CHAPTER II

REVIEW OF FARM PLANNING STUDIES IN INDIA

The Board of Economic Enquiry functioning in different states of India have published some data on cost and returns analysis for a few farm organisations. Until recently no attempt was made to utilise these data for the purpose of improving farm business. In fact these data were not collected for the purpose of farm planning and budgeting and could not, therefore, serve this purpose adequately.

Recently, isolated attempts at farm planning and management on a limited scale were made by some research workers. More systematic farm management studies in farm management economics were initiated by the Govt. of India in 1954. These studies were conducted from 1954–55 through 1966–67 in six different states of India. Although sufficient data were collected through these enquiries, yet they were primarily concerned with testing of cost accounting and survey methods of collecting the farm management data.

The subject of farm planning receive more attention in India with the organisation of FAO Development Centre on farm planning and management for Asia and Far East in 1957 at Delhi. Thapar (1957) in his welcome address at this Centre remarked, "It is on the efficient planning and management of average sized individual farms that further increase in agricultural productivity depends," Sen (1957) observed,
"After all it is necessary for the farmers to know not only the best techniques, but also to use that combination of these techniques as would give them the optimum economic returns."

Agrawal and Pathak (1957) examined budgeting approach in farm planning based on a study of 24 holdings in District Kanpur (U.P.) and found that improved plans increased "net returns by 29 to 38 per cent and returns to capital investments family labour and management by 17 to 24 per cent." They reported, "Farmers find it difficult to synthesise individual recommendations emanating from different sources." The farm planning approach carries complete conviction because farmer is able to know his gain and loss in rupees and naya paise.

Through a pilot survey of fertilizers and other farming practices in Punjab, Andhra Pradesh, Madras and U.P., the Govt. of India (1958) collected useful information on distribution of manorial resources among crops, type and quantity of manure applied, time and method of application and such other practices as irrigation and crop rotations. The information could be used for farm planning but its scope was limited and much additional information was needed for successful farm planning.

Two models of farm planning were tried by Research Programme Committee of Planning Commission (1968) in Ahmednagar District of Bombay. Production potentialities were appraised through the two models; (i) for each cultivator with given resources and (ii) for all cultivators jointly with their resources pooled for joint operations. Individual plans were remodelled in accordance with the proportion of land use on the best holding*. This gave an extra income of Rs.104,000

*Best holding was selected that gave the highest output in the sample.
per acre, but created an imbalance of minus 16 days for human labour and minus 9 days for bullock labour. The village plan was based on best input-output combination for each crop from within the group on the same basis. This remodelling gave higher income of Rs.1269.00 but there occurred a shortage of 214 days for human labour and 206 days for bullock labour. These studies concluded that an intensive exploitation of resources individually or jointly was likely to produce, on the aggregate, considerable increase in production even with the technical experience available at present in the villages. These studies, however, suffered from a drawback that the plans were based on three crops only and the remodelling of individual as well as village plans were based on input-output patterns of the best plan without regard to differentials in resource position of the different farm situations.

Yang (1968) developed a budgeted plan for a five acre model farm in an Asian country (on FAO Files). He observed, "Nevertheless, it is worth pointing out that the benefits of an irrigation project are more likely to come from a farm reorganisation which takes full advantages of the controlled water supply than from any increase in the yields of the same crops which were grown before."

Wycliffe (1969) studied resource earnings on farms in Karchana Tehsil of Allahabad District (U.P.), based on estimates from survey records. He dealt with managerial returns and resource use planning and observed, "Farmers often used the resources in the proportions of their availability rather than in the proportions in which they would maximise their farm incomes."

Shondyal (1960) made a case study in farm planning
at Saharanpur (U.P.) with budgeting technique. Four farms were kept control and improved farm plans were tried on the rest. He reported increase in total investments from Rs. 199.73 to Rs. 562.66 per farm, 15.77 per cent increase in operating costs, 39 per cent increase in gross income and 29 per cent increase in net farm income. This gave a good indication of low resource use efficiency on the Indian farms. The study, however, suffered from the limitations that the farms in control and those with the improved plans did not obtain identical resources, input-output relationship and managerial efficiency.

Mann (1960) developed a farm plan of five acre holding in Najaigarh block near Delhi. He showed that improved budgeted plan gave higher income of Rs. 4014.00 over Rs. 2716.00. He observed "There is no magic in this. The specialist simply assesses the entire situation in a scientific way and re-arranges the use of farm resources."

The Government of India (1960) sponsored a farm planning project at village Surehra, near Delhi. Twenty-three improved farm plans were put into operation from Rabi, 1969-69. An increase of Rs. 87193.00 in farm income over Rs. 59149.00 was assessed. The findings of these studies would prove useful for urban and sub-urban farm situations.

Daniel (1960), on the basis of farm planning studies in village Chhaberia, District Meerut of U.P., concluded that relationships of additional costs and additional returns indicated that returns increased at a diminishing rate, but still the lowest additional returns on any farm were greater than 200 per cent of the additional costs. This indicated the
necessity of farm planning along with the additional factor inputs that might be made on Indian farms.

Agrawal (1960), on the basis of studies in the economics of farm management, conducted by Government of India, observed, "Studies revealed wide variations in farming efficiency and performances of individual farmers in agriculturally homogeneous areas and even when resources position did not differ materially." He emphasised that even with the already available technical knowledge, the farm output can be more than doubled simply through resource use planning.

Wycliffe (1961) reported the results of a farm planning research project - 36 106 of Allahabad Research Institute (U.P.) and observed, "As a result of alternative plans, returns per day of labour increased from Rs.1.86 to Rs.3.31 on an average. Farm production increased from Rs.1857.74 to Rs.2537.00 with an absolute gain of Rs.1879.26 or 102 per cent additional returns with additional costs of Rs.325.00". This study did not, however, take into account all the resource restrictions generally obtaining on Indian farms, such as capital and irrigation.

Harpal Singh (1961) budgeted a 6 acre holding in District Bijnor (U.P.) and showed that as a result of improved plan, intensity of cropping could be raised from 116.6 per cent to 216.6 per cent, employment of family labour from 35.4 per cent to 93.7 per cent and bullock labour utilization from 38.6 per cent to 85.9 per cent. Net returns to the farm resources in the alternative plans increased by about four times and net returns to the farm family by about 400 per cent.

Dhondyal (1961) used budgeting technique on 8 farms in 8 different villages in U.P. and concluded that it was possible to increase farm incomes through re-allocation of resources among
different farm enterprises. He observed, "For an additional input of one rupee, the cultivator got an extra output worth twelve rupees."

Kanel and Neale (1961) elaborated the virtues of farm planning and dealt with implicit opportunity costs in budgeting analysis, specific availability of resources and importance of farm plans in community development programmes. A hypothetical two product numerical example was presented in order to show how combination of enterprises and opportunity costs of resources varied with changes in resource situation. This was a good attempt at explanation of implications in the farm planning programmes in Indian conditions.

Hakim Singh (1961) in his thesis (unpublished) on "Application of the techniques of farm planning and budgeting in the Punjab", studied three different sized purposively selected holdings - 10 acres, 25.2 acres and 46.3 acres. The three alternative budgeted plans showed that the intensity of cropping could be raised from 136 to 150% on the large sized holding and could not be raised significantly on model and medium sized holdings. Farm family income could be raised from Rs. 120 to 185 on model sized farms, from Rs. 235.00 to Rs. 310 on medium sized holdings and from Rs. 148.00 to Rs. 296.00 on the large sized holding.

Chowdhary (1961) dealt with land classification and its application in farm management research. He observed, "It increased farm efficiency by indicating the most suitable use of land and by making the allocation of scarce resources at least less wasteful ... Such a classification proves to be helpful to the farmers for farm planning."
Jal Krishna (1961) tried a Linear Programming Model based on a hypothetical situation in Western U.P. Although the treatment was elementary, it demonstrated the applicability of linear programming technique to Indian farm situations. The results obtained showed that all types of soils were cropped, all capital supply and 90 per cent human labour was used and a substantial part of bullock labour was left unused. The situation being hypothetical, it did not represent the farm situation of the area adequately.

Desai (1961), in his Ph.D. dissertation, submitted to the University of Illinois, U.S.A., studied the possibilities of increasing income and production with existing resource supplies on individual farms in Ahmednagar and Nasik Districts of Bombay. He tested the hypothesis that it was possible to increase farm incomes by 20 per cent even with the existing resources and available techniques. Crop activities were split up into irrigated and unirrigated crops on better and inferior soils in order to meet the condition of linearity. Land restrictions were classified into irrigable and unirrigable areas of better and inferior soils. Other restrictions considered were labour, capital and fodder and food requirement. The results showed that the farm incomes could be increased by 68.77 per cent in Ahmednagar and 146.76 per cent in Nasik district. The difference in mean incomes of actual and normative plans was significant at 5% level in Ahmednagar district and at 1% level in Nasik district.

The subject of 'Budgeting and Linear Programming in Farm Management' was discussed in an annual conference of the Indian Society of Agricultural Economics at Pilani (Rajasthan) in 1961.
Nasai (1966) in his paper presented to the conference discussed the techniques of Marginal Analysis, budgeting and Linear Programming with illustrations and dealt with advantages and limitations of these techniques. He observed, "Looking to the availability of computational equipment in India, linear programming would be too advanced technique to be handled by the village level worker for helping farmers in formulating their plans. Simple procedure of budgeting would be more useful. However, linear programming can be used in a complimentary manner to budgeting."

Khalon and Jodh (1966) in their paper presented to the same conference dealt with budgeting and linear programming techniques in respect of their applicability to planning of Indian farms based on an actual farm situation in Punjab. Sixteen resource restrictions and nine alternative crop activities were considered. With budgeting technique, increase in returns to the fixed farm resources was estimated at Rs.6161.94 over Rs.4968.80 from the existing farm plan of the farmer. Linear programming gave increased returns at Rs.6661.81. They observed, "Budgeting and linear programming are both useful tools of farm management analysis. Depending upon objective in view one or the other may be used. Where the choice is to be made between many alternatives and high accuracy is needed, linear programming may be preferred. The computational procedure involved in linear programming provide guides that enable even a less skilled worker to reach an optimum solution. Linear programming is, therefore, a useful tool of farm management analysis even in under-developed countries."
Malya (1962) discussed marginal analysis, budgeting and linear programming in farm planning. He programmed a sixteen acre farm in Madras State. Results showed that there occurred a major shift in cropping pattern under the normative farm plan giving an increased return of Rs.7236.00 over Rs.6461.00 in one season and of Rs.250.00 over Rs.9140.00 in the second season. But practical implications of price and yield uncertainty of onion and chillies crops made the cultivator a little cautious in adopting the plan. He observed, "The pressing need for reorganising the limited resources (land and capital in particular) make the application of linear programming technique a necessary step towards a better crop planning and efficient farm business management."

Kahlon and Johl (1962) dealt with application of linear programming to rotational planning of Indian farms. They considered long range planning objectives and accounted for the complementary, supplementary and competitive relationships among different crop enterprises, based on an actual farm situation in Ludhiana district, Punjab.

Indian Society of Agricultural Economics and Directorate of Economics and Statistics, Ministry of Food and Agriculture sponsored a seminar on farm planning and programming in New Delhi in July, 1962. G.J.Karve in his welcome address emphasised that enabling individual farmer to approach cultivation as a business enterprise rather than a way of life, held a critical position. He observed, "This approach which is normal in industrial activity has not yet been extended to agriculture on as large a scale as necessary." C.Pashastri in his paper, "Production Plans for Farmers in Sahabdi District
in Bihar', reported results of 16 farm plans. He showed that farm incomes could be increased appreciably with better planning of resource use.

D.K. Desai in his paper, 'Use of Farm Management Data for Preparation of Simple Farm Budgets', reported results of 12 farm plans in Bombay State and showed that on an aggregate the production and income could be raised by 10.1 and 11.2 per cent respectively. For the twelve farms, production increased from Rs.16,72,00 to Rs.3,39,60,00 and farm business income increased from Rs.9,81,00 to Rs.20,88,00. Credit requirements worked out at Rs.4,46,00 which would bring in an additional production of Rs.17,14,00 with Marginal Value Productivity at Rs.3.83 per rupee invested. He observed, "With such a high Marginal Value Product, it would be a sound business for any creditor to advance loan." He emphasized the need of basic research and observed, "With launching of Package Programmes, the demand for farm management research useful for farm planning has increased considerably. It is obvious that farm management research which has recently started in the country cannot cope with this demand."

D.P. Apte in his paper 'A Study in Farm and Area Planning: Village Karkata' compared resource use pattern of 59 farms by using budgeting technique. He showed that average farm income could be raised from Rs.5,88,00 to Rs.10,68,00.

Kahlon in his paper (unpublished), 'Analysis of Farm Planning Structure in Ludhiana I.A. P. District', pointed out that average Indian farmers were not used to the idea of package of practices. Based on analysis of 200 randomly
selected farm plans, he remarked that the extension workers
did not have adequate idea of the input-output relationships,
volume of business and resource restrictions on the individual
farm situations. He further observed that although average
income per farm increased after planning as much as 64 percent,
but the cultivators got less than what was budgeted for them.

T.Y. Patil, in his paper, 'Farm Budgeting for Six
Selected Farms in Nasik District (Unpublished)', showed that
value of output per acre increased in the alternative plans
and in majority of cases this had been achieved by either
utilising the idle resources or by making some adjustments
and alterations in the input factors and the cropping patterns.

K.B. Srinivas, in his paper, 'Farm Management Problems
in Implementing Farm Planning,' (Unpublished) summarised the
results of 346 demonstration plots. His findings showed that
planning did help to improve resource use pattern.

Pathasarthy and Nalva, in their paper, 'Farm Planning
Approach to Increased Production' (Unpublished), tested the
technical coefficients adopted in the farm plans in the Package
Programme area of Tinjore District for realism and consistency.
They observed, "The approach to each individual cultivator
through the farm plan has made the cultivator more conscious
of increased potentialities of production. However, the farm
plan is considered to be more an application for credit than
an advanced programme of action. A realistic technical base
suited for different farms and different types of farming is
still lacking."
Farm Management research in India has so far provided the farmer with factual data only without helping him in deciding how much of what to produce. It has now been realised, as McFarquhar (1961) puts it, "The tendency has always been to leave the really difficult problems to the farmers himself."

Even when making business decisions with the farmer, Indian farm planning literature placed a major emphasis on budgeting only. Linear Programming technique has been considered too complicated and unpracticable in its application. But, as Candler and Musgrave (1961) put it, "The fallacy in the assertion is the implicit assumption that the persons who formulate a problem must also calculate the answer."

Also, the coefficients used in Linear Programming technique do not need to be any more accurate than used in budgeting. In fact, the Linear Programming technique has great potentialities in farm management analysis. Layton (1961) observed, "It is a precise and quantitative discussion upon which policy decision may be more soundly based. For this reason, programming appears as the most useful research tool to apply to peasant farming." Taylor (1960) remarked, "It has been shown, the linear programming is a powerful tool in solving the optimum size and combination of enterprises, given various resources of land, labour and capital." Mainly the Linear Programming technique has, therefore, been relied upon in this dissertation.

Again the farm management studies in India had been mostly of the factual nature and in many cases, data used were secondary. Adequacy and suitability of these data could not therefore, be established, for analytical studies. What is
needed most for the improvement of Indian farm business is
the analytical analysis of farming situation of different
agriculturally homogeneous areas and continually locating
the new optima under the changing condition. This study
attempts to fill up this gap for the study area at a point
of time.