CHAPTER II
A cursory review of the available literature of the nineteenth century and to some extent of the early twentieth leads us to believe that story of farm financing has been a story of torture and miseries. As is depicted in the Permanent Settlement in the Blue Books of 1813, Report of the Deccan Riots Commission, 1875, Famine Commission Report of 1880, Famine Commission Report of 1901 and Irrigation Commission Report, 1903- Loans for Agricultural Improvement, the magnitude of indebtedness was as high as it exceeded eighteen times the total value of assets possessed by the tenants. The Deccan Riots Commission, 1875, examining the magnitude of indebtedness elaborated, "It appears that about one-third of the occupants of Government land are embraced with debt, that their debts average about eighteen times their assessment and that nearly two-third of the debt is secured by mortgage of land". 1

The gravity of indebtedness had made the contemporary Government to realise that sound policy decisions were needed in order to improve the conditions of agriculturists. A new era in the field of farm finance was opened with the introduction and enactment of Land Improvement Loans Act of 1883 which aimed to recoup the losses from distress, the purchase of seeds and cattle or any other purposes connected with agricultural objects. The co-operative credit Societies

Bill of 1903, further provided a new hope to improve the resource situation of the needy rural sector which was further designed to improve the weak bargaining position of the Indian farmers.

One of the next task before the federal and provincial Government was to make a precise estimate of the actual credit requirements. Some of the Banking Enquiry Committees\(^2\) devoted attention to the calculation of short-term and intermediate credit required by cultivators in India. For example, the Madras, Bombay and Burma Committees (years unspecified) gave the estimates of short-term loans requirements at Rs. 70.0 crores, Rs. 32.50 crores and Rs. 20.0 crores respectively for each province. Though the Central Banking Enquiry Committee (years unspecified) did not venture to put forward even a rough estimate of the cultivators' requirements of short-term and intermediate working capital, they inferred that a figure of Rs. 200.00 to Rs. 400.0 crores of rupees might be taken as a lower limit for the whole of the British India.

Driver (1947)\(^3\) gave a new outlook to the concept of farm finance when he pointed out that the main causes behind the rural indebtedness were the unscientific and wrong policies in respect to lending and repayment and unproductive use of loans. He brought out the distinction between loans which were safe and loans which were sound. He emphasized that the good security did not in itself mean good productive capacity.

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According to him the low productive capacity of the resources was one of the most important causes of the failure of agricultural credit in India. Though inadequate lending was India's main problem, the solution was not more credit but more controlled credit.

Keeping the two ideologies discussed above in view, the available literature to-date was reviewed and grouped broadly into two heads:

1. Resource development and productivity; and
2. Level of inputs use and requirements of production credit.

1. **Resource Development and Productivity:**

Dantwala and Donde (1947) and Sivaswamy (1947) stressed the need to examine if the credit was used for productive or unproductive purposes. Dandekar (1956) expressed the need for linking credit with the repayment capacity of the farmers. He felt that, though, the burden of growing indebtedness was undesirable, the habit of making default in repayment was bad enough because it morally degraded the farmers.

Agrawal (1954-55) in *Studies in the Economics of Farm Management* using regression analysis with few inputs had tried to estimate

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resource productivity. He estimated marginal value product of land, bullock and human labour for farm business by fitting Cobb-Douglas function to the Farm Management Survey data for the year 1954-55 in Uttar Pradesh. He observed a low marginal value productivity of human and bullock labour and came to the conclusion that any further addition would lead to a decline in the returns and productivity of these resources.

Basak and Chawdhari (1955-56)\(^8\) fitted linear function to study the influence of different factors of production in terms of their respective physical quantity for two important crops, namely, Aman paddy and Jute. Out of the four independent variables considered, namely, area in acres, human labour, bullock labour and manures, only statistically significant variables were retained in the production function. The variable - manure was found absent in most of the equations. Most of the resources showed low productivity level.

Rao (1957-58)\(^9\) worked out productivity of farm resources in West Godawari district of Andhra Pradesh. He estimated marginal value product of different inputs for the farms in paddy and tobacco zones and also for both the zones, together. The productivity of all the resources excluding land was higher in case of tobacco zone. The


marginal value product of an additional rupee investment (excluding value of land) was in the order of Rs. 0.0030, 0.0780 and Rs. 0.0030 for paddy zone, tobacco and both the zones together respectively.

Agrawal and Foreman (1959)10 studied resource productivity in Western Uttar Pradesh for farm business as a whole as well as for planted sugarcane and wheat separately. They observed that profitability could be increased by increasing the levels of human and bullock labour in sugarcane and seed, manure and irrigation in wheat. Marginal productivity of implements was not significant in most of the cases.

Raj Krishna (1964)11 fitted Cobb-Douglas production function to estimate marginal productivity of inputs for Punjab farms. He used three sets of equations by grouping some of the input variables in order to remove multi-collinearity. He concluded that marginal value product estimates of farm inputs are not so widely out of line with their acquisition costs as the usual references to the irrationality of the Indian peasant imply.

Ram Saran (1964)12 worked out the productivity of various farm resources by fitting Cobb-Douglas production function to the input-output data obtained from the Studies in the Economics of Farm Management. He compared productivity of inputs particularly capital.

resources between different regions and found that in all three States viz. Uttar Pradesh, Andhra Pradesh and Madras, expenditure on the use of manures and fertilizers, improved seeds etc. could increase farm income. The only exception was paddy in Madras where lesser use of manure was needed.

Hopper (1965) estimated the allocation efficiency in traditional Indian agriculture in 1964 in village Senapur of district Jaunpur in Eastern Uttar Pradesh. He used production functions for crops grown with traditional methods of production. Operations of 43 farms managed by resident land owners were studied in the peak period (September-December). Cobb-Douglass production function was fitted for each crop, namely, barley, wheat, peas and gram. By examining the price implicit in the allocation of resources among various crops during the peak season of agricultural activity, he found that the use of resources was efficient within the static economic meaning of the terms. The farmers, on an average, appeared to have successfully economised their scarce resources.

Misra (1967) in his study of fertilizer use by the amount of co-operative credit revealed that the fertilizer use was increasing with the increase in the amount of co-operative credit, except in wheat crop where the highest use has been found in a group of Rs.400.00 to Rs.600.00. The difference in the use of fertilizers in case of wheat

was very less with that of the highest group, i.e. above Rs. 600.00. He further elaborated that increasing use of fertilizers with the increase in the amount of credit was due to linking of credit with fertilizer supply.

Mrs. Srivastava (1967) using I.A.D.P. data of Shahabad district revealed that the amount of loan utilized for production purposes increased with the increase in the size of holding. After using Cobb-Douglas and Linear Production functions for the data of 1962-65, she generalised that while Cobb-Douglas production function indicated a strong tendency of association between magnitude of credit and amount of input used, the Linear function did not show any such tendency. The analysis of individual input factor reflected that only for the year 1962-63 two inputs, viz. cost incurred on implements and fertilizers showed their positive and significant relationships with the amount of credit borrowed which was also established by using production function. In analysing the productive use of credit, it was referred that in most of the cases, the existing levels of some inputs such as implements, fertilizers, seeds and plant protection chemicals were extremely low. Hence, the marginal productivities of such scanty levels of input were obviously very high as was indicated by the production elasticities of Cobb-Douglas production function.

Chawdhari, Tripathi and others (1969)\textsuperscript{16} examining the resource use and productivity of farms of intensive and non-intensive agricultural areas, after fitting Cobb-Douglas type of production function to the data on costs and returns, concluded that working capital stood at the top of the list of the influentials followed closely by human labour and size of holdings. Bullock labour input had the least determinative ability for that purpose. They recommended for broadening opportunity for using more working capital in farm operations.

Rai (1969)\textsuperscript{17} analysing the productivity of capital in Indian agriculture, estimated the productivity of various farm assets with the help of production function analysis. The results of production equation indicated that land, livestock, seed and manure and rainfall during the year 1951-52 explained about 45.0 to 74.0 per cent of the variation in the farm income on small, large and all farms. In the year 1961-62, the capital items, namely, livestock, implements and size of holdings explained 87.0 per cent of variation in the farm income. He concluded that this change indicated a rise in the productivity of inputs because of improvements in techniques of production. As regards production elasticities of capital inputs, 


it varied from 0.17429 (for land) on large farms in the year 1951-52 to 0.67205 (for livestock) on all farms in the year 1961-62. As regards individual capital inputs, the production elasticity of livestock was highest in all equations with an exception of large farms in 1951-52. As the marginal value products per rupee investment for land, livestock and seed and manure were not equal to each other, he pleaded for adjustments of resources.

Directorate of Economics and Statistics, Ministry of Food and Agriculture, Community Development and Co-operation, in its Report on High Yielding Varieties Programme (1969) conducted at Agro-Economic Research Centres reflected that the current cost of cultivation of hybrid bajra was Rs. 135.00 to Rs. 165.00 per acre more than local bajra but the additional return from it was between Rs. 275.00 and Rs. 400.00 per acre. In case of high yielding varieties of paddy, the picture was not uniform and encouraging. In four, out of eight districts for which comparable data were available, the high yielding varieties of paddy fared very well giving a net benefit of Rs. 130.00 to Rs. 521.00 per acre over local varieties.

Jain, Garg and Singh (1971) analysed resource productivity in wheat crop. Isolating three factors, viz. human labour, chemical

fertilizers and plant protection chemicals, they used Cobb-Douglas
production function and concluded that human labour was highly
significant in relation to elasticity with respect to output. As
regards fertilizers and plant protection chemicals, it was observed
that unlike the plant protection chemicals which were not significant
the fertilizers showed a significant elasticity with respect to the
output. The marginal value productivity of the above inputs was
worked out in the order of Rs. 12.509, 3.978 and Rs. 32.325 for per
rupee investment in the form of human labour, fertilizers and plant
protection chemicals respectively. The high marginal productivity
of plant protection chemicals was owing to very low level of its use
in the field.

(Mrs) Shukla (1971)20 in her regional analysis of institutional
finance for agriculture revealed that the co-operatives and commercial
banks finances follow in a broad way the same pattern of regional
distribution as far as agriculture finance is concerned. She tried
to analyse the extent of association of finance with different
economic characteristics by using rank correlation. She concluded that
in 1968-69 the agricultural finance was tagged with value of physical

pp. 542-554.
assets (including land). However, fertilizer use featured as an equally important factor to attract commercial bank credit. She further observed a reorientation of co-operative finance (short-term) which was being closely associated with such purchased inputs as fertilizers.

Singh, Bhatia and Jain (1971)\textsuperscript{21} analysed the economic rationale of the agricultural credit use on progressive and less progressive farms in Varanasi district. By using regression analysis they observed that irrigation and fertilizers have significant and positive impact on the level of total credit availed on the progressive farms but on the less progressive farms, the value of credit was also influenced significantly by the level of investment on draught cattle in addition to that of own irrigation equipments and fertilizers. They further observed that on all farms owned irrigation equipment, fertilizers and operated area have significant and positive impact on the returns of farm crops. The impact of bullock labour was not significant on all farms. They asserted that all the farms were conscious of using the credit in the right direction. However, the allocation of credit to draught cattle by less progressive farms was irrational.

2. Level of input use and requirements of production credit:

Bandopadhyay (1967)\textsuperscript{22} reviewing the progress of co-operative


credit societies in the I.A.D.P. district, has elaborated that with the first five years of implementation of the programme, the primary credit service co-operative societies have brought within their fold nearly 94.0 per cent of the farm families. The co-operatives provide S.T. and M.T. credit in cash and kind for agricultural purposes to the members to the extent of over 90.0 per cent in Ludhiana and 60.0 and 65.0 per cent in Raipur and Shahabad respectively, 35.0 per cent in Aligarh, below 30.0 per cent in Thanjavur and West Godawari and nearly 12.0 per cent in Pali.

Sinha (1967)23 reported that farm credit requirements were usually met out of the farmers' resources, borrowings from relatives and others and loan (taccavi) from the Government agencies. The share of co-operatives in this regard varied from district to district. For instance, in 1964-65, the co-operative and Government sources together had provided nearly 30.0 per cent of loan in Thanjavur and West Godawari, 40.0 per cent in Aligarh, 65.0 per cent in Raipur, 70.0 per cent in Shahabad, 15.0 per cent in Pali and 98.0 per cent in Ludhiana. Between the two agencies, the co-operative credit structure was the major source.

Kahlön and Kapur (1968)24 estimating the farm credit requirements of I.A.D.P. district Ludhiana for the period 1968-69 to 1972-73

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reported that the average per acre short-term credit requirements would increase from Rs. 107.13 in 1965-66 to Rs. 141.84 in 1972-73. The aggregate short-term credit requirements for the district were placed at Rs. 9.29 crores for 1972-73. They went on asserting that unlike short-term credit, the medium-term credit requirements would increase faster over the years. The average per acre medium-term credit requirements would move up from Rs. 39.10 in 1968-69 to Rs. 296.00 in 1972-73. The aggregate requirements for the district as a whole were worked out to Rs. 3.02 crores in 1968-69 and Rs. 22.88 crores in 1972-73.

Sirohi, Patel and others (1968) examined the allocation of nitrogenous fertilizers among major food grain crops in Uttar Pradesh. After using the Quadratic function to obtain optimal level of nitrogen use for different high yielding and local varieties they observed that under unlimited availability of nitrogenous fertilizers the respective figures for high yielding varieties of wheat, jowar, bajra, maize and paddy came to 110.00, 103.40, 148.20, 188.60 and 126.50 kg. per hectare. The corresponding figures for local wheat, maize and paddy were recorded at 49.80, 148.20 and 48.60 respectively. Since their observations were based on all India coordinated crop trials for the respective crops, therefore, it was not strictly relevant to the actual field conditions.

Chawdhari and Sharma (1970) studied the crop loan system in

Andhra Pradesh and Punjab brought to light that in both the States, there was a reduction in the demand for crop loan as the size of farm increases indicating that the farms in medium (5 to 15 acres) and large (15 acres and above) size groups were generally in a better position to meet production expenses from their own resources. They observed that the demand was higher in respect of commercial and cash crop predominant districts so a major demand for crop loan in the near future could be expected from the small size (0-5 acres) group of farms. As regards the nature of crop loan borrowings, they examined that while in Andhra Pradesh there was heavy borrowing (80.0 - 99.0 per cent) of component 'A' (viz. hiring charges for labour and machinery) in Punjab heaviest percentage (63.0-89.0) of borrowing was accounted for by the component 'B' (viz. cost of seeds). The percentage of component 'C' (viz. cost of fertilizers, manure and plant protection chemicals and irrigation charges) of crop loan in the total loan borrowed was very low in each State.

Kishen and Lekhanpal (1969) assessing the high yielding varieties programme in Uttar Pradesh observed that out of the total area covered by high yielding varieties, chemical fertilizers application was noticed to the extent of 92.80, 92.47, 77.94, 90.36 and 95.24 per cent in crops of high yielding varieties of paddy, jowar, bajra, maize and wheat respectively. The corresponding figures for local varieties were recorded at 61.39, 15.40, 35.66, 48.70 and 57.28 for the above crops.

respectively. As regards the doses of fertilizers in terms of nutrients per hectare, their study reflected that the ratio of N, P and K was found in the order of 73.57: 32.39: 21.64 kilograms for paddy, 58.12: 30.13: 21.79 kilograms for hybrid jowar, 52.34: 29.23: 15.44 kilograms for hybrid bajra, 81.58: 35.49: 14.41 kilograms for hybrid maize and 77.51: 46.61: 14.10 kilograms for high yielding varieties of wheat. They concluded that the nutrients in the forms of all nutrients applied in all the crops of high yielding varieties were lower than recommended doses except that of phosphate which was slightly higher in high yielding varieties of wheat.

Directorate of Economics and Statistics, Ministry of Food and Agriculture, Government of India (1969) in its Report on Highyielding Varieties Programme based on the studies conducted on the various Agro-Economic Research Centres of the country revealed that a large proportion of the expenditure on high yielding varieties programme was financed by the participant farmers out of their own resources. And borrowing per acre was lower than scale of finance provided for the programme. The input use was also lesser than that of the recommended level. It was also observed that a large number of cultivators had borrowed for high yielding varieties, though each cultivator borrowed only a small amount. It was concluded for liberal outlay of more credit for adequately financing the programme.

Chowdhary and Singh (1969) advocated that farmers need credit of different types and for different purposes. They conceived that at the time of sowing farmers need credit to buy seeds, fertilizers, pesticides and to hire labour needed for farms. Depending on types of crops to be grown, this kind of credit was required for six to twelve months. They were of the opinion that the credit was also needed for marketing the produce. They classified the different types of credit and added that percentage of farmers requiring credit for fertilizers and hired labour stood at 92.0 per cent for each purpose. However, they did not specify any other details including the demand for seeds and other purposes.

Athawale, Yadav and Mishra (1971) in a comprehensive attempt to study the expenditure incurred on the cultivation of high yielding varieties in M.P. and the source of finance for different inputs postulated that the total current farm expenditures per hectare were Rs. 463.74 for Raipur and Rs. 478.53 for Tikamgarh. The expenditure on different input factors was observed of the order of hired labour (39.29 per cent), fertilizers (27.89 per cent), seeds (14.69 per cent) and manure (12.66 per cent) for Raipur. The pattern of expenditure for Tikamgarh was fertilizers (49.24 per cent), seeds (24.09 per cent) hired labour (8.60 per cent) and manures (8.15 per cent). The costs


incurred on pesticides were minimum (0.37 per cent and 0.11 per cent respectively) for both the places. As regards the source of finance, they observed that 65.25 per cent of the total current expenditures in Raipur and 39.21 per cent in Tikamgarh were met out of owned funds while the rest was financed through co-operatives. The costs of irrigation, hired human labour and hired bullock labour were entirely met out of the owned funds in Tikamgarh while in Raipur only 93.0 per cent of expenditure on irrigation, 89.0 per cent on hired human labour and 94.0 per cent on hired bullock labour were supplicated by the said fund. As against this situation, the co-operative credit was used for purchase of seeds, fertilizers and pesticides. They further contended that out of the total credit requirements of the farmers, only 6.26 per cent in Raipur and 54.46 per cent in Tikamgarh were supplied by co-operatives which were probably the major source of finance.

Bansil (1971) assuming the value of inputs as the sole criterion for estimating the credit requirements and emphasising meeting the needs of fertilizers, pesticides and seeds of high yielding varieties, concluded that the total value of important inputs would be at about Rs. 14.25 crores by the end of the Fourth-Five-Year Plan. Assuming seeds of ordinary varieties available with the farmers reflected that the size group of above 20.0 acres would not stand in the need of short-term credit and particularly of those who have

adopted the high yielding varieties had considerably improved. He asserted that the total credit needs for the major inputs might be calculated at about 50.0 per cent of the total value which was worked out to about Rs. 713.0 crores. He was of the opinion that since the intention of short-term credit is to meet the requirements of the cultivators only for one crop and the loan is assumed to be recovered at the end of the crop, the loan can and should be rotated in the double cropped areas.

Bhanja (1971) worked out the total cash expenditure per acre of the high yielding varieties of paddy at Rs. 391.00 as against Rs. 52.00 for the ordinary varieties inspite of the fact that the farmers did not resort to the recommended doses of inputs particularly in respect of chemical fertilizers and pesticides. He was of the opinion that even at the prevailing scale of different inputs, and farm practices, a switch over from the local varieties to the high yielding varieties of paddy needs an additional cash expenditure to the extent of Rs. 339.00 per acre. Larger cash expenditure for hired labour was the main contributing factor towards the higher cash expenditure in the largest size group of farms. They further disclosed that out of the total credit requirements of Rs. 339.00, only about Rs. 150.00 per acre was made available in Birbhum district of Bengal. They concluded that only one-third of the total current

Cash expenditure was met by Government which showed a wide fluctuation ranging from 8.0 per cent on the highest size group to about 147.90 per cent in the lowest size group. They pleaded for a liberal credit policy for the small farmers.

Deasi and Naik (1971) by using the data of Agro-Economic Research Centres of few districts reported that owned funds of farmers were the preponderant source for financing current farm expenditure on high yielding varieties and borrowings formed a low proportion of the total input expenditure on the new varieties of the crops. They observed that except in Cuttack, West Godawari, Thanjavur and Tikamgarh district, the amount borrowed per acre from co-operatives by growers of the high yielding varieties which formed the major source of borrowing ranged from 2.0 to 32.0 per cent of the scale of finance per acre fixed for the respective crops. After analysing the two factors which in their opinion affect the level of demand for credit viz., extent of adoption of high yielding varieties by the farmers and the used levels of recommended inputs and cultural practices, they concluded that the demand for short-term credit for cultivation of high yielding varieties is unlikely to increase substantially in the near future. However, they realised that it will go up in long run. In case of Aligarh they pointed out that in high yielding varieties of maize the amount of borrowed funds was only Rs. 124.00 out of Rs. 262.00 per acre expenditure.

Mehta and Sidhu (1971)\textsuperscript{34} studying the impact of medium and long term loan on short term credit needs of the Punjab farms concluded that loan given for long term investment had significantly increased the requirements of short term loans. Using the Cobb-Douglas and Linear functions for tube-wells farms and tractor farms, they explained 82.0 per cent and 92.0 per cent of variation in short term investment in case of the tube-well farms and tractor-farms respectively. The elasticities of Cobb-Douglas production function explained that 1.0 per cent change in the level of above two cases lead to 1.29 and 0.57 per cent change in short term investment respectively. As regards disposable income, it was observed that only in tractor farms one per cent change in the level of disposable income leads to a change of 0.61 per cent in the short term investment.

Sharma and Prasad (1971)\textsuperscript{35} used Linear programming technique under four situations, viz. present technology without borrowing, existing technology with borrowing, improved technology without borrowing and improved technology with borrowing to assess the productive credit needs in developing agriculture. They observed that in Tarai, Manital, the credit needs of the farmers were, on an average, about Rs. 113.00 per acre which varied from Rs. 134.00 on medium to Rs. 76.00 on large farms. The per acre credit needs at the existing technology


in Rampur were, on an average, Rs. 156.00 which ranged from Rs. 98.0 to Rs. 203.0 on different size of farms. Per acre needs of credit in Neinital in improved technology were worked out at Rs. 352.00 with less variation on different size of farms. The credit needs per acre for Rampur were put at Rs. 381.00 which varied from Rs. 279.00 to Rs. 317.00 on different size groups.

Singh, Bhati and Jain (1971)\textsuperscript{36} after studying 146 farmers (76 progressive and 70 non-progressive) of Varanasi district concluded that majority of less progressive farmers obtained credit for the purchase of bullocks followed by fertilizers whereas the progressive counterparts invest in owned irrigational assets. As regards seeds, only progressive large farmers seemed to be using a portion of about 10.0 per cent of the total credit advanced. On an average, the per farm total outlays for purchase of fertilizers and seeds of high yielding varieties were Rs. 98.00 and Rs. 47.00 respectively.

Singh and Jha (1971)\textsuperscript{37} used the Linear Programming technique to assess the capital requirements on six synthetic farms under different income groups. Their analysis revealed that inadequacy of capital is a great bottleneck in the exploitation of the potential productivity of available resources. They noticed that the capital


scarcity was more acutely felt by the progressive farmers and implying that under the current technology, the provision of required amount would enable the high income farms to reap greater increased income as compared to those of low income farms. It was further observed that the capital scarcity was more acute on farms in less progressive village. They concluded that the supply of adequate amount of fund would enable the farmers to make the fullest use of the existing resources and obtaining substantial increased income. The analysis worked out that under current technology the requirements of capital ranged from 9.50 to 102.83 per cent of the existing capital on the farms.

Singh and Kahlon (1971)38 conducted an enquiry in Bhuneherry block of Patiala district to study the credit requirements and advance to farmers by State Bank of Patiala. Their study was based on 73 cultivators who were reported to be borrowing from the bank. It was reported that the share of small, medium and large holdings of the total loans were 47.46, 20.34 and 32.20 per cent respectively. As regards production loans, it was advanced in the order of 57.24, 19.98 and 22.78 per cent respectively. As much as 65.58 per cent of the total production loan was utilized for purchase of chemical fertilizers. The shares of casual labour, high yielding varieties seeds and pesticides were 17.94, 13.26 and 3.20 per cent respectively in the production loan.

Assessing the requirements of credit, they noticed after analysing the existing level and alternative level of technology that it increased with the increase in the size of holding and the level of technology. The per acre short term credit requirements increased from a level of Rs. 91.67 and Rs. 76.67 in 1969-70 to Rs. 332.28 and Rs. 402.81 in 1970-71 on the small and medium size of holdings respectively. On large farms where improved inputs were used at higher level in the existing plan, very little improvement was introduced in the alternative plan.

Nakkiran and Gopalan (1972) observed that the member respondents raised their required finance from two sources, viz. savings and borrowings. The amount of finance required for cultivation purposes was considerably higher than the credit required for the domestic purposes. Their respective proportions were 85.0 per cent and 14.6 per cent. The proportion of amount required for the domestic purposes was higher in the case of small farmers (20.5 per cent) than in case of medium and large farmers. Small farmers met 10.50 per cent of the total financial requirements out of their own savings. The corresponding figures for medium and large farmers were 29.25 and 21.75 per cent respectively. On an average, 15.0 per cent of the total requirements was met by savings.

As regards adequacy or otherwise of the co-operative credit after analysing the difference between actual credit requirements and the amount required from co-operatives, it was reported that the amount of inadequacy of credit in case of big farmers was 30.4 per cent of the total requirements whereas the corresponding percentage for small and medium was observed at 47.0 and 45.6 per cent respectively.

Sharma (1973) observed that the total outstanding advances to agriculture increased nearly four-fold from Rs. 4.58 crores in the end of June, 1968 to Rs. 113.42 crores in the end June, 1969. The membership of borrowing accounts rose from 1.04 lakhs in 1967-68 to 3.57 lakh in 1968-69. Of this, direct credit to farmers rose from Rs. 14.30 crores to Rs. 53.61 crores while indirect finance including finance for distribution of fertilizers and other inputs, loan to electricity boards and other types of indirect finance showed an increase from Rs. 104.53 crores to Rs. 134.81 crores. At the end of June, 1970, the total outstanding credit to agriculture stood at Rs. 341.77 crores over June, 1969 level. He noted a spurt in the outstanding advances of direct finance to farmers - the percentage of outstanding of direct finance to total outstanding rising from 23.4 to 53.8.

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The brief review of literature cited above leads us to conclude that most of the previous studies are disjointed in points of time. While they provide a judge to the methodological procedure, the twin objectives of resource development and productivity vis-a-vis credit requirements for the production purposes have not been investigated together. As a matter of fact the above two factors, viz. resource development and productivity and the requirements of credit should be investigated simultaneously because both of them go side by side. In addition to the above facts, the previous studies do not show any consistency in respect of their research findings. Some of them have reported to some conflicting results (15-Srivastava, Drupadi). Further as is rightly emphasised by Rai (17-Rai, B.S.) there happened to be a change in the level of productivity of input factors within a course of time when a change in the technique of agricultural production takes place. Therefore, it stands to reason that some of the issues posed above may be thoroughly discussed and the ambiguity created due to recent technological break-through in agricultural technology be enquired in relation to rapid change in the level of farm savings. Thus, as already have been pointed out in the objectives, enumerated earlier, the study aims at bringing the informations up-to-date in relation to resource productivity, level of inputs use and requirements of prod. credit of the farms in the I.A.D.P. district Aligarh.
HYPOTHESES:

Keeping the foregoing literature in view and the objectives already dealt with in earlier chapter, the following hypotheses were developed:

1. Production credit enhances the use of those capital inputs which raise the farm output;
2. There are certain inputs which are more elastic to the availability of production finance;
3. Production credit has higher productivity than those of owned production funds of the farms,
4. There exists maladjustment among resources on the farms and it is possible to optimize production by resource adjustments; and
5. The supply of production credit is below the requirements of the farms.