direct discussion with the Agricultural Officer, the President of grama panchayath and the Secretary and the President of Paddy Development Society of Angadippuram grama panchayath.

1. The area of agricultural land under paddy cultivation has increased from 135hector to 150 hector during this season. That is, around 37 % (15 of 40 hector) of barren land has converted into paddy cultivating land during this season.
2. The presence of trained members of FSA has motivated the small scale farmers to come back to paddy cultivation to a certain extent.

3. There is much demand for financial assistance for paddy cultivation.
4. There is much demand for the service of FSA.
5. Lack of adequate number of machineries creates administrative problem in utilising the service of FSA effectively.
6. There is much demand for training in machineries for paddy cultivation.
7. Lack of proper co-ordination among grama panchayath and farmers creates an obstacle in achieving the objective of the project 'Total Paddy Mechanisation' for utilising the service of FSA i.e., barren – less cultivable land grama panchayath.
8. It is required to impart training in more sophisticated machineries.
9. It is required to establish a proper storage room for the existing machineries at grama panchayath level.

Suggestions for Better Mechanization in Paddy Cultivation

At Grama Panchayath Level

1. There should be proper co-ordination among the grama panchayath and farmers to make use of the service of FSA.
2. Establishment of storage facility.
3. Establishment of service centers for agricultural machineries.
4. Make available sufficient number of machineries.
5. Provide training to FSA in new sophisticated and heavy machines.
6. Conduct campaign to encourage the use of machineries in paddy cultivation.
7. Speedy financial assistance for the farmers who use machineries in farming.

At State Level

1. There should be much publicity by media like television and radio regarding these machines.
2. Govt. should encourage big private companies to manufacture the implements for paddy cultivation.
3. There must be research on the development of multi crop machineries.

4. Establish service centers for the repair and maintenance of machines at village level.
5. Make the machineries and implements available through agro service centers on custom hire basis.
6. Private entrepreneurs and NGOs should be encouraged to open agro- service centers to sell implements, pumps and to provide costly implements and machinery on custom hire basis. They should also take up minor repair and maintenance work of farm machinery.

Conclusion

Increasing the production of paddy will be ensured through encouraging mechanisation of paddy cultivation. Socio economic development of the farmers are also emphasised through this process. Food Security Army (FSA) is a great step to increase the income of farmers and thereby their standard of living.

Though paddy cultivation is facing several constraints particularly labour availability and smaller holdings, which are not easily amenable for farm mechanisation, Food Security Army has shown the way to tackle most of these problems. Not only the cost of production in paddy has been reduced, but also the farmers have been able to implement effectively the scientific crop production technologies, thus reviving paddy cultivation in the grama panchayath. Sustained and continuous efforts of the Food Security Army under the support and supervision of grama panchayath and Central Training Institute, Mannuthy has ensured the farmers interest and confidence remain in the forefront of farming.

Food Security Army is on its march ahead as agents of change and as an innovative model to all that can be replicated across the state.