

A Study of Issues that Affect Agricultural Mechanization in Thiruchirapali District

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ABSTRACT

The study was conducted in Tiruchirappalli, a district that covers a significant part of the areas in Tamil Nadu that favours paddy cultivation. The core aim of the study revolves around identifying the farmers' problems regarding mechanization and suggesting appropriate remedies. Three areas, namely (Manikandam), (Musiri) and (Andanallur) divisions, have been selected for this study on the grounds of the highest region under new agricultural implementation. The sample divisions were then divided into three classes, heavily mechanized (HMF), moderately mechanized (MMF) and under mechanized farms (UMF). The agricultural mechanization process faces the twin problems (i) The investment capital constraints on the required scale for two reasons of economic viability and insufficient credit support (ii) Its negative impact on the already under-employed workforce. Mechanization however encourages intensive farming, cost-effectiveness in crop production and thereby increases farm income and economic efficiency. As per the findings of this study, the key issues in agricultural mechanization, as stated by farmers were found to include the lack of availability of post-sale machine based services & accessories, shortage and inconsistency in fuel supply, high cost of spare parts, difficulties in processing and obtaining institutional credit and their high costs. Although the study covered only some areas of the district Tiruchirappalli, generalization is not difficult for other areas in the district. But recognizing regional differences in farming conditions has to be done with due care.

Keywords : Heavily Mechanized Farms (HMF), Moderately Mechanized Farms (MMF), Under Mechanized farms (UMF), Economic viability and Insufficient credit support.

1. INTRODUCTION

Agriculture has a great significance as it can affect significantly towards the socio-economic status improvement of a major segment of the weaker community. Unless agricultural technology designed for farmers in developing countries are not translated correctly (appropriately) and implemented accordingly, all the attempts made would have been in vain by the scientists who developed new technologies. This enormous ability is constrained by conventional and tenure structures and subsistence farming practices (new technologies), which sadly seldom maintain or produce sufficient returns that can facilitate the creation of more economically targeted systems for livestock production. The degree of mechanization is measured by the need for it and the ability to make investments on a significant scale is more critical. The scale of farms also renders mechanization uneconomical for the majority of Indian farmers who are marginal or small. For them even small investments needs credit. The absence, or inadequacy of credit constraints the process of mechanization. The problems faced by the farmers are significant enough to affect the extent to which they use mechanization in their

daily agricultural practices. Hence to examine this the study was taken up and the following objectives were set.

2. REVIEW OF LITERATURE

- **Sharma (1969)**, separates farm crop production costs into fixed costs and variable costs. Fixed costs include cash expenditure on permanent human & animal labour, farm equipment & machinery depreciation, Property profit & termination, land rental value & interest on permanent investment other than assets.
- **Parmer (1970)**, suggested in his thesis on the Green Revolution in Punjab that if alternate jobs could be arranged for the agricultural worker mechanization could be a blessing than a curse.
- **Roy (1978)**, conducted a study on the efficiency of agricultural mechanization and labour jobs to assess the effect of mechanization on employment and concluded that tractor usage resulted in 7% of more work and 23% of higher output in wheat farms.
- **Anitha Rexalin and Vanitha (2008)**, state that farming is the biggest and most significant sector of the Indian Economy. But this sector continues to remain primarily backward and almost 40% of the rural communities still lie under the poverty line. Many rural people have no access to common infrastructure like Connectivity, Electricity, Health and Safe drinking water. A disparity in socio-economic development and rural urban gap can be eliminated when appropriate analytical and growth-oriented market conditions are developed for services in rural areas. This can create job opportunities in exchange.
- **Kalaimohand and Omprakash (2013)**, have pointed out in general that agriculture is a backward sector. Agriculture is slowly becoming a business and it is moving forward and forward. Farmers are adopting and implementing modern techniques in agriculture. They are very open to modern technology and are in favour of agricultural mechanization which in turn provide them with good yields and income. Agriculture must be considered as important as an industry by the Government and Policies must be developed to boost agricultural production.

3. OBJECTIVES

1. To study the various types of farms present in the study area
2. To collect data regarding the problems faced by different farm groups
3. To provide feasible remedies for the provided problems
4. To isolate specific problems that hugely affect agricultural mechanization
5. To compare and contrast the problems faced by farms that use mechanization and those that does not.

4. METHODOLOGY

For this research secondary data collected from an opinion survey conducted with farmers in 2014-2017 was resourced to classify their agricultural mechanization issues. The number of farmers disclosing the issues was an indicator of the relative importance of the problems

The study was profoundly focused on three types of farms namely, Heavily Mechanized Farms, Moderately Mechanized Farms and Under Mechanized Farms as categorized below :

• Heavily Mechanized Farms :	Farms that regularly used tractor / tractor-based equipment / pump sets and other power operated equipment are collectively called Heavily Mechanized Farms.
• Moderately Mechanized Farms :	Farms that does not use tractors but use other power operated machines such as pump sets, Sugarcane Crushers, Threshing machines etc., are grouped under the category of Moderately Mechanized Farms.
• Under Mechanized Farms :	Farms that never use any power other than human labour and bullock power are put into the category Under Mechanized Farms.

5. RESULT AND DISCUSSION

1. DATA COLLECTION FROM FARMERS

Secondary Data collected from an opinion survey conducted in 2014-2017 with farmers to determine their issues in agricultural mechanization has been resourced for this study. The relative importance of the problems was measured by the percentage of number of farmers reporting an issue to the total number enquired. Results are summarized in Table 1.1. Secondary data collected from about 180 pre-sampled farms in Tiruchirappalli were examined with respect to each specific objectives of the study.

In the case of paddy production the need for financing is more. Due to the increase of cultivation cost and other threats, farmers do not come forward to grow paddy. Many respondents do not have their own funds to invest for the capital required. They borrow from various credit sources like Co-operative banks, Retail groups, Private charge and Own supply. The challenge in getting financial assistance at a reasonable interest rate causes them to limit spending on maturation, irrigation, etc. That eventually leads to poor yield and poor return. Incidentally the amount sanctioned by the organized sector is not even sufficient to meet 50% of their expenditure. It is therefore suggested that the loan amount should be increased from Rs.5,000 to Rs.10,000 per acre.

As per the findings of this study, the key issues in agricultural mechanization, as stated by farmers were found to include the lack of availability of post-sale machine based services

& accessories, shortage and inconsistency in fuel supply, high cost of spare parts, difficulties in processing and obtaining institutional credit and their high costs.

PROBLEMS ENCOUNTERED BY FARMERS

SL. NO	PROBLEMS ENCOUNTERED	HEAVILY MECHANIZED FARMS		MODERATELY MECHANIZED FARMS		UNDER MECHANIZED FARMS	
		No.	%	No.	%	No.	%
	Total people	70	-	60	-	50	-
1.	Farm being small	32	-	11	18.3	43	86
2.	Zero loan security	-	-	22	36.7	31	62
3.	Loans being non-available	4	5.7	24	40.0	9	18
4.	Tidy loan availing process	21	30.0	20	33.33	3	6
5.	High loan cost	27	28.6	18	30.0	-	-
6.	Very bad machine quality	56	80.0	37	61.7	-	-
7.	Unavailability of post-sales services	63	90.0	39	65.0	-	-
8.	Zero repair facility	54	77.1	41	68.3	-	-
9.	High cost of spare parts	65	92.9	37	61.7	-	-
10.	Hard to find good	34	48.6	-	-	-	-

	customers						
11.	Fuel cost being too high	62	88.6	44	73.3	-	
12.	Material supplies being inconsistent	36	52.3	41	68.3	-	
13.	Problems due to wells failure	4	5.7	14	23.3	-	
14.	Nil problems	5	7.2	-	-	-	

Source : Secondary data of the economic study conducted for new agricultural mechanized farming based on income and employment of farmers in Tiruchirappalli district **Note :** All percentages to totals of row (i)

TABLE NO 1

2. OVERALL FINDINGS FROM THE TABLE

As can be observed from the above tabular data, the high fuel prices, shortage of post-sale facilities and high cost of the spare parts were the three main issues for HMF farmers. Bad machine performance and shortage of repair facilities preceded them. On the whole, these remarks prove that the machine suppliers for these farms never cared about the farmers as soon as the sales were done for.

Farmers however, did receive some attention if the sale involved loans. But many farmers reported that the procedure for obtaining loans was a problem. Fuel supply shortages have been raised as an issue by 52.3% of farmers. Such market failures and government involvement to regulate the market for farm machinery in particular quality control and after sales facilities will eliminate significant obstacles to agricultural mechanization. Five farmers in this group (7.2%) found no issues with buying and using machineries.

3. THE TWO BIG CONCERNS THAT WERE OBSERVED

All but two of the concerns were observed in the highly mechanized farms but the ranking varied. First of all there was no farmer with 'no issue'. Ranked first was the high fuel cost and the unavailability of repair facilities for pump sets was ranked next, followed by the lack of post-sales services, high loans and spare parts costs and recurring fuel supply shortages. Other issues related to credit availability were stated by lower than 50% of the farmers. Particularly noteworthy is that 45.7% of HMF farmers consider their farm size as a major mechanization problem, but the MMF farmers who reported it were just a mere 18.3%.

This was not surprising as tractors required a large area for HMF usage (average size was only 3.6 ha) while field scale was not a limitation in MMF for the use of pump sets or small machinery. For farmers in NMF their farm's small size (in or near 1 ha) was ranked first as a mechanization issue. That would also explain the second issue of lack of security to go for credits or loan.

4. NON-AVAILING OF LOANS BEING A CRUCIAL ISSUE

Only a limited number of farmers recorded non-availability of loans and logistical problems, as most of the farmers in this community had no hope of making use of any loans. Thus, except by their combined efforts (i.e. cooperative) or self-hiring of tools and equipment, these groups have no chance of mechanization. They also had little chance in the latter case because they compete with relatively better placed farmers. It was a way out to bring them to the fold of Small Farmers Development Agencies and provide those farmers with community services with good investments and customized service hiring. Again these farms' dispersed location was a real limitation. But one thing that was made sure with these results was that, despite the farms being large or small, the provision of loans provided major improvements in agricultural mechanization.

6. FINDINGS AND CONCLUSION

- High spare parts cost, shortage of post-sale facilities and high fuel prices proved to be the three main tanking issues of HMF farmers.
- Shortage of fuel supply has been reported by 52.3% of farmers.
- Issues related to credit availability has been reported by less than 50% of farmers.
- 45.7% of HMF farmers feel that the limited farm size as a mechanization problem.
- For farmers in NMF, their farm's small size (in or near 1 ha) was rated first as a mechanization problem.
- Loans encouraged agricultural mechanization and its deficit created major setbacks to the farmers.

7. CONCLUSION

Small or Large Mechanization alters the regular behaviour of the farms. Soil usage, water usage, crop patterns, crop intensity and use of family labour, farm size, sources of irrigation, and sources of change in financing are viewed to have a considerable influence on the agricultural mechanization process. However, there are a lot of issues that restrict a farmer's use of such a beneficial thing in their agricultural practices. Struggles in obtaining loans, post-sale services and inconsistent fuel supply were the major factors that limited the growth of agricultural mechanisation. Institutional loans has made a big impact on the investments in purchase of tractors and other accessories. Therefore, provision of constant and readily available loans could be the best option to enhance agricultural mechanisation.

8. REFERENCES

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