

PART THREE

FINALE

SUMMARY OF FINDINGS

A few of the salient findings of this study, discussed earlier in details, are summarised below. Implications in terms of action programme and research work have also been given in this part, based on the significant findings.

It was found that as land size increased there was increase in the H.P. of tractor, in the possession of agricultural implements, in the number of motives for mechanization, price paid for the tractor, sources of money used to purchase tractor, employment of increased hired hands and increased level of education. Fordson Major and Hindustan were more popular amongst the tractors in the area of study and increase was sharp in the number of tractors after 1956. Younger people were emerging as agricultural decision-makers. The sources of income of the farmers had not multiplied yet. Fragmentation of land holdings was a serious constraint for the expansion of farm mechanization. Most tractor owning farmers wanted to purchase further machinery for better work. The average size of holdings of tractor owners was quite high.

With increase in the size of land-holding, there was increase in the intensity of motivation to purchase agricultural machinery. Among the sources of money to purchase tractor, own money was the most important source; farmers with larger land-holdings were found using greater number of sources of money. Every farmer, who could afford, wanted to have his own tractor and allied machinery.

Large scale changes were observed in agricultural organization and orientation both mentally and materially. The elite farmers, as the tractor owners were, preferred farming with tractor for their graduate sons as a job over and above business and service. The small farmer wanted his graduate son first to go for service followed by business and agriculture. Most of the tractor owners had already covered most of their land by the tractor. All tractor owners, in general, were keenly willing to undergo tractor training courses. The independence of the farmer was decreasing in the tractor-operated modern agriculture.

Regarding the income investment patterns prevalent, it was observed that the lion's share of income increments was being utilized by the tractor owners for productive purposes and the farmer was becoming increasingly investment minded. Most of them expressed their need for more money to finance their agricultural enterprise.

In terms of custom service patterns, it was observed that the larger land-holders were not owning this service, and it was the medium or small land-holders who was undertaking this service. Most of the demands for custom hiring work remained unmet. There were many constraints involved in custom hiring work.

In terms of dimensions relating to labour and employment, it was observed that the demand for labour, in general, was increasing. However, marginal labour was used unwillingly by most of the tractor owners. The wages of labour were going high and work for it in new agriculture was increasing. Larger land holders were using a little less hired labour and were paying

relatively more per labour unit. The old work relations of farmer and labour were undergoing marked change. The employment of labour on daily basis was increasing.

The respondents reported many variations in terms of increased yield, types of crops grown, reduction in the number of draft animals and simultaneous increase in the number of milch animals. Area under fodder was declining. The average possessions of farmers were increasing and were urban oriented in their nature.

The interpersonal and work relations of the tractor owning farmers were undergoing rapid changes with regard to their neighbours, kith and kins, service-cum-jajmani groups and their friendship preferences as well as professional and personal relations. The trend was towards secondary and mechanistic nature of relations from primary and organic.

There was much disgustedness with regard to the availability and quality of the various logistics, infra structures, distribution system, repairs and overhauling of the tractors. Joint ownership of farm machinery was a non-agreeable proposition for the farmers.

With regard to the organization of the family, not much change except in terms of a change from joint to nuclear was observed. However, in the status role dimensions of family members from children onwards to the aged, much variation was observed during the present tractor-adoption phase compared to the pre-adoption phase. Larger land-holders were found to have larger number of members in their family. Joint family, larger size of land and higher level of mechanization appeared associated to each other.

The social and community participation patterns in terms of visits and gatherings, friendships, organization membership and likewise in case of the tractor owners was undergoing change and was thus turning the tradition bound farmers into a cosmopolite. There was much increase in above activities of the tractor owners compared to their pre-tractor phase. The tractor owners were discharging an increasingly larger index of leadership functions within their communities and were at times using the tractor as a device to step up on leadership stair in the local communities.

Regarding the attitude and value system of the farmers, largest change was observed in terms of inter-personal values. Family values were least disputed and agricultural values of tractor owning farmers were highly oriented towards farm mechanisation preferences. Tractor use had definitely impressed the attitude and value orientation of the tractor owning farmers as well as others in the village.

During the course of analysis of the data in this study many differences in the different aspects were observed among the respondents in terms of their size of land-holding as well as whether they were migrants. A close perusal of the dimensions of differences in terms of contextual matrices, motivational orientation, agricultural orientation, investment mindedness, liking for custom service work, employing hired labour, variations affected in the field and in the home, the nature of their relations with others - personal or professional, the constraints faced, status role patterns of family members, participation and leadership behaviour as well as in their attitude and value system indicates the progressiveness of migrants over the natives.

PRACTICAL IMPLICATIONS

The findings furnish data for evaluating the different aspects of farm mechanization in the area of study. The study did not attempt to see a cause-effect relationship between tractor and socio-economic changes; the focus was in terms of antecedents and consequences. It is observed that derivative consequences may ~~lead~~^{lead} to better understanding of the entity. Often the appearance of a particular machine itself may be an effect of, or an adjustment to, a sequence of deeply underlying complex causes. Some of the trends observed in the findings of the study have wider implications, in terms of action and research.

Action Implications:

The respondents had expressed preference for high Horse Power tractors. The expressed rationale for such a preference consisted in its suitability for levelling of land in dust ridden study area. However, levelling is not a repeat function and, therefore, the need gratification in this regard should be forthcoming as it would be better, through the custom hiring services of the Agro-Industries Corporation so that exclusive emphasis on high HP tractors is smothered and in the long run, such tractors do not remain under utilized.

The respondents disclosed that farmers with landholdings of 10 acres and above, who had resources to buy, wanted to purchase

tractors. The magnitude of demand for tractors was high - 35,900 for Haryana out of 4,34,052 for whole of India, and this could not be squared with the existing availability. It is gratifying to note that the Government of Haryana has already submitted an aggressive farm mechanization scheme to the world bank. The findings of this study provide additional justification for this scheme.

Among the tractor-system machine accessories, the order of preference of the respondents was disc harrow, tractor, leveller, cultivator, thresher, seed drill, disc plough and mould board plough. This relates the manufacturers and dealers of farm machinery, since many farmers had deferred the purchase of these for financial constraints. The dealers may push their sales if they manufacture these accessories in collaboration with the commercial banks which loan money to farmers.

The scarcity of tractor and its accessories has given rise to a group of resellers with black market premia. Their buying behaviour for resale thus obstructs the availability of tractors to genuinely needy farmers. Some legal control mechanisms need to be evolved to curb these trends.

The prevalence of malpractices in the institutionalized credit agencies coupled with intense rigidity exercised in the realization of the loan has demotivated farmers from the utilization of these services. According to respondents a high percentage of the loan granted to farmer was pocketed by a chain of the workers in the credit agency. This needed to be carefully examined by those at the

helm of affairs in credit agencies and built-in mechanisms evolved to uproot these practices.

The occupational preferences for graduate sons were found different for the elite and small farmers. The first choice of elites was - farming with tractor followed by business and service - Uttam Kheti, Madhiam Bam; Nikrishtha Chakri, Bheekh, Nidan,—against that of the lower land holders for whom the priority order was - service business and farming. This dispels the popular notion that the farmer wanted his educated son to be a white collar worker. Contrary to this, it proved that the roots of preference for white collar job had economic moorings rather than socio-psychological basis. The elite farmer visualizes and estimates for his children a better status in farming with tractor or in business while a small farmer, on the basis of his experience, wanted his graduate son to be away from the farm. Our policy of land reforms and our constant concern for the educated youth need to be viewed in the above perspective.

The use of tractors had led to increased use of biological and chemical agricultural technology. The programme of availability of these to the farmer should properly be tied to the tractor. This may, thus, be considered an additional phase in the process of making tractors available to the Haryana farmers.

The use of tractor was compelling the farmer to use his income increments productively, either to pay off the tractor price or to purchase additional ingredients of agricultural technology.

This raises the issue of matching machine and other input's availability to the availability of finance for the farmers. The young farmer was increasingly becoming investment-minded.

There was a wide discrepancy between the demand and supply mechanisms in custom hiring services. The establishment of Agro-Industries Service Centres was a good move. However, more important than this was the need to encourage individual entrepreneurs to take up custom service work, as they will push this work up speedily. This could be done by financing the tractor drivers and mechanics to own tractors by mortgaging it. This was voiced by the drivers and mechanics engaged in tractor repairs and interviewed during the study. They, as mechanics and non-land holders, will do better in this regard.

The present study invalidates the notion that mechanization of farm displaces labour. This needs to be brought to the notice of the larger audience so that the unfounded belief may be rectified and the biggest constraint for farm mechanization removed. The fact is that mechanization has increased cropping intensity by better conservation of moisture and quick conduct of agricultural operations, in the context of increasing irrigation and has, thus, led to increase in the demand for labour.

The reduction in the number of draft animals was accompanied by simultaneous increase in the number of milch animals with the tractor owners. This shows that tractor use was derivatively contributing to increased milk production. It has wider implications.

For training programmes, it means that the tractor owning farmer under training should also be treated a client for dairy extension and, therefore, in any programme of tractor training, it might be worthwhile to apportion sometime for instructions in milk production.

The infra-structure and other logistics of tractors were not only missing but were often exploitative. Under such conditions the owner became the worst victim if his tractor developed some disorders, more so in the peak season. The mechanics take full advantage of such a situation. Thus, in order to facilitate the work of the tractor owning farmer, genuinity of spares, fuels, and reliability of servicing when and wherever needed ^{had} to be insured. One way to do this is to increase ~~this~~ manufacturer and improve the maintenance and repair capacity of the repair service centres of the Agro-Industries Corporations on the one hand and of private workshops on the other for generating healthy competition. At present, no legal measures were found in operation to ensure the genuinity of spares for farmers. During the training course for farmers in tractor work, emphasis may be laid down ⁱⁿ raising his knowledge for identification of good spares and fuels.

The respondents felt much disgruntled over the existing system of distribution of tractors. It was not possible within the scope of this study to identify the loopholes in the distribution of tractors. A committee of specialists, needs to look into it on behalf of the Government. Also no regular system of registration of all the tractors was guaranteed and many tractors were found off records.

Joint ownership of costly farm machinery, much advocated by concerned quarters, was ruled out by all the respondents on grounds of operational feasibility. A more practical approach would be that instead of making efforts to foster joint ownership, encouragement to private owners, as suggested above, is provided.

All the farmers advocated raising the size of landholdings above the imposed ceiling. This study found a significant relationship between the size of holding and the level of farm mechanization. It is also told that even sudden jumps in the increase in tractors will not be able to double our energy for use in agriculture, in the near future. Jain, 1965, found that immediate need in India was to raise energy consumption in agriculture by at least 5 times. Human power as agricultural labour was gradually abandoning earning wages in agriculture and preferred non-agricultural jobs. Also an increase in the number of animals is not economic for reasons of the highest level of cropping intensity attainable and the already acute shortages of fodder. All this eventually leads to a bias skewed towards increased farm mechanization. Further enquiry needs to be made to determine the optimum balance of the size of holding the level of mechanization, and the desired level of production. In Haryana, only one labour is available to 11 farmers. Thus, labour displacement fears are unfounded. A clear policy of the Government in this whole complex was needed and an issue being contended - should the machine fit into the land holding size or should the landholding size fit into the machine - needed to be resolved.

The respondents were sore over the prosecution the police made of the tractor owners if they carried their produce to the market in the tractors. Their logic being that they did not possess many bullocks to be used for this work. Further, this demotivated the farmer as field operations alone failed to fully occupy the tractor and that the farmer wanted to use the tractor as a multipurpose machine. This question needs to be a decision to be made - tractor vs. bullock cart for transportation in modern agriculture.

Employment opportunity for the labour on yearly basis were decreasing and this promoted the labour to desire a permanent position elsewhere. Further, the educated labour did not like its women folk working with the farmer as hired labour. Further, formerly, labour used to cultivate a portion of the land of the farmer while now the operator himself cultivates it with his tractor. All this discourages the agricultural labour and, thus, goes to support a case of increased farm mechanization.

Research Implications:

Primarily, this study is exploratory in nature in the absence of any preceding empirical study. Thus, it had no option but to be exploratory. This study has a macro-base and has posed many issues for further research. Empirical micro studies on various aspects of this study are urgently needed to be conducted by teams of social and engineering scientists. For instance, there is need for an empirical study to identify the primary, secondary, and tertiary consequences of the adoption of tractor. This study covers many of

these in a limited way and need for 'repeat' studies is warranted. For physical limitations, a ~~scientific~~ micro focussed thrust into these aspects was not possible.

Specific areas for further studies in a suggestive manner may be to seek the optimum fit of the custom service patterns, the income increment investment trends of tractor owning farmers, their social and community participation patterns, nature of leadership functions, interpersonal and work relations, the orientation of the agriculturists, the changing motives to purchase tractors, their loss of independence in the spiral of spread effect of tractor, the changing value systems of the farmer, the dynamics of farm changes in terms of inputs like technology, and animals etc, family organization and changes in the role patterns, etc. The whole complex of labour machine controversy, the constraints involved in speedy mechanization, the other contextual and personality variables of tractor owning farmers are areas for research.

The various action implications posed above also point out the potential areas for further research work in the dynamics of farm mechanization.