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To the Graduate Council:

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SOME CONSIDERATIONS IN DESIGN OF AGRICULTURAL CREDIT PROGRAMS FOR MYSORE STATE, INDIA

A Thesis

Presented to

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

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by

Parker D. Cashdollar

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ABSTRACT

The purpose of this study was to investigate the problem of agricultural credit in Mysore State, India, and to suggest major issues to consider in the design of agricultural credit programs for Mysore State. Only secondary data were used in this study. Data were derived primarily from the libraries of the University of Tennessee, the Library of Congress in Washington, D.C., publications of the Agency for International Development, discussions with Indian Agricultural students from Mysore State attending the University of Tennessee, and others with experience in India.

The study consisted of five separate but interrelated objectives. The first objective was to determine the agricultural credit situation in India with emphasis on Mysore State. It was found that the money-lenders are the primary source of agricultural credit, but that credit cooperatives have increased their loans tremendously during the past fifteen years.

The second objective was to describe some characteristics of Mysore State that affect the success of credit proposals such as soils, climate, population, land area, and crops. These characteristics greatly determine the type of credit program that will be successful.

The third objective was to present an illustrative example of a farmer in Mysore State who is interested in adopting new farming practices through the use of credit. This example was synthesized from data from several sources including several farm management studies from

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Mysore State. This example showed the kinds of problems a farmer is likely to encounter when he attempts to use credit productively. Credit problems were presented in the light of the social, political, and economic conditions within which they are likely to arise.

The fourth objective was to examine conceptually some of the major issues, such as farmers' attitudes toward credit, loan security, land tenure, amount and timing of loans, and supervision of loans that are important in the design of credit programs. Most of these issues were drawn from the illustrative farm example, and here they were examined in a more conceptual manner.

The fifth objective was to present some pertinent areas in which research into agricultural credit is needed. There appears to be a need for data showing the kinds of farm-level capital that will be needed by subsistence farmers as they adopt new farming methods. Also, there is a need for theories that will enable credit planners to predict the probable response of a particular village or group of farmers to a certain program.

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CHAPTER I

THE NATURE OF THE STUDY

I. THE PROBLEM

The problem of Indian rural credit is unique because no comparable problem has been solved to give us a precedent to follow. In India there are millions of prospective farm borrowers. Frequently they are not "creditworthy," they are in urgent need of help, they know almost nothing about modern business methods, and their customs hinder their economic progress. These and many other factors, differing among areas, communities, and times, must be considered in any solution adopted. Any solution adopted would require an administration capable of lending vast sums of money by making numerous small loans; it must also be capable of collecting these loans in installments of a few rupees at a time. These problems have thus far not been overcome in any country comparable to India, and, therefore, farmers continue to lack the credit they need to increase their production.[1]

The complex problem of rural credit in India, implies the need for a systematic approach to finding acceptable solutions to the problem. Providing credit to millions of "uncreditworthy" Indian farmers is a formidable task. It is a problem that will not be solved until more information is obtained through research into the many facets of rural credit.

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[1] C. R. B. Menon, A Rural Credit Scheme for India (Calcutta: Orient Longmans, 1961), p. 5.

Many economists contend that capital formation is the key to economic growth. Nurkse states that "low real income is a reflection of low productivity which in turn is due largely to the lack of capital."[2] Although the capital formation approach to economic development is widely held, several writers, including Hagen,[3] Galbraith,[4] and Hirschman,[5] believe it has been overemphasized. Economists generally agree, however, that production normally increases when capital inputs are used.[6] The large amounts of capital that are characteristic of modern agriculture support the argument that capital is an important input for a productive, modern agriculture.

Murray and Nelson have defined credit as the "ability to command the capital of another in return for a promise to pay at some specific time in the future."[7] The limited resources and small savings found in Indian agriculture make it necessary that credit play an important role

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[2]Ragnar Nurkse, Problems of Capital Formation in Underdeveloped Countries (Fair Lawn, New Jersey: Oxford University Press, 1963), p. 5.

[3]Everett E. Hagen, On the Theory of Social Change (Homewood, Illinois: Dorsey Press, 1962).

[4]J. K. Galbraith, The Liberal Hour (Boston: Houghton Mifflin Company, 1960).

[5]Albert Hirschman, The Strategy of Economic Development (New Haven: Yale University Press, 1958).

[6]Ted L. Jones, The Influence of Agricultural Credit Institutions Upon Agricultural Development (Columbus, Ohio: The Ohio State University, 1967), p. 3.

[7]William G. Murray and Aaron G. Nelson, Agricultural Finance (Fourth Edition; Ames, Iowa: The Iowa State University Press, 1960), p. 36.

in capital formation. Through the use of rural credit the savings in India and in the developed countries can be made available to Indian farmers and enable them to increase their use of capital. New technology such as high-yielding varieties, fertilizers, insecticides, and farm machinery cannot enhance production unless farmers are willing and able to invest in these new inputs. The lack of savings means that many farmers must have credit if they are to adopt new inputs. There are indications that new inputs are becoming more readily available in India and that lack of credit is a major obstacle to their adoption.[8]

II. OBJECTIVES OF THE STUDY

The first objective of the study is to present an overview of the agricultural credit situation in India with emphasis on Mysore State. This overview focuses on the sources of short-term agricultural credit such as moneylenders, commercial banks, government, and cooperatives. Brief descriptions are presented of the development of these sources, their methods of operation, their relative importance, and their relative adequacies for meeting farmers' needs.

A second objective is to describe some characteristics of Mysore State that affect the success of credit proposals such as soils, climate, population, land area, and crops. This section also provides the reader with an understanding of the situation within which credit problems must be solved.

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[8]Fertilizer Credit Committee of the Fertilizer Association of India, Report of the Fertilizer Credit Committee, 1968 (New Delhi: United India Press, 1968), pp. 1-30; S. C. Jain, Agricultural Development in India (Allahabad: Kithab Mahal, 1967), p. 308.

A third objective is to present an illustrative example of a farmer in Mysore State who is interested in adopting new farming practices through the use of credit. This example is used to show the kinds of problems a farmer is likely to encounter when he attempts to use credit productively. Credit problems are presented in the light of the social, political, and economic conditions within which they are likely to arise.

A fourth objective is to examine conceptually some of the major issues, such as farmers' attitudes toward credit, loan security, land tenure, amount and timing of loans, and supervision of loans, that are important in the design of credit programs. Most of these issues are drawn from the illustrative farm example, and here they are examined in a more conceptual manner.

A fifth objective is to present some pertinent areas in which research is needed. The results of this research should be of much benefit to credit planners in Mysore State.

CHAPTER II

THE BACKGROUND OF AGRICULTURAL CREDIT IN INDIA

I. SOURCES OF AGRICULTURAL CREDIT IN INDIA

There are several ways of classifying credit by source in India. The method used in this thesis categorizes all sources as either institutional or noninstitutional. Institutional sources include government, cooperatives, and commercial banks. Noninstitutional sources include all other sources such as relatives, landlords, agricultural moneylenders, professional moneylenders, traders, and others. The primary distinction between institutional sources and noninstitutional sources is that the noninstitutional sources are private individuals and their loans are usually made in a private manner without government interference or control, while institutional sources are either government owned or authorized and often have much government control. Table II-1 outlines the sources of agricultural credit and their respective contributions as a percentage of total agricultural credit.

Noninstitutional Sources--The Moneylenders

Most investigations into agricultural credit sources in India and other developing countries reveal that the moneylenders are by far the most important source of credit in terms of amount of money loaned to farmers. The term, moneylender, is generally understood to include all private sources of credit. Thus, the moneylender may be a relative, a

TABLE II-1

SUPPLY OF RURAL CREDIT IN INDIA ACCORDING TO SOURCE
FOR 1951-52 AND 1961-62

Credit Source	Percent of Total Rural Credit Supplied	
	1951-52	1961-62
Institutional		
Government	3.3	2.6
Cooperatives	3.1	15.5
Commercial Banks	0.9	0.6
Total	7.3	18.7
Noninstitutional		
Relatives	14.2	8.8
Landlords	1.5	0.6
Agricultural Moneylenders	24.9	36.0
Professional Moneylenders	44.8	13.2
Traders and Commission Agents	5.5	8.8
Others	1.8	13.9
Total	92.7	81.3
Grand Total	100.0	100.0

Source: Committee of Direction, All India Rural Credit Survey, II (Bombay: K. Modhava Das, 1954), p. 167; Reserve Bank of India, Reserve Bank of India Bulletin, XIX, No. 9 (September 1965), p. 91.

professional private moneylender, an agricultural moneylender, a trader or commission agent, or a landlord. He may be a small retail merchant or shopkeeper who makes credit sales with or without security to clients whom he knows very well. He may take the form of a combination landlord-moneylender-trader-shopkeeper.

Although some studies of moneylenders have been made, it is difficult to assess fully the role of the moneylender as an agent for assisting farmers to acquire new capital. In the All India Rural Credit Survey, after an exhaustive study of moneylending, it was concluded that the moneylender satisfies very few of the criteria for a good system of credit. According to the survey, moneylender's loans generally do not go for productive purposes, are not in harmony with the farmer's repayment potential, and often are a burden on the farmer rather than a help. "Beyond the merits of flexibility and ready availability, therefore, the moneylender's credit has nothing to commend it and a great deal to condemn it," concluded the survey.[1] The high rates of interest generally charged by moneylenders and the clearly unscrupulous practices that some

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[1]Committee of Direction, All India Rural Credit Survey, II (Bombay: K. Modhava Das, 1954), p. 326. The well known All India Rural Credit Survey is a landmark publication in the field of agricultural credit in developing countries. Although much criticism has been leveled at the report because of the manner in which the survey was conducted, it has remained the document to which writers on rural credit refer to draw analogies. It was conducted in the early 1950's by the Reserve Bank of India at the request of the Indian Government and was published in 1954. Since its publication, the recommendations contained have to a great extent been carried out by the Government of India which perhaps has accounted for its continued popularity. In spite of its faults it is still one of the most comprehensive studies of its type and was the first comprehensive study of rural credit to receive recognition in India.

moneylenders have used have generally given the term "moneylender" a bad connotation in most developing countries. The difficulty of obtaining accurate data from or about moneylenders makes it difficult to assess their role objectively and accurately. Whether justly earned or not, the moneylenders have been blamed for many of the ills of Indian farmers.

That moneylenders continue to provide the bulk of rural credit attests to the fact that they are offering credit much wanted by peasant farmers, and they are offering this credit in a manner that institutional lenders cannot or prefer not to duplicate. The moneylender has several advantages over institutional sources in his dealings with debtors. Usually the moneylender is a resident of the village in which he loans and has a thorough knowledge of the circumstances of his debtors and prospective debtors who reside in the area. The moneylender knows first-hand with very little investigation and expense the character of his debtor, the value of his assets, the assets of his relatives, his social status, his farming ability, his health condition and education, and the degree of his desperation for credit. In short, the moneylender knows without expense or trouble the things a bank or cooperative needs to know about a prospective client.[2] This information is not only expensive, but is almost impossible to obtain by an institution that is not a part of the community social structure.

The moneylender is often a powerful person in the village. In addition to being a moneylender he may be a trader, a landlord, a member

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[2] Ibid., p. 171.

of the panchayat,[3] or perhaps a relative of the borrower's landlord. There are numerous ways he can exert collection pressure on the borrower without resorting to legal remedy. The fear of "losing face" in the village or the threat of being cut off from further credit by the moneylender is enough to insure maximum efforts to repay the loan.[4] While institutional lenders must rely on slow, cumbersome, and expensive legal processes to collect after routine efforts have failed, the moneylender simply resorts to one of his more subtle methods and considers recourse to law the least important of his methods.[5] In fact moneylenders place so little value in recourse to law as a collection tool, it is not surprising that 80 percent of the debt owed to moneylenders is not secured by legal papers.[6]

In spite of his frequent strong position relative to his client, the moneylender is still engaged in a high risk business. The moneylender, regardless of the severity of his collection methods, cannot collect if farmer clients have crop failures. Rather than collecting at the end of a bad year, the lender may be called upon to lend more to an already delinquent family so that it may subsist and make a crop the next year. If the moneylender does not continue to help the family, it

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[3]Each village or small group of villages has a panchayat or elected council that dispenses village business and often settles legal disputes and imposes penalties on violators. Due to class tradition the wealthy villagers (moneylenders) or higher caste villagers often dominate the panchayat.

[4]Committee of Direction, All India Rural Credit Survey, pp. 171-172.

[5]Ibid., p. 171.

[6]Ibid., p. 169.

is unlikely that he will be able to collect his debt at a later date. The moneylender faces many of the same risks his farmer clients face; for example, he is often paid in kind instead of cash which means he suffers when grain prices are depressed the same as a farmer does. The moneylender sacrifices security for loans and liquidity of funds for the possible reward of a greater return through higher interest rates than he could expect through conventional investment channels. A more thorough conceptual analysis of the components of the interest rate charged by moneylenders is taken up in Chapter IV; that is, a discussion of what portion of the interest rate can be attributed to normal return on money, to risk, and to loan servicing.

Although numerous articles of legislation have been passed to control or regulate moneylending, it continues to be the primary source of agricultural credit in India. Moneylenders accounted for 93 percent of total agricultural credit in 1952 and 81 percent in 1962, as is shown in Table II-1, page 6. The bulk of moneylending legislation was passed by the states following the depression of the 1930's. The severity of laws and degree of enforcement varies by state. Typical controls, however, usually focus on the following:

> (i) licensing and registration of moneylenders, (ii) maintenance of accounts in prescribed form, (iii) furnishing of receipts and periodical statements of accounts to debtors, (iv) fixation of maximum rates of interest chargeable, (v) protection of debtors from molestation, intimidation, etc., (vi) exemptions from attachment of items of debtor's property, (vii) penalties for infringement and machinery for enforcement.[7]

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[7] Ibid., p. 124.

The evasion of moneylending laws is apparently common in India, and it is difficult to enforce the laws because both the lender and borrower may conspire to evade the law. Among the methods of evasion reported by the All India Rural Credit Survey are:

> (i) obtaining a pro-note for a larger amount of principal than that actually lent; (ii) interest computed at illegal rate and deducted in advance from the amount lent; (iii) the making of a separate pro-note (besides the main one) in the name of a servant or relative of the moneylender to cover the extra interest; (iv) forward purchase together with false evaluation of the debtor's produce; (v) conditional sale; (vi) unobjectionable sale deed for purposes of the law, and illegal, if informal, understanding as to the real substance of the contract; and (vii) taking over of debtor's land on usufructuary mortgage on terms which in effect imply the charging of illegal interest or taking on mortgage the milch cattle of the debtor on a similar basis. There is reason to believe that, in addition to all this, much of the larger part of moneylending is carried on without license, even where such license is obligatory.[8]

In most Indian states, the only penalty for moneylending without a license is that the moneylender has no recourse to law against his client, but since moneylenders generally have other methods of collection this appears to be a weak deterrent. Mysore, however, is one of the few states with machinery for enforcing the licensing of moneylenders.[9] A knowledgeable observer from Mysore, however, estimated that less than 1.0 percent of practicing moneylenders in Mysore are licensed and he considers the law to be ineffective.[10]

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[8] Ibid., pp. 125-126.

[9] Ibid., pp. 124-125.

[10] Ratnakar Bhatkal, an official of the Mysore Department of Agriculture, indicated that legislation has had very little effect on moneylending in Mysore State. Mr. Bhatkal was interviewed by the author in Knoxville, Tennessee, on October 4, 1969.

Institutional Sources of Credit

An alternative to legislating the moneylenders out of business has been to create institutional sources of credit to compete with moneylenders. The three primary sources of institutional agricultural credit in India have been credit cooperatives, commercial banks, and government loans. The replacement of moneylenders with institutional sources of credit has not been encouraging in spite of the tremendous effort being exerted to promote institutional credit, primarily through cooperatives. However, some progress is being made; institutional sources claimed only 7 percent of the rural credit market in India in 1951-52, but claimed 19 percent in 1961-62. (See Table II-1, page 6.)

Government loans--taccavi. Government credit for Indian agriculture was provided for by the Land Improvement Loans Act of 1883, and the Agricultural Loans Act of 1884; thus government credit is not new to India. This system of government credit called taccavi is administered by the states, but a system of rules at the national level assures some measure of uniformity of administration in all states. Historically, taccavi was designed to provide agricultural relief in times of famine and distress and was primarily for the less fortunate farmers. However, in practice taccavi has been used more by the larger cultivators who meet stringent credit requirements.[11]

In the All India Rural Credit Survey it was stated that "in practice taccavi is apt to be little else than the ill performed

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[11]Committee of Direction, All India Rural Credit Survey, p. 199.

disbursement of inadequate moneys by an ill suited agency."[12] Among the primary criticisms of taccavi found by the All India Rural Credit Survey were that it has been inadequate in amount, has not been equitably distributed, and has imposed security requirements that tend to exclude those farmers it was intended to help. It was also criticized for making impositions on borrowers, being untimely and for inefficiency in administration.[13]

As seen from Table II-1, page 6, in 1952, 3.3 percent of all agricultural credit was supplied by taccavi, and in 1962 only 2.6 percent was supplied. This small percentage tended to go to the larger cultivators because taccavi loans must be secured by land, which excludes small tenant farmers from consideration. Local committees are appointed to certify applicants in most states, and the committees are usually composed of prominent citizens, who tend to recommend their friends who are of above-modest means.[14] In view of the poor record of taccavi, Jain recommended that the money presently being loaned as taccavi be given to cooperatives for disbursement.[15]

The Fertilizer Credit Committee in searching for credit for its products investigated several states where taccavi has been a significant percentage of total fertilizer credit. The Committee found that generally the issuance of taccavi loans for fertilizer has become a system of

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[12] Ibid., p. 99.

[13] Ibid., p. 199.

[14] Ibid., pp. 199-204.

[15] Jain, Agricultural Development in India, pp. 322-325.

patronage. Loans are scrutinized by several officers and the applicant has to make repeated visits to various officials and is put to much inconvenience before his loan is approved.[16]

None of the references to taccavi that were reviewed by the author were very optimistic about its potential for being much help in solving the farm credit problem. The opinions expressed in the All India Rural Credit Survey, by Jain, and by the Fertilizer Credit Committee are indicative of the low opinion of taccavi that seems to be held by the observers whose works were available to the author.

The commercial banks. Of the 75 districts surveyed in the All India Rural Credit Survey, 44 reported no borrowings by cultivators from commercial banks; less than 1.0 percent of total borrowings was from banks in 15 other districts. In only three districts did the commercial banks supply more than 5 percent of the total agricultural credit directly to the cultivator. The loans that were made by banks tended to go to a small number of large cultivators.[17] Table II-1, page 6, shows that in the decade ending in 1962 the commercial banks fell from their insignificant position of supplying 0.9 percent of the total agricultural credit to a more insignificant level of 0.6 percent.

The commercial banks have apparently avoided making loans directly to farmers because the nature of banking requires that funds be kept

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[16]Fertilizer Credit Committee of the Fertilizer Association of India, Report of the Fertilizer Credit Committee, 1968, pp. 199-201.

[17]Committee of Direction, All India Rural Credit Survey, pp. 180-184.

relatively liquid and that loans be made for short terms. The vagaries of weather, unstable prices, and uncertain repayment capacity of farmers relative to other borrowers make the agricultural sector unattractive to most commercial banks.[18] Also the relatively small amount of credit needed by individual farmers requires a great deal of administrative cost per unit of money loaned. It is much more difficult and costly to administer one thousand loans of two hundred rupees each to scattered small farmers than to administer fifty loans of four thousand rupees each to industrial concerns. Also the commercial banks have traditionally not been "farm oriented" and do not have personnel capable of handling farm accounts in a manner to compete with moneylenders and cooperatives.[19]

Ghosal lists the unsuitability of agricultural security, the peculiarities of agricultural finance, illiteracy among farmers, vagaries of weather, the need to keep funds liquid, and lack of personal knowledge of cultivators as reasons why banks tend to stay away from agricultural lending.[20] The Committee of Direction all but dismissed from consideration the commercial banks as a source of direct agricultural credit for the cultivator.[21]

There have been several recent developments in India to encourage the commercial banks to increase their lending directly to farmers and

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[18]Rajeshwar Dayal, India's New Food Strategy (Delhi: Metropolitan Book Company, 1968), pp. 195-196.

[19]Jain, Agricultural Development in India, p. 322.

[20]S. N. Ghosal, Agricultural Financing in India (New York: Asia Publishing House, 1966), p. 28.

[21]Committee of Direction, All India Rural Credit Survey, pp. 323-324.

to intermediaries such as cooperative banks, retail suppliers of inputs, marketing firms, and others whose success utlimately benefits the farmer. At least one commercial bank, the Syndicate Bank, has begun to increase its making of loans directly to farmers. It has established an agricultural finance department which with trained field officers is able to handle loan applications and assess creditworthiness and credit needs of farmers with very little delay. Normally, an applicant must be an owner-operator who owns at least three acres. The Syndicate Bank has also been involved in financing the production of hybrid seeds.[22]

The State Bank of India with its branch banks has over two thousand offices, 57 percent of which are located in towns with a population of 25,000 or less. Data were not available to determine how much of their credit business was directly with farmers, however.[23]

The recent "takeover" of banks by the Government of India is believed by many observers to be a move toward making commercial banks more responsive to the needs of the people, including farmers. Whether or not this will be the result and what effect it will have on banks' responsiveness to farmers' needs remains to be seen. Because of the absence of recent data bout the actual results of this move toward the "socialization" of Indian banks, it is difficult to obtain an accurate overview of the trends in commercial bank lending to farmers.

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[22]Fertilizer Credit Committee of the Fertilizer Association of India, Report of the Fertilizer Credit Committee, p. 442.

[23]Ibid., p. 246.

Cooperative credit. The cooperative movement in India officially came into existence in 1904 with passage of the Cooperative Credit Societies Act; previous attempts at cooperation had been made prior to this time, but there was no official legislation regarding cooperatives. The cooperative movement was an attempt to rescue small peasant farmers from the entanglements of moneylenders and to provide a cheaper source of credit to farmers. Famine conditions in India near the turn of the century prompted the Famine Commission of 1901 to state that it was essential that better sources of credit be made available to farmers and to recommend creation of village banks of the Raiffeisen[24] type, or what are now called credit cooperatives.[25]

The landmark Rural Credit Survey Committee reported in 1954 that the cooperative movement thus far had been a failure but declared that the most feasible solution to India's rural credit problem was to strengthen and improve the credit cooperatives.[26] Since the publication of this report and the adoption of its recommendations by the Government of India, the cooperative movement has held high priority among India's development goals. The increase in cooperative lending from 3.0 percent of total agricultural credit in 1951-52 to 15 percent in 1961-62 as shown in Table II-1, page 6, is evidence of some progress under this effort.

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[24]Raiffeisen refers to cooperative village banks initially organized in Germany in 1862. These Raiffeisen banks were completely funded by the farmer members and the members were collectively and individually liable for debts.

[25]Dayal, India's New Food Strategy, pp. 155-156.

[26]Committee of Direction, All India Rural Credit Survey, p. 372.

The village credit society, sometimes called the agricultural primary credit society, is the basic unit of the cooperative credit structure and is the unit with which the farmer deals at the village level. Typically, there would be a credit society for each village or group of villages with a required minimum initial membership of at least ten members. The members generally would know each other and would be familiar with each other's farming operation and assets. Most of the work of running a small cooperative credit society can be done by the members with the help of a paid part-time secretary. The society, theoretically at least, should be in a position to compete effectively with village moneylenders and furnish cheaper credit to its members.[27]

The society loans funds which are raised from its members and borrowed from external sources. Internal funds consist of share capital of the members, entrance fees, the reserve fund, and deposits of the members. The Cooperative Societies Act of 1912 requires all societies to carry over at least 25 percent of their profits to the reserve fund. Although reserve funds have increased (in those societies showing profits) the voluntary deposits from members have remained very small. Nonmember deposits, an indication of the confidence placed in the society by local people, comprise only a small part of the working capital of most societies. In practice cooperative societies have had to depend on external sources for their supply of loanable funds. The main sources of external funds are loans received by societies from District Cooperative Banks or

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[27]Dayal, India's New Food Strategy, pp. 163-164.

Cooperative Central Banks. The funds borrowed from the Central Cooperative Bank are reloaned to members at a slightly higher rate than that paid to the Central Bank.[28]

Table II-2 shows that approximately two-thirds of the societies' funds are borrowed and that deposits comprise only 6 to 7 percent of loan funds. According to Dayal the village credit societies are "mere agencies for the transfer of funds raised in the money markets in towns to farmers in the villages."[29] The real purpose of cooperation, that is, emphasis on thrift and self-help, is evidently not being achieved. It appears that cooperative members have little confidence in the cooperatives and without strong government financial support the cooperative movement would be very hard pressed for funds and might collapse.

Although credit societies are created on the basis of equality of all members and the one man-one vote principle, the equitable administration of the society depends upon active interest and participation of all members. The high illiteracy rates among rural Indians and the rigid social structure allow the better educated and more influential members to gain control of the society in many cases. Mismanagement of funds has resulted in apathy of members and a lack of confidence in the cooperative movement among small farmers. Daniel Thorner found that moneylenders and traders, the same people from whom the cooperatives proposed to protect small farmers, dominate the credit cooperatives and are frequently the cooperative directors in many Indian states.[30]

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[28] Ibid., pp. 163-165.

[29] Ibid., p. 165.

[30] Daniel Thorner, Agricultural Cooperatives in India (New York: Asia Publishing House, 1964), p. 8.

TABLE II-2

WORKING CAPITAL: PRIMARY AGRICULTURAL CREDIT SOCIETIES IN INDIA (IN CRORES OF RUPEES)

	June 30, 1964		June 30, 1965	
	Amount	Percentage	Amount	Percentage
Owned Funds	117.79	26.8	133.19	27.4
Deposits	26.06	5.9	32.58	6.7
Borrowings	296.54	67.3	320.90	65.9
Total	440.30	100.0	486.67	100.0

Source: Rajeshwar Dayal, India's New Food Strategy (Delhi: Metropolitan Book Company, 1968), p. 165.

Note: One Crore = 10 million.

The Central Cooperative Banks from which credit societies borrow the bulk of their funds are the second level of the three tiered system of cooperative credit consisting of credit societies at the base, Central Cooperative Banks in the center and State Cooperative or Apex Banks at the top. The main purpose of the Central Banks is to raise funds, primarily from urban sources, that are loaned to credit societies which in turn make loans to farmers. The Central Banks' shares may be owned entirely by the societies in their jurisdiction or by the societies and private individuals who can make deposits and borrow from the Central Banks. The majority of the Central Banks are of the mixed type where both societies and individuals own shares because it is feared that Central Banks which loan exclusively to societies will not inspire the confidence of urban sources of funds and will not attract deposits. As seen from Table II-3 approximately two-fifths of the membership of Central Banks is composed of individuals and three-fifths is composed of institutions, primarily credit societies.

The Central Cooperative Banks, in addition to securing and loaning funds to the credit societies, act as balancing centers and help make surplus funds of prosperous societies available to others in need of funds. They supervise the societies under their jurisdiction and usually carry on regular banking functions. Their essential function, however, is to supply funds to primary credit societies. Table II-4 shows that between 1956 and 1965 the working capital of Central Banks increased more than fivefold, deposits by almost fourfold, and borrowings by ninefold. These data indicate that the Central Cooperative Banks have

TABLE II-3

MEMBERSHIP OF CENTRAL COOPERATIVE BANKS IN INDIA

	June 30, 1964	June 30, 1965
Institutions	256,600	261,300
Individuals	108,500	104,100
Total	365,100	365,400

Source: Rajeshwar Dayal, India's New Food Strategy (Delhi: Metropolitan Book Company, 1968), p. 175.

TABLE II-4

PROGRESS OF CENTRAL COOPERATIVE BANKS IN INDIA
(IN CRORES OF RUPEES)

	1947	1951	1956	1965
Number of Banks	446	505	478	360
Membership (000)	152	207	300	365
Owned Funds	6	9	15	92
Deposits	27	38	55	204
Borrowings	5	10	21	229
Working Capital	38	56	93	525
Loans Outstanding	20	34	54	--

Source: Rajeshwar Dayal, India's New Food Strategy (Delhi: Metropolitan Book Company, 1968), p. 176.

successfully carried out their essential function of making funds available to credit societies.

The third tier of the three-tiered system of cooperative credit consists of the 21 State Cooperative Banks or Apex Banks. The Apex Banks are the lenders of last resort to the Central Banks when funds are exhausted at that level. As the Central Banks the Apex Banks have a mixed membership consisting of both individuals and cooperative societies. The current policy is to reduce and eventually eliminate individual shareholders and make the Apex Banks wholly owned by the Central Banks and societies. The essential functions of the State Cooperative Banks are to finance the Central Banks in time of need, to coordinate and insure uniformity of policies between Central Banks, to serve as the connecting link between the money market and the cooperative movement, and to encourage the cooperative movement through the occasional granting of subsidies for cooperative purposes.[31]

In summary, the sources of agricultural credit in India can be divided into two groups, institutional sources consisting primarily of commercial banks, government, and cooperatives and noninstitutional sources comprised primarily of moneylenders. The noninstitutional sources were supplying about 81 percent of total rural credit in 1961-62 and the institutional sources were supplying 19 percent, 15.5 percent of this coming from cooperatives.[32] Moneylenders and cooperatives have been the major sources of agricultural credit in India. Increased

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[31]Dayal, India's New Food Strategy, pp. 176-178.

[32]These data were derived from Table II-1, page 6.

promotion of cooperatives by the Government of India since 1954 has resulted in the cooperatives increasing their share of the credit market from 3 percent to 15 percent in the decade ending in 1962. It is estimated that cooperatives now claim better than 25 percent of the market, that 33 percent of the cultivators are cooperative members, and societies have been established covering 85 percent of the villages. However, 25 percent of all cooperative loans outstanding are delinquent or behind schedule on repayments which detracts from these accomplishments.[33]

II. CHARACTERISTICS OF AGRICULTURE IN MYSORE STATE

General

Mysore State encompasses 72,210 square miles and is the sixth largest state in India. It lies on the Western Coast of the Deccan Peninsula of India and has 150 miles of coastline on the Arabian Sea. According to the 1961 Census, Mysore State had a total population of 23,586,772 with 77 percent of them rural.[34] Projections of population made by the Bureau of Economics and Statistics indicate that on July 1, 1969, the population will be 27,500,000.[35] For administration Mysore State is divided into four revenue divisions which are subdivided into

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[33]Darrel A. Dunn, "Agriculture Credit in India," Agency for International Development, Washington, D.C., Unpublished paper, 1966, pp. 6-7.

[34]Directorate of Economics and Statistics of India, Indian Agriculture in Brief (Ninth Edition; Delhi: The Manager of Publications, 1968), pp. 2-6.

[35]Bureau of Economics and Statistics of Mysore, Statistical Outline of Mysore, 1967 (Bangalore: The Bangalore Press, 1968), p. 19.

19 districts and 174 taluks. Only 20 percent of the rural population is literate.[36]

Climate and Soils

Mysore State has wide variations, but the climate in general is best described as tropical monsoon. The state has both Northeast and Southwest monsoons. The four seasons are the cold weather period during January and February, the hot weather period from March through May, the Southwest Monsoon period from June through September, the Northeast Monsoon period from October through December. The state depends on the Southwest Monsoon for most of its rainfall. The average rainfall varies from 300 inches in the Western Ghats to 15 inches in the Eastern part of the state, with an average rainfall of 40 inches.[37]

There is a great diversity of soils in Mysore State, with four major groups: laterites, red loams and red sandy loams, black soils, and alluvial soils. Laterites occur primarily in the Western part of the state in a long strip in the Western Ghats. Red loams are derived from igneous rock and are found in the Southern Districts. Red sandy loams are found in extensive areas in the Southeastern portion of the state. The soil is shallow and gravelly and has low water holding capacity. It is used in growing paddy, ragi (Eleusine coracana), pulses and millets. The more fertile black soils are found in Northern Mysore

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[36] Ibid., p. 109.

[37] Mysore Government Department of Statistics, Mysore State in Maps, 1966 (Bangalore: The Government Press, 1968), p. 6.

State and are used for growing cotton, jowar (Sorghum vulgare), wheat, and chillies. The alluvial soils are found on the coastal plain and are sandy and rich in organic matter.[38]

Land and Farms

In Mysore State, as in most of India, the possibility of increasing the area under cultivation appears to be very limited. In India a large part of the increase in agricultural production stemmed from expanding the area under cultivation during the decade ending in 1960. In the decade of the First and Second Five-Year Plans ending in 1961, the net sown area increased by 12 percent.[39] Areas that could easily be brought under cultivation are now almost completely under cultivation and most of the remaining uncultivated land is mountainous or too dry to be cultivated without expensive irrigation projects. The Fourth Five-Year Plan calls for an increase in cultivated area of only 1.4 percent. The increase in cultivated area averaged 1.2 percent annually during the 1950's, slowed to 0.3 percent in the sixties, and is expected to average slightly less than 0.3 percent during the Fourth Plan.[40]

Agricultural production in Mysore State increased by 35 percent between 1956-57 and 1964-65 while the area under crops decreased by

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[38] Ibid., p. 8.

[39] Martin Abel and Lester Brown, "An Evaluation of India's Fourth Five-Year Plan--The Agricultural Sector," Agency for International Development, Washington, D.C., an unpublished paper, 1965, p. 4.

[40] Ibid., p. 6.

3 percent.[41] It is evident that Mysore State has already been forced to rely on increased productivity per acre for its increased agricultural output.

Irrigated area in Mysore State increased from 740,000 hectares, or 7.4 percent of the net sown area in 1956-57, to 1,021,000 hectares, or 9.8 percent of the net sown area in 1964-65.[42] The primary sources of irrigation are canals, both government and private, and privately owned tanks and wells. Government canals supplied 33 percent of the irrigation in 1964-65.[43]

It is estimated that there are almost 2 million land holdings in Mysore State and that 56 percent of these holdings contain less than 5 acres, 32 percent between 5 and 10 acres, 3 percent between 10 and 30 acres, and 9 percent contain 30 or more acres.[44] The term "land holding" refers to an individually owned tract and it may be that many of these holdings are subdivided into several farms. The great number of small farmers makes programs for farmers very difficult to administer.

Principal Crops

The primary crop in Mysore is foodgrain, mainly rice, ragi, jowar, and wheat. Table II-5 shows the principal crops in hectares.

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[41]Government of Mysore, A Brief Report on the Economy of Mysore State (Bangalore: The Government Press, 1968), pp. 16-17.

[42]One hectare = 2.471 acres.

[43]Mysore Government Department of Statistics, Mysore State in Maps, 1966, p. 17.

[44]These figures were derived from the 1961 Census of India.

TABLE II-5

AREA UNDER PRINCIPAL CROPS IN MYSORE STATE
(IN HECTARES)

Crop	1963-64	1966-67
Rice	1,108	1,007
Ragi	1,044	863
Jowar	3,017	2,793
Wheat	312	273
Total Cereals	6,459	5,716
Gram	144	153
Total Pulses	1,282	1,069
Groundnut	892	821
Seasamum	73	58
Total Oil Seeds	1,194	1,116
Sugarcane	81	77
Cotton	1,031	983

Source: Bureau of Economics and Statistics of Mysore, Statistical Outline of Mysore, 1967 (Bangalore: The Bangalore Press, 1968), p. 24.

Modernization of Agriculture

Between 1961-66 in Mysore, the number of iron plows increased by 36 percent, power operated sugarcane crushers by 123 percent, oil engines and electric pumps for irrigation increased by 145 percent and 118 percent, respectively, and tractors increased by 153 percent to 1,852 in the state.[45] The application of chemical fertilizers in India was 11 pounds per hectare of arable land in 1965-66 as compared to 154 pounds in the U. S., 706 pounds in Japan, and 1278 pounds in the Netherlands. The increase in the use of fertilizer in India, however, has been remarkable. The use of nitrogen fertilizer increased eightfold from 1955-56 to 1966-67, phosphates by twentyfold and potash by thirteenfold. Mysore State is among the states in which fertilizer consumption has been increasing rapidly.[46]

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[45]Economic and Statistical Adviser to the Government of India, Tenth Livestock Census, 1966 (New Delhi: Ministry of Food, 1968), pp. 2-6.

[46]Fertilizer Credit Committee of the Fertilizer Association of India, Report of the Fertilizer Credit Committee, 1968, pp. 10-22, 84.

CHAPTER III

CREDIT PROBLEMS OF MYSORE FARMERS--A SIMULATED EXAMPLE

I. THE SYNTHESIS OF FARMER A

This chapter presents a simulated example of a farm situation that is typical of thousands of small farmers in Mysore State. This example was synthesized from information from numerous sources including data collected by an Indian student now attending the University of Tennessee. The author found it necessary to construct the example from information from several sources because no example was found that could be used in its entirety.[1]

It is difficult to determine what a "typical" farm situation is in an area as diverse as Mysore State. However, using the available data the author has synthesized a farm situation, that of Farmer A,

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[1]The author is grateful to Noel S. P. Rebello and A. N. K. Murthy, Indian students from Mysore State attending the University of Tennessee, for their information, advice, and candid comments. References used in synthesizing the example are: Farm Management Studies in Bangalore, I (Bangalore: The Farm Management Research Center, 1964); Farm Management Studies in Mandya, II (Bangalore: The Farm Management Research Center, 1965); C. Nanja Reddy and K. V. Govinda Raju, "Study of Problems with Cultivation of High Yielding Varieties in T. B. P. Area," Department of Agriculture, Hebbal, Bangalore, an unpublished paper, 1969; C. Nanja Reddy and K. V. Govinda Raju, "Economics of Hybrid Jowar Cultivation in T. B. P. Area, Raichur District, Mysore," Department of Agriculture, Hebbal, Bangalore, an unpublished paper, 1968; Daniel Thorner, Agricultural Cooperatives in India; C. G. Raghava Kurup (ed.), Handbook of Agriculture (New Delhi: T. S. Pruthi, 1967); Raymond Firth and B. S. Yamey, Capital Saving and Credit in Peasant Societies (Chicago: Aldine Publishing Co., 1964); Kusum Nair, Blossoms in the Dust (New York: Frederick A. Praeger, 1961); T. Scarlett Epstein, Economic Development and Social Change in South India (Manchester: Manchester University Press, 1962); and others.

which is believed to be typical of many small farmers who appear to be on the threshold of adopting new farming methods. Farmer A embodies many of the characteristics that are common among great numbers of farmers in Mysore State. He owns a seven acre farm, thereby falling within the category of 5 to 10 acre farms which comprise 32 percent of the landholdings in Mysore State (see page 28). Farmer A owns both irrigated and nonirrigated land. He rents additional irrigated land which is a common practice in areas where government irrigation is available. He has limited education and limited productive resources. He is indebted to the moneylender and has sizeable family and social obligations.

The purpose of this example is to provide an insight into the credit problems of farmers who are on the threshold of adopting new farming methods. An understanding of the personal problems, the attitudes, and the social and economic limitations of farmers is helpful in viewing the credit needs of farmers and in planning to meet these needs. By use of a simulated example, it is possible to envision emerging problems at the individual farm level and better understand the farmer's predicament.

An illustrative farm situation gives a point of reference that can be used in developing a framework for diagnosing credit needs. This example does not seek to identify definitely what and how much credit is needed, but it does identify the kinds of new capital and credit demands that are likely to emerge at the farm level. Also it indicates the kinds of farm management information that credit program planners will be needing if they are to make operational plans that provide for the needs of small farmers. This example focuses on the short-term changes in

capital and credit needs associated with a shift from traditional to "modern" practices.

II. THE SITUATION OF FARMER A

Farmer A is 45 years old and owns a seven acre farm. In addition, he rents another two acres. He has farmed all his life and inherited this seven acre farm three years ago when his father died. Farmer A has two girls, ages sixteen and fourteen, and two sons, ages twenty-three and eighteen. The older son is married, but he, his wife, and their small child live in Farmer A's house with the rest of Farmer A's family. The older son and his wife work for Farmer A, but they are not paid wages nor do they receive a share of the crop. They simply are considered as part of the family, and like the other children, they work for their room and board. Farmer A is head of the family and makes all the business decisions. The older son has considered moving to town, but is afraid he could not find a job.

The seven acre farm consists of two tracts, the larger tract being five acres where Farmer A and his family live. It is located near the village in an area of moderately sloping land that is not irrigated and depends upon rainfall for most dryland crops. When the monsoons fail, and they have failed several times in Farmer A's lifetime, the crops yield less than one-fourth of their normal production. The second and smaller tract of two acres is three miles away near the river and is irrigated from a government canal. When dryland crops have failed, this two acre tract with its assured water supply has been a lifesaver. Near

this two acre tract and irrigated from the same canal is the third tract, another two acre tract, which Farmer A rents by paying the landlord one-half of the gross produce. Farmer A has grown the local rice variety on the four irrigated acres ever since he has been farming. The five acres of unirrigated land is usually planted to jowar or ragi in alternate years or a combination of the two, and occasionally Farmer A grows some wheat.[2]

Farmer A owns four bullocks and two plows. He and the family generally furnish all the labor for the nine acres of crop except for some hired help during the peak busy periods which are when rice is transplanted and when all crops are harvested. Farmer A usually does plowing for his neighbors who are short of bullock power and who in return work for him during busy seasons. By doing this he does not have to pay cash wages for extra help. If Farmer A did not have this arrangement with his neighbors, he would have to save or borrow extra cash with which to pay wages.

Farmer A considers his two acres of irrigated land to be worth more than his five acres of unirrigated land. He also considers himself

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[2] Jowar (Sorghum vulgare) is a sorghum crop that is second only to rice in area sown to food crops in India. It is the staple food of poor classes in relatively dry parts of India. The grain is cooked like rice or ground for breadmaking. It is valued also because of its nutritious fodder for cattle. Although well suited to dryland farming, it can also be irrigated. Ragi (Eleusine coracana) or Finger millet is the most important grain crop in Mysore. It is well adapted to dryland farming but can also be irrigated. The grain is considered more nutritious than rice and is usually made into flour for cake, porridge, or pudding. Source: Raghava, The Handbook of Agriculture, pp. 165-177.

fortunate to be able to rent an additional two acres of irrigated land, even if he has to pay one-half of the produce as rent. The landlord does not pay any of the crop expense except irrigation fees. Because of the shortage of irrigated land there are a number of people interested in renting on these terms if he should give it up. The landlord owns several farms in this area but lives in a larger village ten miles away. The landlord rents out all his land and is not interested in making land improvements or paying part of the cost of inputs.

Although some of Farmer A's neighbors own more land than his seven acres, most of them own less than he does. However, many of his neighbors own four to seven acres of irrigated land and this makes them more wealthy than Farmer A. He also owes 3,000 rupees (Rs.) to the local moneylender-trader-shopkeeper which is composed of Rs. 1,500 his father owed when he died plus Rs. 1,500 which he borrowed for his father's funeral.[3] Since his father's death, Farmer A has only been able to pay the annual interest on the loan at 20 percent plus an additional 10 percent surcharge on the outstanding balance for renewing the loan. Essentially, he is paying 30 percent interest.

Even though Farmer A has had only three years of school and can barely read, he is aware that things are changing rapidly in his generation. His father almost never sold any produce when Farmer A was a boy and bought as few things as possible at the store. His father clung tenaciously to a subsistence agriculture, that is, buying and selling as

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[3]One dollar equals approximately seven and one-half rupees. Rupees may be abbreviated as Rs.

little as possible, and he never considered trying new varieties or using chemical fertilizers. Farmer A thinks his father's generation was beset with fewer problems than his own and would like to return to a subsistence agriculture and stay out of debt like his father managed to do until his later years. He fully realizes, however, that times are changing and that, if one buys some things from the store and borrows money, then he must sell larger amounts of his produce to have cash for buying goods and paying debts. Farmer A feels that he is trapped in a situation where he must increase his production in order to pay his debts, but he fully realizes that the only way to increase production is by using new inputs which cost money and necessitate more borrowing.

Farmer A is presently selling about 30 percent of his produce and can see that he must sell more in order to buy the things his family needs and to repay his debts. He is already using some chemical fertilizer on his rice, but this is the only new farming practice he has adopted since his father's death. He can see the need for adopting new methods, but is afraid of the possible consequences of changing his way of farming. Farmer A is not fully convinced that new varieties, commercial fertilizers, pesticides, extra labor required, and the credit purchases necessary to buy these inputs are worth the extra trouble and risk involved. He is convinced, however, that his traditional farming methods must change if he is to pay his debts and buy the things he needs.

The only cash expenditures that Farmer A has under his present cropping system are irrigation fees and commercial fertilizer for the local variety of rice he grows on his own two acres. He does not use

commercial fertilizer on the two acres of rice that he rents because the landlord will pay no input costs except irrigation, and Farmer A is not convinced it would pay him to use fertilizer when he would get only one-half of the extra produce.[4] He gets about one-third more production on the land that is fertilized. Farmer A buys some seed of the local varieties, but tries to save seed from previous crops. Except for compost he has prepared, no fertilizer is used on the five acres of dryland crop and he devotes his primary attention to the irrigated rice.

Farmer A has seen high-yielding varieties of jowar, rice, and maize grown on experimental plots by the extension service and on a few of his neighbor's farms. Although he realizes that he could greatly increase his yields once he learned the technique of growing the new high-yielding varieties, he has some doubts. One of his neighbors planted a field of the high-yielding variety of jowar and the crop looked very prosperous, much more prosperous than his field of local variety jowar, but insects almost completely destroyed the crop shortly before harvest and only slightly damaged the local variety jowar. The extension agent told the neighbor that if he had sprayed as he should have, this would not have happened. The neighbor, however, had not understood that the crop had to be sprayed so late in the season and was out of chemicals when they were needed. Such experiences as this reinforce Farmer A's fears because the neighbor was as good a farmer as Farmer A and had more

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[4]How to analyze whether Farmer A's use of commercial fertilizer on his rented land would be profitable will be discussed further in the latter part of this chapter.

education. Farmer A has doubts about succeeding with high-yielding varieties the first few years and he cannot afford to lose a crop, especially one in which so many cash inputs have already been invested as are required in growing high-yielding varieties.

From attending extension demonstrations, Farmer A has learned that as a general rule the new inputs available, such as high-yielding varieties, chemical fertilizers, and pesticides are not profitable to use piecemeal. Of course, chemical fertilizers help increase yields on his local rice variety, but local jowar shows very little response to fertilizers and, therefore, he does not fertilize his jowar.[5] Farmer A has had very little trouble with insects in his local jowar, but his neighbor who failed to spray his high-yielding variety properly lost the crop to insects. He also knows that in general the high-yielding varieties are more susceptible to drought, disease, and insects than the local varieties; and without irrigation, fertilization, and pesticides to accompany the high-yielding varieties one runs a greater risk of failure than with local varieties.

Farmer A is in a dilemma where he is afraid to take risks and incur debts, primarily because of his limited education, family obligations, resource limitations, present indebtedness, doubts about new methods, and an attitude inherited from his traditional culture which is basically conservative. He can see, however, that to revert to a subsistence agriculture might not be the answer to his problem. He can also

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[5] J. V. Venkataram, "Economic Aspects of High-Yielding Crops--Hybrid Jowar," Indian Journal of Agricultural Economics, XXIII, No. 4 (October-December 1968), p. 136.

see that new methods of farming apparently can increase yields, but he has doubts about his ability to adopt these new practices successfully. Farmer A's present situation is most frustrating because he doubts that he will be able to pay off his present indebtedness under his existing farming methods, and to improve his methods significantly would require more indebtedness for new inputs.

Thus, it is seen that there are elements that make farmers comparable to Farmer A both attracted to, and fearful of, the adoption of modern practices. The potential gains and risks as perceived by these farmers may not be accurate and are almost impossible to quantify. However, it can be helpful in development and credit planning to simulate what anticipated costs and returns are likely to be for an individual farmer, if his expectations are at all similar to the experiences of other farmers. The following section illustrates how these cost-and-returns expectations might be summarized in a farm budgeting format.

III. PROBLEMS IN ADOPTING HIGH-YIELDING VARIETIES

This section demonstrates the problems that Farmer A faces in adopting new methods of farming. Through the use of simple budgets, the problems are put in quantitative terms. The budgets do not reflect any single farm situation, but were synthesized from farm management surveys and other sources. The primary purpose of the data is for use in analyzing credit problems.

Increased Production Possibilities

Table III-1 shows a comparison of the cash costs and gross returns between producing local and high-yielding variety jowar on Farmer A's five acres of rainfed land. The cash costs and gross returns of the table for the high-yielding variety of jowar reflect what a credit planner might expect Farmer A's results to be if he has "reasonable" success with the new variety. It may be that Farmer A perceives his costs and returns as either greater or less than the figures in Table III-1.

Table III-2 shows a comparison of the estimated cash costs and gross returns between producing local and high-yielding rice varieties on Farmer A's two acres of irrigated land as a credit planner might reasonably expect. Again, as for Table III-1, these figures may not reflect Farmer A's perception of his prospects in adopting the high-yielding variety, but reflect what a planner might expect of Farmer A if his results are at all comparable to results of other farmers who have adopted high-yielding varieties.

Table III-3 shows a comparison of cash costs and gross returns to Farmer A between growing local and high-yielding rice varieties on the two acres of irrigated land he rents on a one-half crop share lease. As in Tables III-1 and III-2, these figures reflect the results a credit planner might expect rather than the results Farmer A might expect himself.

The Present Situation

An analysis of Tables III-1, III-2, and III-3 shows that Farmer A's expected gross product under his present system of cultivation is

TABLE III-1

A COMPARISON OF FARMER A'S ESTIMATED CASH INPUT COSTS AND GROSS RETURNS BETWEEN GROWING LOCAL AND HIGH-YIELDING VARIETIES OF JOWAR ON HIS FARM UNDER RAINFED CONDITIONS (IN RUPEES)

	One Acre		Five Acres	
	Local Variety	High Yielding Variety	Local Variety	High Yielding Variety
Seed	3	50	15	250
Manures and Chemical Fertilizer	0	100	0	500
After Cultivation Care (Pesticides)	0	15	0	75
Total Cash Cost	3	165	15	825
Gross Returns	350	700	1,750	3,500

Source: These data are illustrative and were not taken directly from any particular study. Several studies were reviewed in synthesizing these figures. Especially helpful information was derived from J. V. Venkataram's article although none of his data were used verbatim; "Economic Aspects of High-Yielding Crops--Hybrid Jowar," Indian Journal of Agricultural Economics, XXIII, No. 4 (October-December 1968), pp. 134-138.

TABLE III-2

A COMPARISON OF FARMER A'S ESTIMATED CASH INPUT COSTS AND GROSS RETURNS BETWEEN GROWING LOCAL AND HIGH-YIELDING VARIETY RICE (IR8) ON HIS TWO ACRES OF IRRIGATED LAND (IN RUPEES)

	One Acre		Two Acres	
	Local	IR8	Local	IR8
Seed	5	10	10	20
Manures and Fertilizer	50	170	100	340
Irrigation Fees	25	25	50	50
After Cultivation Care (Pesticides)	0	40	0	80
Total Cash Costs	80	245	160	490
Gross Returns to A	600	900	1,200	1,800

Source: These data were derived from conversations with N. S. P. Rebello as well as by reviewing surveys made by him in the Tungabhadra Project Area. The data are illustrative and do not reflect any particular example found by the author.

TABLE III-3

A COMPARISON OF FARMER A'S ESTIMATED CASH INPUT COSTS AND GROSS RETURNS BETWEEN GROWING LOCAL AND HIGH-YIELDING VARIETY RICE (IR8) ON TWO ACRES OF RENTED IRRIGATED LAND WITH A ONE-HALF CROP SHARE LEASE (IN RUPEES)

	One Acre		Two Acres	
	Local	IR8	Local	IR8
Seed	5	10	10	20
Manures and Fertilizer	0	170	0	340
Irrigation Fees (Paid by Landlord)	0	0	0	0
After Cultivation Care (Pesticides)	0	40	0	80
Total Cash Costs to A	5	220	10	440
Gross Returns to A (1/2 of Total Returns)	225	450	450	900

Source: As stated on page 37, Farmer A gets one-third more production on his local rice which he fertilizes at the rate of Rs. 50 of commercial fertilizer per acre (Table III-2) than he does on the rented rice which he does not fertilize except for compost. This accounts for the difference in returns to Farmer A under item 6, gross returns. The total yield is Rs. 450 worth of rice per acre without fertilization, of which Farmer A gets one-half or Rs. 225. With fertilization at Rs. 50 per acre the yield increases by one-third to Rs. 600 worth of rice per acre as shown in Table III-2 under item 6, gross returns.

worth Rs. 3,400. This Rs. 3,400 contains Rs. 1,750 from five acres of jowar, Rs. 1,200 from two acres of owned rice, and Rs. 450 from two acres of rented rice. His cash outlay to produce this amount is only Rs. 185: Rs. 15 on jowar, Rs. 160 on owned rice, and Rs. 10 on rented rice. It is easy to see the dilemma of Farmer A when these figures are related to his situation. He is presently able to sell only 30 percent of his production (page 36) and the rest is needed for home and animal consumption. This means Farmer A's cash income is Rs. 1,020 (3,400 x .30 = 1,020) of which Rs. 900 (3,000 x .30 = 900) must be paid as interest on his debt to the moneylender (page 35). This leaves only Rs. 120 (1,020 - 900 = 120) as savings which must be applied toward the Rs. 185 of cash outlay for the next crop. It is evident then that Farmer A is actually running a deficit each year of about Rs. 65 (185 - 120), and it is now clear why he is only able to pay the interest on his debt. It is also evident that any new cash inputs that Farmer A decides to use must be paid for either by reducing his consumption or by borrowing. This poses an additional barrier to his adoption of new practices.

Costs and Returns from Dryland Jowar

An analysis of Table III-1, page 41, shows that if Farmer A were to adopt the high-yielding variety of jowar on his five acres, his cash costs on jowar would increase from Rs. 15 to Rs. 825 and his gross product from jowar would increase from Rs. 1,750 to Rs. 3,500. Thus, an increase in cash inputs of Rs. 810 yields an increase in gross product of Rs. 1,750. Of course, the adoption of high-yielding variety jowar calls for some increased input of labor, primarily for the application

of pesticides. But this is not done during busy periods and therefore does not require hiring labor.[6] Thus, at this stage of analysis the adoption of high-yielding jowar appears to be a profitable practice.

However, Nanavati has observed that in India the monsoons generally produce a cycle "in which one year is good, one bad and three indifferent."[7] Farmer A's observations are even less optimistic than this because he clearly remembers the years in which the rains failed and the dryland jowar was nearly a total loss. The prospect of investing Rs. 810 of credit purchases in the hope of increasing production by Rs. 1,750, which assumes good rainfall, minor insect damage and disease, and proper cultural practices, is not nearly as attractive to Farmer A as it is to a casual observer of the situation or an extension worker. Farmer A clearly realizes that if the rains fail and he is left owing Rs. 810 plus 20 percent interest, then he would be in serious financial difficulty, much more serious than when the crops failed and he only had Rs. 15 of cash inputs invested in the dryland jowar. Under his present operation Farmer A devotes little else but family labor to the jowar crop because local jowar has shown little response to chemical fertilizer, and plant protection measures such as pesticides are not normally needed.[8]

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[6]Here and throughout the analysis of Farmer A's situation, it is assumed that adequate surplus family labor is available to perform all additional labor required in adopting new varieties. In some farm cases it is likely that some additional labor will need to be hired and if so the additional cash input costs should be included in the analysis.

[7]Dayal, India's New Food Strategy, p. 112.

[8]Venkataram, "Economic Aspects of High-Yielding Crops--Hybrid Jowar," pp. 136-137.

Costs and Returns from Rice

Table III-2, page 42, shows that the adoption of IR8 on Farmer A's two owned acres will increase his cash costs from Rs. 160 to Rs. 490 while gross product increases from Rs. 1,200 to Rs. 1,800. Thus, an increase in cash inputs of Rs. 330 (490 - 160) yields an increase in gross product worth Rs. 600 (1,800 - 1,200). It should be noted that Farmer A is already using Rs. 50 per acre of chemical fertilizer on his local rice and apparently is convinced that new methods can be profitable on irrigated land. The possibility of increasing product by Rs. 600 with an increased input of Rs. 330 should be attractive to Farmer A; even when he has to pay 20 percent interest or Rs. 66 for the use of an additional Rs. 330 of credit.

Table III-3, page 43, shows that if Farmer A adopts IR8 on his rented land then he must pay all the additional cash inputs yet would receive only one-half of the increased produce. By increasing cash inputs by Rs. 430, from Rs. 10 to Rs. 440, Farmer A increases his share of the produce by only Rs. 450. This margin of Rs. 20 (Rs. 450 minus Rs. 430) is certainly not profitable for Farmer A when interest on the money is considered. However, a comparison of the results in Table III-2, page 42, and Table III-3, page 43, including the footnote to this table shows that the addition of Rs. 50 of commercial fertilizer per acre to the two acres of rented land will increase production from Rs. 450 per acre to Rs. 600 per acre. Since Farmer A receives one-half of the increase he has the profitable opportunity of investing Rs. 100, Rs. 50 per acre, and increasing returns to him by Rs. 150, Rs. 75 per

acre.[9] Thus, Farmer A is missing a profitable opportunity by refusing to put cash inputs into his rented land simply because he gets only one-half of the produce and has to pay all the additional expense. If Farmer A could convince his landlord that it is profitable for them to share the cost of inputs equally, then it would be as profitable to put the same inputs on the rented land as on Farmer A's owned land.

Allocation of Inputs

Since cash inputs are a limited resource in Farmer A's situation, the fact that he is presently spending the bulk of his cash inputs on his owned rice land suggests that the marginal value product of cash inputs, in Farmer A's opinion at least, is greatest when used on irrigated rice on his owned land. An analysis of the returns to cash inputs on jowar showed a return of Rs. 1,750 in response to the additional cash inputs of Rs. 810 or 115 percent. The return on his owned rice land was Rs. 600 in response to cash inputs of Rs. 330 or only 82 percent. If such a resource use pattern actually existed on a farm, it would suggest that the farmer does not evaluate the situation exactly in the way an unbiased observer or credit planner would. For example, the facts that jowar shows less response to piecemeal addition of new inputs and that presently Farmer A is only willing to make piecemeal application of cash inputs might be one explanation.

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[9] One-half of the increase from Rs. 450 to Rs. 600 per acre or $\frac{150}{2}$ = Rs. 75 per acre goes to Farmer A.

Cash Needs

If one assumes adequate rainfall, and accepts the estimates of production increase in response to cash inputs as outlined, and assumes the noncash inputs such as family labor are equally productive in rice or jowar, and assumes the "optimum"[10] use of cash inputs must be made on whatever crop is selected, then it would be most profitable to use "optimum" amounts of cash inputs on the high yielding variety of jowar. However, it is unlikely that all these assumptions could ever be fulfilled in a real farm situation. However, if all but the last assumption, which unrealistically precludes the piecemeal application of inputs, were made then more information than is given in the tables would be needed before Farmer A could make a proper allocation of cash inputs. He would need to know the response of each crop at many levels of piecemeal cash inputs. Evidently, Farmer A feels that the most profitable use of his limited cash inputs of Rs. 185 calls for piecemeal use of Rs. 15 for local jowar seed (Table III-1, page 41), Rs. 10 for local rice seed (Table III-2, page 42), Rs. 100 for rice fertilizer (Table III-2, page 42), Rs. 50 for rice irrigation (Table III-2), and Rs. 10 for local rice seed on rented land (Table III-3, page 43).

An analysis of his owned land shows that if Farmer A is to use cash inputs to the "optimum" level then he must increase his use of cash from Rs. 175 to Rs. 1,315. This is an increase in cash inputs of more than sevenfold. Whether this is an exact multiple of increased cash

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[10]Optimum here means using the amount of cash inputs as outlined in Tables III-1, -2, and -3 and precludes the piecemeal use of inputs.

needs for Mysore farmers is not the main point of this analysis, but the fact that cash inputs must increase greatly if new inputs are adopted is of great importance. In view of Farmer A's present financial situation and his level of consumption, it is unlikely that he can provide very much of these additional cash needs by reducing consumption. The great bulk of cash inputs must necessarily be supplied through the use of credit, at least until Farmer A's production increases enough to permit his savings to increase. This increased need for cash inputs could be a major obstacle to Farmer A's adoption of modern farming practices.

Problems of Production Credit

As shown previously, it generally requires all of Farmer A's savings and more to pay the Rs. 185 of cash inputs he uses under his present farming system. It is obvious to Farmer A that if he adopts new methods nearly all of the additional cash inputs must be purchased through credit. This means that if he adopts high-yielding varieties and the new inputs to accompany them on all his owned land, he will have to borrow about Rs. 1,140 (1,315 - 175 = 1,140) of short-term credit.[11] If Farmer A were to borrow Rs. 1,140 or more and adopt the new varieties and then crops were to fail as they have in the past, because of drought or disease; then he would be in serious financial difficulty, far more serious than when crops failed previously under traditional farming practices. Previously, when crops failed Farmer A simply reduced his

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[11]Generally, in India short-term credit refers to loans of a term of less than fifteen months. In Farmer A's case, the short-term loans would probably be needed for nine to twelve months.

consumption as much as possible and borrowed enough from the moneylender to live. However, if he owned Rs. 1,140 in sunk costs of production, he would be faced with repayment problems as well as the problem of living until the next crop was sold.[12] Under his primarily subsistence agriculture where he has very little crop indebtedness, Farmer A has been able to repay loans for consumption borrowed in bad crop years in the following two or three crop years. However, if his high-yielding crops failed, leaving him owing Rs. 1,140 or more in short term debts, he would not only have to borrow to live but would need another crop loan to continue growing high-yielding varieties the next year.

Farmer A is not as skeptical about adopting IR8 on his two irrigated acres as he is about adopting high-yielding jowar on his five unirrigated acres. He feels that the main danger of crop failure will be drought, which can at least be partially averted on his irrigated land. To adopt IR8 on his two acres and continue with native jowar on his five acres would increase his cash outlay by Rs. 330 from Rs. 160 to Rs. 490. He would have to borrow most of this additional expense, but he still might be able to avoid financial disaster if crops failed and he owned Rs. 330 instead of Rs. 1,000 or more.

The only two sources of credit available to Farmer A are the moneylender-trader-shopkeeper to whom he already owes Rs. 3,000 and the

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[12]Here sunk costs refer to all costs already expended on the crop which can only be recovered by selling the produce of the crop; thus if the crop fails there is no way to recover these costs of production such as labor, seed, irrigation fees, and for the most part fertilizer, although it may have some "carryover" value for the next crop.

cooperative credit society which has an office at the cooperative warehouse ten miles away. The moneylender charges 20 percent interest plus 10 percent for renewing loans. He has always loaned whatever amount Farmer A asked for and for whatever purpose. He has also been lenient in bad crop years and extends the terms of loans for a 10 percent surcharge. Farmer A plans to borrow another Rs. 1,000 from the moneylender next year to pay for his daughter's wedding which would leave him owing Rs. 4,000. This would be the most Farmer A has ever owed to the moneylender, but he feels that the moneylender would not turn him down. However, Farmer A has heard that the moneylender is more demanding when he loans larger amounts and Farmer A is afraid he would have great difficulty in repaying such a large amount. He feels that the moneylender would loan him up to Rs. 4,500, but he does not want to use up his "reserve" with the moneylender which he might need in a bad year.

Farmer A knows that the moneylender can raise his interest rate without notice and that he could refuse to renew his loans each year. He has also heard that the moneylender can be quite ruthless when he is owrried about collections. Except for an occasional trader who comes through the village, the moneylender is also the only ready purchaser for Farmer A's produce. If the moneylender did not buy his crops, he would have to haul them ten miles by bullock cart to the cooperative market. Just what attitude the moneylender would take toward loaning Farmer A Rs. 1,140 for crop expense is a question most bothersome to Farmer A. He would probably loan him the Rs. 1,140, but then if Farmer A needed more for an emergency he is afraid the moneylender would balk and become less "understanding."

The moneylender does not require any security for his loans, and Farmer A knows that he would probably have to mortgage his farm to the cooperative if he borrows there. He also knows that he might have to pay fees and bribes to the officials who handle mortgages, as well as to the directors of the cooperative who pass on his loan.[13] In addition to this, the cooperative makes crop loans in three installments which means at least three 20 mile round trips to town plus other trips to tend to applications and other paper work. He also knows that the cooperative would investigate him and might not approve his loan if his debt to the moneylender were discovered, unless perhaps he paid an additional fee to the directors.[14] Frequently, the cooperative is "out" of funds or gets its quota of funds at a later date than when needed by the farmers. All these and other reasons make the cooperative a less attractive source of credit, and to a great extent these faults negate the attractiveness of their relatively low 8 percent rate of interest. After considering all the extra trips, fees, and waits involved, Farmer A feels that the real cost of borrowing from the cooperative is very little, if any, less than the 20 percent he pays the moneylender. He also doubts if the cooperative

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[13]For examples of bribery of cooperative officials and factors leading to distrust of cooperatives by peasant farmers see: Thorner, Agricultural Cooperatives in India, pp. 10-11, and Nair, Blossoms in the Dust, pp. 76-77.

[14]Daniel Thorner presents an interesting view of the mukhyestaru, a Kanarese word meaning "leading people," and how they opposed the cooperative movement in Mysore. However, where they could not prevent cooperatives they frequently were able to use the cooperatives for their own purposes by becoming directors in the cooperative. Frequently, these "leading people" were also moneylenders who ultimately became directors in the cooperative. Thorner, Agricultural Cooperatives in India, p. 65.

would be as lenient with him if he could not pay on time as the moneylender would be.

Even though the moneylender has no mortgage on his farm, there is an "understanding" that the farm will not be mortgaged or sold to anyone else. The moneylender does not take mortgages because he is not a licensed moneylender and if he recorded a mortgage the officials would have written proof that he is loaning money illegally, and he could be prosecuted. Farmer A knows the cooperative cannot legally make him a medium-term loan[15] to pay off the moneylender, but he has heard that there is a way to get such a loan if you know the "right" people, whom he does not know. He is afraid that if he borrows crop loan money from the cooperative and gives a mortgage, it will jeopardize his relationship with the moneylender whom he knows more about than he knows about the cooperative. Deciding which direction to turn for credit is, needless to say, a most frustrating decision for Farmer A. There will be inadequacies of credit no matter which of the two sources he selects.

If he decides to borrow crop money from the cooperative instead of the moneylender, then the problem arises as to which one he should pay when his crop is harvested. The moneylender knows exactly when Farmer A's crops are ready for market and usually "drops by" his farm to buy the crop and collect his loans. It will be difficult for Farmer A to bypass the moneylender in favor of paying the cooperative, which if it has a mortgage on Farmer A's crop, can prosecute him for paying the moneylender instead of the cooperative.

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[15]Medium-term loans refer to loans made for a period of fifteen months to five years.

In addition to the lack of an adequate credit source there are other obstacles to thwart Farmer A's adoption of new practices. The lack of developed markets, unstable prices, poor roads, poor storage facilities, an inadequate supply of inputs, and other deficiencies result in increased risks in the adoption of new methods. Every problem that Farmer A presently encounters, such as low and unstable prices for his products, is magnified when he adopts new methods and begins to sell larger portions of his produce. It makes little difference to a subsistence farmer what the price of rice is as long as he consumes most or all of what he grows anyway, but to a market producer of rice a low price can mean financial ruin. Since he has short-term debts, Farmer A will be forced to sell much of his produce at harvest when prices are generally lowest so he can meet his obligations. The lack of storage facilities also necessitates selling at harvest.

Another problem is the lack of a local reliable source of inputs for such items as good seed, fertilizer, and pesticides. The moneylender-trader-shopkeeper sells fertilizer in Farmer A's village and sometimes has high-yielding variety seeds and pesticides, but cannot be depended upon to have a good stock. The cooperative warehouse is ten miles away in a larger village and has all the inputs Farmer A will need. However, he would have to haul the inputs back home by bullock cart and the bad road makes the round trip almost a full day's work. Farmer A realizes that he cannot wait for the facilities that support agriculture to develop before trying to increase his production; he must, however, have a supply of short-term credit before he can do much in the way of adopting new methods.

Although thousands of farmers in Mysore State are more gifted in wealth and ability than Farmer A, thousands more are less favorably endowed. Farmer A, however, is at the threshold of adopting new methods and of using credit productively. Certain aspects of his situation are comparable to problems of farmers above and below him in wealth and ability. Since he has both owned and rented land and has both irrigated and nonirrigated land, some of his problems should encompass those of farmers who are either owners or renters or who have either all irrigated or all nonirrigated land. The next chapter presents key issues to consider in creating credit programs and uses the Farmer A illustration and other examples to relate these issues to the farm level problems that have been presented in this chapter.

CHAPTER IV

SOME KEY ISSUES IN DESIGNING AGRICULTURAL CREDIT PROGRAMS IN MYSORE STATE

I. INTRODUCTION

This chapter examines some of the key issues that credit planners will need to consider in developing agricultural credit sources for Mysore State. A more conceptual look at problems that were presented in the Farmer A situation is taken here than was taken in Chapter III. Several of the problems that Farmer A encountered are given further analysis in this chapter to show how important these problems are to credit planners who are trying to meet the needs of many farmers similar to Farmer A.

II. CHANGING FARMERS' ATTITUDES TOWARD CREDIT

Thus far in Farmer A's life, he has had little interest in credit for purchasing productive inputs. Most of his credit in the past has been used for marriages, funerals, and other social purposes, as well as for emergencies. Thus, credit has been used for consumption rather than production. Farmer A has viewed credit, as many farmers have the world over, as an "evil" to be avoided if at all possible. This traditional view of credit as something to be avoided rather than as an instrument for increasing production and income is a major obstacle to the effective operation of credit programs in Mysore State.

Farmer A's interest in borrowing to buy new inputs and increase production is indicative of a change in attitude toward credit that may be taking place in Mysore State and elsewhere. However, until Farmer A's production increases, he will have recurring needs for credit for consumption. In viewing credit needs of farmers, it should be kept in mind that farmers less advanced than Farmer A will probably make little productive use of credit because they want credit only for consumption. Farmers near Farmer A's level of advancement will want credit for both production and consumption, and farmers significantly more progressive than Farmer A may regard credit as a productive agent. Despite precautions taken by credit institutions, farmers who view credit as primarily consumptive in nature will find ways to divert funds to consumption.

Most credit agencies have been designed to make production loans with as little as possible of their funds going for consumption. According to the FAO, such credit agencies will be ineffective in competing with and driving out moneylenders, who provide consumptive credit. These credit agencies actually are designed to "combat symptoms rather than the disease itself" and usually are not successful.[1]

Credit agencies may find it desirable to initiate programs specifically aimed at changing farmers' attitudes toward credit. In designing such programs the causes of the existing attitudes should be identified before experimenting with solutions. One cause of the

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[1]Food and Agriculture Organization of the United Nations, Agricultural Credit Through Cooperatives and Other Institutions, FAO Agricultural Studies 68 (Rome: Squarci Publishing Co., 1965), pp. 46-47.

existing consumptive attitude toward credit that exists among traditional families is the constant desire to consume more. Another cause could be that historically credit has been used for consumption in traditional families, and the people lack the perception that it can also be used as a tool for increasing income. Credit agencies can help change these attitudes by selecting borrowers who are likely to succeed and are also likely to tell other farmers about their success with production credit. Selecting borrowers with many relatives who may also be in need of credit and who respect the advice of the selected client may be a tool for changing attitudes toward credit. Perhaps a credit agency can do a great deal to change attitudes toward credit simply by dealing fairly with clients and working for their success by giving sound advice.

III. LOAN SECURITY

Owner-Operators

Where crop loans are made to owner-operators, the lending agency may choose to secure its loans by taking a mortgage on the borrower's real estate. Other choices are liens on the farmer's chattels and on his crops. Generally, real estate security is less trouble for a lending agency to service because of its obvious immobility and the existence of land mortgage systems that put prospective buyers on notice that the property is mortgaged. Unlike chattel and crop security, land is not stolen, does not die, nor is its value diminished because of crop failure. Of course, real estate is subject to damage from erosion, fire, and price fluctuations. In some societies a stigma is attached to the

mortgaging of land that discourages farmers from borrowing from agencies that require real estate security.

Tenant Farmers

Where loans are made to tenant farmers who own no land, loans may either be made on an unsecured or "note only" basis, or they may be secured. If unsecured loans are made, the security servicing is no problem, but collections and losses may be a serious one. If security is required, loans to landless tenants may be secured by cosigners on the note of the borrower, chattels of the borrower such as livestock and machinery, or crops, or a combination of any or all of these. Some credit agencies make a practice of loaning only to tenant borrowers who are able to obtain the signatures of two "responsible" men on their note. These cosigners are then responsible for paying the loan if the tenant is unable or unwilling to repay the loan. Frequently it is difficult for a tenant to get responsible cosigners and the cosigner, such as his landlord, might require some payment for the risk he runs in cosigning the note.[2]

Chattel security such as livestock and machinery is frequently taken as security for loans along with a mortgage on the farmer's crops. The farmer's chattels generally are of little value and consist of a bullock or two and a few farm implements. Crop security is often of

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[2]The requirement that a tenant have responsible cosigners may put him in more disadvantageous bargaining position with respect to his landlord if he asks the landlord to be a cosigner. The landlord may use this request to improve his crop share arrangement.

questionable value due to the vagaries of weather, disease, and fluctuating prices. Also in areas where loans are made to farmers who are primarily subsistent, that is, who generally keep most of their production for home consumption, a poor crop yield likely will result in the farmer keeping as much as usual for home consumption which may leave little or nothing for the market, and from which loans can be paid. As farmers use more productive capital and acquire productive assets, the quality of chattel security should improve.

In dealing with chattel and crop security, it is also often difficult to perfect a lien that is legally binding. If public officials keep inaccurate records and are subject to bribes, it may be nearly impossible for a loan agency to be sure of having a lien that will hold up in a court of law. Also the lack of reputable established marketing firms makes it difficult to trace and recover chattels and crops that have been sold in violation of the lien. It is also costly and complicated for unsophisticated borrowers to contend with the paperwork of giving liens and they may be prone to ignore the legal stipulations, and are likely to sell mortgaged property without accounting for the proceeds. In many states in the United States, the landlord has rights in the tenant's crop that precede even a recorded lien. If this is the case in Mysore State, then additional effort may be necessary to persuade the landlord to waive this right.

IV. LAND TENURE AND LOAN POLICY

Credit agencies must decide whether to make loans to tenant farmers and to landlords who rent out their farms. If loans are to be made to tenants, then the agency must decide whether to require a lease between the tenant and landlord that contains a provision for sharing both inputs and output on a basis that provides incentive to both parties.

Leasing Agreements

An analysis of Farmer A's rental agreement as described in Chapter III shows that Farmer A is to furnish all inputs other than land and irrigation fees, which are furnished by the landlord. Since the irrigation fee of Rs. 25 per acre is the same regardless of yield, we can view the landlord's inputs as fixed costs which do not vary with output. Thus, the tenant bears all the variable costs such as labor, seed, fertilizer, and pesticides, as well as some fixed costs associated with his machinery, bullocks and other assets. Since in Farmer A's case landlord and tenant share the output on a "fifty-fifty" basis, we will see that this rental agreement does not assure that there is incentive for the tenant to produce at the same level he does on his owned land. Figure IV-1 shows the situation graphically with respect to input and production levels between Farmer A and his landlord.

The Effect of the Lease on Total Output

In Figure IV-1(a) the curve Y is the total physical product curve or production function for growing rice on the two acres Farmer A rents.

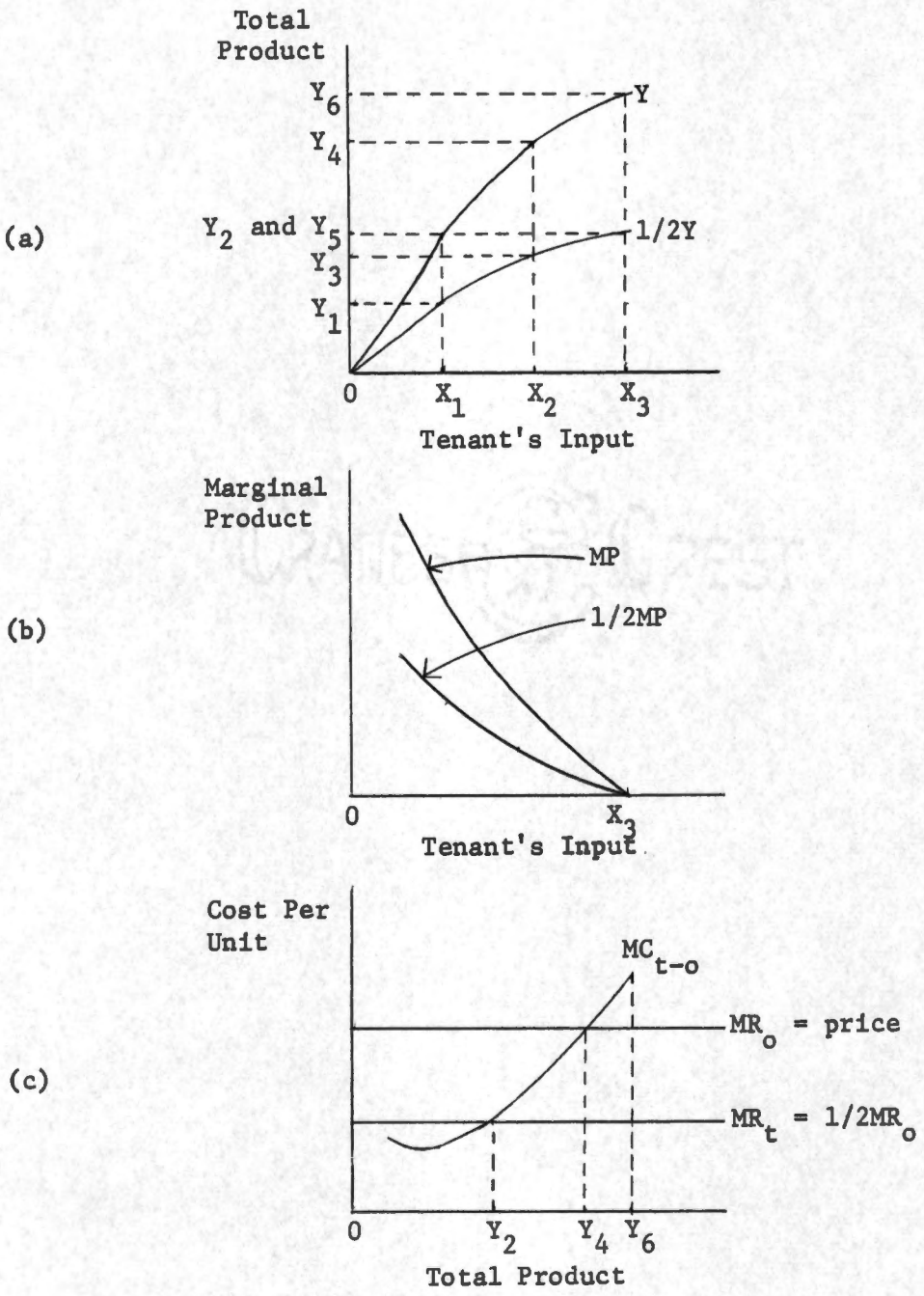


Figure IV-1. The effect of an imperfect share lease on total output level decision making.

Source: Adopted from Figures 1, 2, and 3 of: Earl O. Heady, Economics of Agricultural Production and Resource Use (New York: Prentice-Hall, Inc., 1952), p. 594.

The curve 1/2Y in Figure IV-1(a) is the product curve that shows the portion of total product Y that goes to Farmer A and to his landlord since each gets one-half of total product. Figure IV-1(b) shows the marginal product curve MP and the one-half marginal product curve 1/2MP. These marginal product curves are derived from total product curves Y and 1/2Y, respectively. Both MP and 1/2MP go to zero and become negative at OX_3 units of input, which is the same point at which Y and 1/2Y are maximums in Figure IV-1(a). Figure IV-1(c) shows the cost curves which determine at which level of production the farm will operate. Average cost curves are not shown because they are not relevant for decision making in this case. The marginal cost curve for a tenant or owner-operator, MCt-o, is applicable to both a tenant's or an owner-operator's decision-making. It is not relevant for the landlord's decision-making because his marginal cost is equal to zero at all levels of output since he pays no variable costs. Marginal revenue to the tenant, $MR_t = 1/2MR_o$, is the same as one-half of the price per unit of product sold because the tenant receives only one-half of each unit sold. Marginal revenue to the owner-operator, MR_o = Price, is the same as the total price per each unit of product sold.

Since the landlord has zero marginal cost, he would prefer that the tenant, Farmer A, operate the farm at its maximum output level of OY_6. Here, from Figure IV-1(a), we see that Farmer A and the landlord would each get OY_5 units of total product and Farmer A would have to furnish OX_3 units of input. Farmer A, however, would prefer to operate the farm at an output level of OY_2 which is where MC_{t-o} is equal to MR_t,

from Figure IV-1(c). Farmer A maximizes his profits at this point and does not wish to produce more than OY_2 because above OY_2 his marginal cost is greater than his marginal revenue and he would make less profit. At output level OY_2, from Figure IV-1(a), we see that Farmer A and his landlord each would get OY_1 units of production and Farmer A would furnish OX_1 units of input.

Now, if we assume that Farmer A is the owner-operator of the land, then the relevant decision-making marginal revenue curve is MR_o which is twice as large as MR_t. Here from Figure IV-1(c) we see that $MC_{t-o} = MR_o$ at a level of production of OY_4 which is larger than OY_2, where Farmer A as a tenant would operate, and less than OY_6 where the landlord would prefer to have his tenant operate.

If a rental agreement could be worked out whereby Farmer A as a tenant would have incentive to operate at level OY_4, then the fact that land is rented out would have no detrimental effect on total production. According to Heady such a rental agreement called a "perfect share lease," can exist only when the "cost of variable factors (where land is fixed)" is "divided between the landlord and tenant in proportions paralleling the division of the product."[3] Such a "perfect share lease" would, of course, be very difficult to attain in practical farm operations because of the complexity of the landlord and tenant's problem of dividing the cost of each unit of variable input according to an established fixed ratio. However, any rental agreement that approximates the "perfect

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[3]Earl O. Heady, Economics of Agricultural Production and Resource Use (New York: Prentice-Hall, Inc., 1952), p. 600.

share lease" would be contributing to increasing total production or at least would increase the tenant's incentive. In other words, Farmer A would have more incentive to increase production to a higher level, as a tenant, if the landlord paid one-half of the input costs of fertilizer, seed, pesticides, and hired labor.

This would still not be a "perfect share lease" because technically the landlord would have to pay Farmer A for one-half of his family labor, one-half of the depreciation on bullocks and machinery attributable to the crop, and would have to pay Farmer A one-half the value of his managerial ability. Obviously, this would be a complex procedure, but the sharing of the more "obvious" input costs such as seed, fertilizers, and hired labor would greatly improve the lease for incentive purposes and would approximate a "perfect share lease."

A worthy function of a credit agency may be to promote better leasing agreements and show how they can be beneficial to both tenant and landlord by increasing production. Instead of a fifty-fifty share arrangement, a "one-third--two-third" or other share arrangement could be worked out, but the principles demonstrated here would apply in the same way.

If tenancy agreements are improved and it is found that landlords are generally in a financial position to furnish their portion of the inputs without borrowing, then a given amount of loan funds could well make a larger contribution to increasing production when loaned to tenants than when loaned to owner-operators who may have to borrow all their cash input costs. For example, if we assume all tenants and small

owner-operators in an area must borrow all their cash inputs, and if tenants pay only one-half the cash inputs, a given amount of loan funds will promote increased production on twice as much acreage if loaned to tenants than if loaned to owner-operators who must borrow 100 percent of their cash inputs. Further research is needed, however, to determine whether landlords in Mysore State generally can furnish their portion of cash inputs without borrowing.

V. AMOUNT AND TIMING OF LOANS

In order for a credit agency to meet the credit needs of its clients in a timely manner some knowledge of when, for how long, and how much credit will be needed by the farmers is necessary. The credit agency must make arrangements to keep idle funds, those not on loan, invested in short-term securities and must be able to quickly liquidate securities to have cash for loans during peak seasons. If further research indicates that there are not significant peak seasons in which demand for loans is great, then it will be less of a problem to keep funds actively employed. Also different areas of a state are likely to have different cropping patterns and a statewide loan agency may be able to shift funds between areas as they are needed.

Credit Needs Under One Cropping Season Per Year

In Farmer A's situation most of the credit will be needed during one cropping season. Since he grows only rice and jowar, his crop year usually starts in May with the sowing of rice seed in the plant beds. The rice seedlings are transplanted to the irrigated fields in August,

and in September the jowar crop is sown on the dryland farm. October is a month of cultivation, application of pesticides, and some fertilization that was not done before planting. The harvest of both rice and jowar is in January or February, with most of the crop having been sold by March.

Thus, in Farmer A's situation the crop season runs from May to March, or approximately ten months. Further analysis of the situation is needed to determine when production credit will be needed and for what periods of time. If we assume that Farmer A adopts new practices on his owned acres at the recommended level, that is, not in piecemeal increments, then he will need 1,315 rupees of cash inputs.[4] If we further assume that he has little or no savings then 100 percent of these cash inputs must be borrowed. His monthly demand pattern for credit might be similar to that shown in Table IV-1. Table IV-1 shows the month in which the inputs purchased with credit are actually used and not necessarily when the funds would be borrowed.

An analysis of Table IV-1 shows that credit needs are nonexistent in March and April and are small in May, June, and July. The peak months for credit usage are August, September, and October with a large debt of Rs. 950 accumulated by September. The cumulative debt jumps significantly from 350 to 950 rupees during September; thus in the months of September through January the cumulative debt is Rs. 950 or more, increasing to a maximum of Rs. 1,315 in December and January. In February enough of the

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[4]See Tables III-1 and III-2, pages 41 and 42, and the related discussion in Chapter III.

TABEL IV-1

FARMER A'S CREDIT EXPENDITURE AND CUMULATIVE DEBT
BY MONTH UNDER IMPROVED PRACTICES
ON HIS OWNED LAND

Month	Operation and Crop	Added Credit Expenditure	Debts Paid This Month	Cumulative Net Debt Position
	(rupees)	(rupees)	(rupees)	(rupees)
May	Rice Seed 20 Rice Fertilizer 30	50	0	50
June	Rice Irrigation 50	50	0	100
July	No Credit Expenditure	0	0	100
August	Rice Fertilizer 250	250	0	350
September	Jowar Seed 250 Jowar Fertilizer 350	600	0	950
October	Rice Fertilizer 60 Jowar Fertilizer 150	210	0	1160
November	Rice A.C. Care 40 Jowar A.C. Care 50	90	0	1250
December	Rice A.C. Care 40 Jowar A.C. Care 25	65	0	1315
January	No Credit Expenditure	0	0	1315
February	No Credit Expenditure	0	657.5	657.5
March	No Credit Expenditure	0	657.5	0
April	No Credit Expenditure	0	0	0

Note: For simplification purposes it is assumed that Farmer A borrows 100 percent of his cash inputs. In the previous illustration in Chapter IV it was seen that actually he might have Rs. 185 saved to invest in the crop, which is the amount he invested under his traditional system. A.C. care means after cultivation care.

crop is sold to pay off one-half of the cumulative debt. This leaves Rs. 657.5 outstanding. This balance of Rs. 657.5 is paid off by March when the rest of the crops are sold. The excess income from crops sold and not used to pay debts is carried over for consumption expenditures.

Table IV-1, however, only shows how Farmer A would like to use credit if it were readily available to him at any time and in any quantity, and if he could borrow funds when needed and pay interest only for the period of time in which he uses the money. It is unlikely that Farmer A or even farmers in well-developed countries could find credit agencies willing to loan to meet the client's every whim at a modest interest rate. Instead of borrowing the exact amount needed each month, usually a more feasible practice would be to make two or three disbursements to the farmer. In Farmer A's case, a loan of Rs. 350 could be made in May to carry him through August, a loan of Rs. 810 made in September to carry him through October, and a loan of Rs. 155 made in November to carry him through the rest of his crop season. In this way Farmer A could save a substantial amount of interest expense because he would not have to pay interest on the 810 rupee loan during May, June, July, and August. The Rs. 350 loan would be outstanding for approximately ten months while the Rs. 810 loan would be outstanding for only six months and the Rs. 155 loan for only four months. By receiving three separate disbursements instead of a lump sum loan at the beginning of the crop season, Farmer A saves considerable interest expense. If the loan agency is able to utilize its funds elsewhere, it might not be too complicated and expensive to make three disbursements.

Multiple Cropping Seasons Per Year

In many areas of Mysore where two or more cropping seasons exist, planning to have funds available when needed may not be as simple as in Farmer A's situation. Where both spring and fall crops are grown there may be a need for two separate loaning operations, that is, one for each season. There might be a need for a short-term loan of four months which is made in March and repaid in June when spring crops are sold, and a need for another loan, comparable to the loans Farmer A would need, for the fall crops. Instead of repaying the loan in June, the funds from the June harvest could be reinvested in the fall crop and, instead of a four-month loan, the loan received in March could be repaid when fall crops are sold in February.

Disbursal of Loans

In meeting the credit needs of farmers in a timely manner, there are several possible ways of disbursing loans. Loan agencies must decide which of these methods best fits the situation within which they operate. Travel conditions, availability of supplies, managerial ability of the farmers, availability of banking facilities, and administrative budget constraints of the loan agency influence the decision about which method to use.

The simplest and probably least expensive method of disbursing funds is simply to make one cash loan disbursement to the farmer when he first needs credit for the year and leave the handling of funds and proper allocation up to the farmer. If the farmer is a poor money manager and if banking facilities are not available where he can deposit his

money until needed, this may not be a good method from the farmer's standpoint. If the farmer manages his money poorly, he may be out of funds before they are really needed for crucial crop expenses. If banking facilities are not available, the funds may be lost or stolen.

Some credit agencies establish a "line of credit" for each farmer at the beginning of the crop season. That is, they certify him for a loan, not to exceed a stated figure that should be adequate to see him through the crop year. Notes are signed and mortgages are taken when this line of credit is established which will secure all disbursements that the farmer may receive up to the certified amount or line of credit. When funds are needed, the farmer comes to the loan office, receives a draft for as much money as he needs, and starts paying interest when withdrawals are made. This way the farmer can get money as he needs it without negotiating a new loan each time and he only pays interest for the actual amount of time he uses the money. To operate a system of this type the loan agency needs to know when peak demands will occur and must be able to liquidate securities when funds are needed.

Another method practiced by "supervised" credit agencies involves making loan disbursements in kind, that is, seed, fertilizer, and pesticides, when the inputs are likely to be needed. Usually a simple farm plan is necessary to determine when inputs will be needed. Also the loan agency must be operated in close affiliation with a warehouse or source of supplies. A similar method that can be employed where banking facilities and supplies are available is the use of supervised bank accounts. Here the loan is disbursed in a lump sum at the beginning

of the crop season, but instead of being given directly to the borrower, it is deposited in a bank checking account, a supervised bank account. From this supervised bank account money can only be withdrawn upon presentation of checks signed by the borrower and countersigned by the loan supervisor. Usually checks are made to sellers of supplies for purchase of inputs needed by the farmers. This serves approximately the same purpose as credit in kind but the loan agency does not have to be affiliated with a supply warehouse. Unless arrangements can be made to put some of the loan funds in a savings account, the borrower pays interest on the entire amount borrowed from the time the loan disbursement is made.

VI. SHORT-TERM CREDIT DEMANDS OF FARMERS IN SUBSEQUENT YEARS

A question that credit planners need to answer is what the credit needs of farmers will be after the first year in which they adopt high-yielding varieties. Will farmers need to borrow the same amount each year, more, or less? As an example of what subsequent demands might be the Farmer A situation is further examined.

If we assume that Farmer A adopts new practices on his owned land[5] at the optimum level, that is, not in piecemeal fashion, then his cash

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[5]We assume here that Farmer A is still not convinced that it will pay to use any cash inputs on the rented land. Costs and returns used in this example are based on data in Tables III-1, III-2, and III-3, pages 41-43, where he adopts the new varieties on his owned land, but uses the traditional variety on his rented land.

inputs will increase from Rs. 185 to Rs. 1,325 or a net increase of Rs. 1,140. If we further assume, as shown in Chapter III, that he has enough savings to furnish the Rs. 185 he has been using in the past, then he will need to borrow Rs. 1,140 the first year. Table IV-2 summarizes Farmer A's progress in subsequent years.

In response to this increased input the gross returns to Farmer A increase from Rs. 3,400 to Rs. 5,750 or an increase of Rs. 2,350. Since Farmer A's production under the traditional system has been accounted for previously, only the additional expenses and returns need be dealt with here. If we assume Farmer A has to pay 20 percent interest for the use of the additional Rs. 1,140, then the cost of using these inputs will be Rs. 1,140 plus interest of Rs. 228 (1,140 x .20) or Rs. 1,368. The additional gross product, Rs. 2,350, minus the cost, Rs. 1,368, yields the additional income to Farmer A from adopting new methods of Rs. 982. If Farmer A is able to keep his consumption the same as it was under the traditional method, that is, 70 percent of the gross yield of Rs. 3,400 or Rs. 2,380, then he will have this Rs. 982 to apply toward the next year's crop or to pay on his principal indebtedness to the moneylender. It is only realistic to assume, however, that Farmer A and his family will consume some portion of the Rs. 982 increase in income, that is, Farmer A's marginal propensity to consume (MPC) is greater than zero. If we assume that Farmer A consumes one-half of this net increase

TABLE IV-2

A SUMMARY OF FARMER A'S CREDIT NEEDS IN SUBSEQUENT YEARS USING HIGH-YIELDING VARIETIES ON HIS OWNED LAND (IN RUPEES)

(1) Year	(2) Amount Borrowed	(3) Interest Charged at 20 Percent	(4) Total Repayments (2 + 3)	(5) Gross Increase in Income	(6) Net Income to A (5 - 4)	(7) Amount Invested in Next Crop (1/2 of 6)
1	1,140	228	1,368	2,350	982	491
2	649	130	779	2,350	1,571	785
3	355	71	426	2,350	1,924	962
4	178	36	214	2,350	2,136	1,068
5	72	14	86	2,350	2,264	1,132
6	8	2	10	2,350	2,340	1,170
7	--	--	--	2,350	2,350	1,175

in production then he will have left Rs. 491 to apply on his principal indebtedness or apply to the next crop.[6]

If Farmer A applies the entire Rs. 491 toward his next crop and uses the same practices, then his credit needs will be reduced to Rs. 649 (1,140 - 491) the second year. If yields are the same the second year, then the Rs. 649 plus 20 percent interest of Rs. 130 or Rs. 779 of cash costs will yield Rs. 2,350 of additional gross product over traditional yields. This leaves an additional cash income of Rs. 1,571 (2,350 - 779) for consumption, paying debts or investing. If he consumes one-half and invests the balance in the next crop, then he will have Rs. 785 to invest and will need to borrow only Rs. 355 (1,140 - 785) for the third year's crop.

Using this same computational method, that is, charging 20 percent for borrowed funds, assuming additional production to stay at Rs. 2,350, assuming an MPC of 0.5, and assuming that all savings are invested in the next year's crop and not paid on debts, then Farmer A's credit needs will be Rs. 355 the third year, Rs. 178 the fourth year, Rs. 72 the fifth year, Rs. 8 the sixth year, and zero the seventh year. It is optimistic to assume that Farmer A's credit needs would decline this rapidly because his MPC is likely to be greater than 0.5, he will probably have to pay some on his principal indebtedness to the moneylender, and he will probably need to replace or add to his durable capital stock which will reduce the amount he can carry over to invest in the crop.

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[6]It is optimistic to assume that Farmer A has a MPC of only 0.5, based on the historically high rates of consumption found in peasant societies and in modern societies.

Much research will be necessary to determine what the credit trends in subsequent years are likely to be. The marginal propensity to consume may vary greatly among farm families, which would influence investment of cash into the next crop. Farmers may tend to expand their operations and borrow more money after the first successful year or they may revert to their traditional methods and cease borrowing after getting out of debt. Some reasonably good estimates of overall trends in borrowing in subsequent years would be helpful to credit agencies, but these data will not be easy to obtain.

VII. SUPERVISED CREDIT

General Considerations

"Supervision" is a term that has ambiguous meanings. In the United States, supervised credit generally refers to loans made by the Farmers Home Administration (FHA) to clients who are unable to borrow from other sources. Generally, these loans involve the preparation of a farm plan, the use of supervised bank accounts, and numerous farm visits by the loan supervisor where management discussions are held about money matters, practical farm operations, and maintenance of security. In other countries, however, supervised credit has different meanings. The cooperative loans in India that are disbursed in kind with no further guidance of the borrower are sometimes called supervised loans.

Regardless of how it is defined, there are basically two functions that supervision can perform and one or both of these functions may be performed by a "supervised" credit agency. One function is to provide

technical help to farmers to enable them to increase their production by using better practices. This is very comparable to the function of extension workers. A second function of supervision is to impose restrictions that insure that funds are used productively. Examples of this function are making loans in kind and requiring borrowers to keep farm records. Generally, a supervised credit agency employs both of these functions to some extent. It may have few loan restrictions and provide a lot of technical help, or it may rely on the already established extension service for technical help and devote more energy to enforcing restrictions or improving the quality and usefulness of farm records.

One decision with respect to supervision of loans is whether the guidance is to be provided entirely by the agency that actually loans the money, as in FHA, or whether some supervision is provided by the extension service or other agency in cooperation with the loan agency. The principal feature of the Brazilian supervised credit program (ABCAR) is that credit is linked with extension work. Supervision of loans is carried out by extension workers who select applicants, provide planning and advice, and perform most of the supervisory functions except the administration and control of loans. Loan funds are furnished by banks and other agricultural credit institutions who approve the loans.[7] Both the FHA type of supervised credit and the Brazilian ABCAR program are

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[7]Food and Agriculture Organization of the United Nations, New Approach to Agricultural Credit, FAO Agricultural Development Paper 77 (Rome: Christen-Tipografia, 1964), p. 21.

"intensively" supervised credit programs, in contrast to loans disbursed in cash to the borrower with little or no follow-up of supervision.

A second decision for credit planners is the degree of supervision that a credit scheme should provide. In making this decision, planners must consider that supervision is an administrative cost, and if loans are intensively supervised then more of the total budget must be spent for administration and less will be left for lending. Less supervision will leave more funds available for lending. It may be that in areas where the extension service is active and responsive to farmers' needs, that less supervision may be necessary by the lending agency than in areas where the extension service is not responsive to the farmer's needs. In making decisions about supervision planners will need data showing what the likely response in terms of yield increase per rupee loaned is under high and low levels of supervision.

Farmer Response to Supervision

Figure IV-2 shows the possible responses of three farmers to various amounts of supervision. Farmer X has the lowest yield per rupee loaned of the three farmers at all levels of supervision. However, his response to small amounts of supervision is very good but tapers off after a certain level. Farmer Y gets 50 percent more yield per rupee loaned than Farmer X when both receive no supervision, but his response to supervision is not as great as Farmer X's response. Farmer Z has higher yields per rupee loaned with no supervision than either Farmer X or Farmer Y, but he shows no response to supervision at any level.

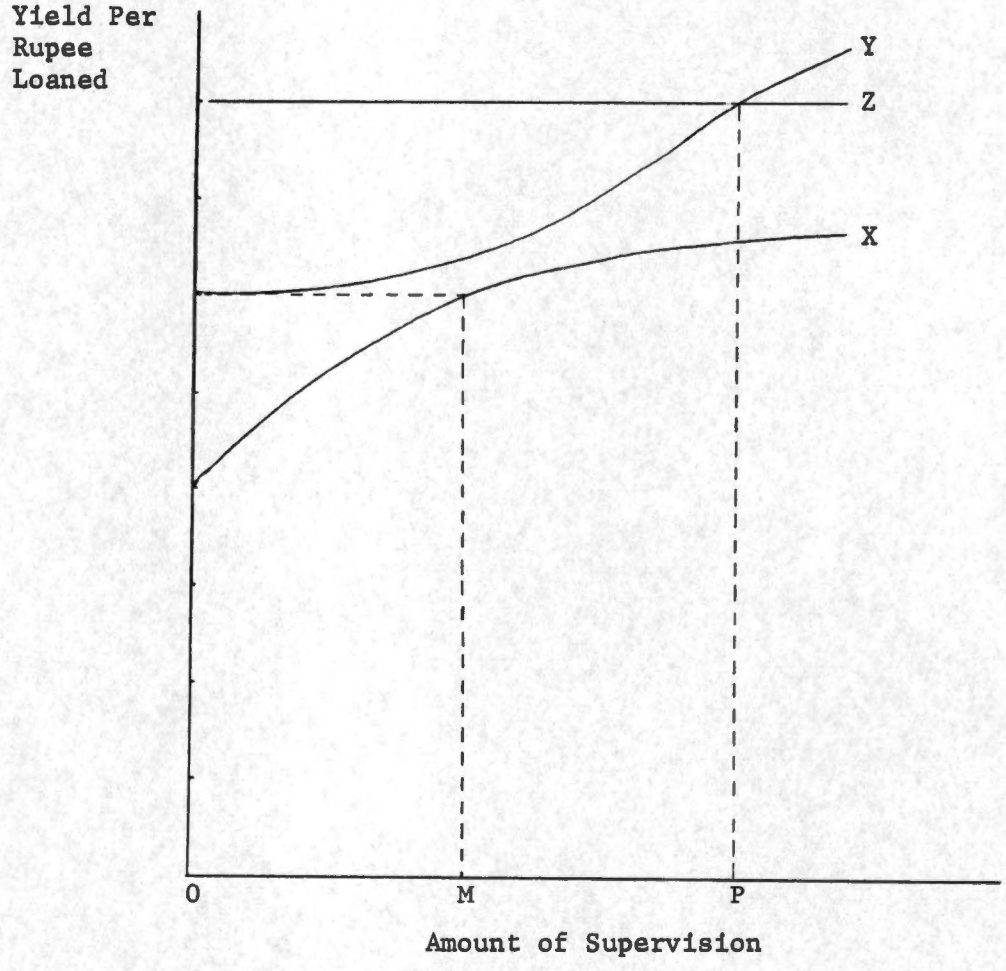


Figure IV-2. Response of farmers X, Y, and Z to various amounts of loan supervision.

Farmer Y's moderate response to supervision enables him to get the same yield per rupee loaned as Farmer Z at a level of supervision of OP. It requires a relatively large amount of supervision, OP, and resulting administrative cost to increase Farmer Y's yield per rupee loaned by one-third over his original production without supervision. Relatively little supervision, OM, however, enables Farmer X to increase his yields per rupee loaned by 50 percent.

Optimizing the Level of Supervision

Obviously it is a waste of money to expend supervision on Farmer Z. Whether supervision should be expended on Farmers X and Y is largely determined by the overall objectives of the credit agency and the opportunity costs in terms of these objectives. That is, what is given up elsewhere in the program by expending funds for supervision of Farmers X and Y? If the agency's primary objective is to increase total agricultural production, then the opportunity costs would be relatively high because an alternative to supervising Farmers X and Y would be to loan to more farmers similar to Farmer Z, who have high yields per rupee loaned and need no supervision. If, however, the objective of the loan agency is to increase production in areas where farmers with high initial yields per rupee loaned, like Farmer Z, do not live, then, farmers comparable to Farmers X and Y must be dealt with. Here, the opportunity cost of using funds for supervision would be lower than where farmers with high initial yields, like Farmer Z, exist. However, even here the opportunity cost of supervision may be too great to warrant its use.

It may be that more production would result by loaning funds to more farmers like Farmers X and Y rather than loaning less money to them and providing costly supervision.

Frequently, government sponsored loan agencies have social or welfare objectives that put a constraint on the clear-cut objective of increasing total production. For example, the agency may be required to restrict its loans to farmers who have a limited amount of resources, who earn less than a certain income, or who live in an area prone to natural disasters. Such constraints as these complicate the problem of allocating funds between supervision and loans, because it becomes more difficult to determine what the opportunity costs are, in keeping with the constraints.

Since each borrower is likely to show a different response to supervision, it will be difficult to categorize borrowers as to the amount of supervision that is practical to expend on them. Careful investigations need to be made to determine the characteristics of borrowers that indicate what their response to supervision is likely to be. If a set of characteristics can be identified that predict with reasonable accuracy what a given loan applicant's response to supervision will be, then it should not be too difficult to make loans to borrowers with supervision that is adequate to meet their specific needs. In other words, supervision could be provided to an individual farmer up to the point where the cost of supervision expended per unit of production increase, the marginal value product of supervision, is equal to the opportunity cost of providing the supervision. Characteristics such

as years of education, size of farms, and social status may be correlated with certain levels of response to supervision.

VIII. ELEMENTS THAT SUPPORT AGRICULTURAL CREDIT PROGRAMS

It is apparent after studying Farmer A's situation and the general agricultural situation in India that if credit problems are to be solved in the near future, they must be solved within the constraints of a grossly deficient infrastructure of agriculture. In other words, it is unlikely that good roads, marketing facilities, supply points, stable prices, educated farmers, rural banks, good communication facilities, and other facilities will precede the need for an adequate source of agricultural credit. This means that planning for new credit sources or restructuring of old ones needs to be done with due consideration being given to the deficiencies within which the credit program will operate.

The absence of such supporting elements means the credit source might need to furnish more services than normally expected of a credit agency where more of these factors do exist. For example, cooperative credit societies in India frequently operate supply warehouses and marketing facilities that are operated in conjunction with agricultural lending. Production Credit Associations in the United States often write credit life insurance for their borrowers. At one extreme is found the credit agency that provides supply and marketing services, supervision in the form of financial management and technical advice, loan insurance, and may operate educational facilities for its clients.

At the other extreme is the credit agency, perhaps a commercial bank, that simply loans cash to its clients and expects repayment to be made on time with no advice or interference from the bank. Since some borrowers may need more services through the credit agency than others, the credit agency may make its services optional for its clients.

Some areas of Mysore State are more favorably endowed with supporting elements for a rural credit program than other areas. A state-wide credit agency must decide which supporting elements are essential to the success of its program and which are only desirable. Then it must decide whether to serve well endowed areas in the same manner that less developed areas must be served for success. For example, if the loan agency feels that making inputs available through credit agency owned stores is an essential element for success in less developed areas, then will such stores also be provided in the more developed areas? Should the agency attempt to provide education in "backward" areas or is a certain level of education essential to program success? Should the agency confine itself to strictly credit related problems and leave other problems that may have some bearing on credit, such as education and road building, up to other agencies? These and other questions deserve consideration in designing credit programs.

IX. COLLECTION POLICY

The collection policy practiced by loan agencies may determine to a great extent whether or not farmers comparable to Farmer A will be willing to borrow to adopt new methods. Before Farmer A adopts

high-yielding jowar on his dryland farm, he will want to know the collection policy of the loan agency in case he has a drought and his crop fails. An inflexible collection policy which insists that loans be paid on time regardless of circumstance is not likely to attract dryland farmers.

Among the ways to make collection policy more flexible in bad years are: (1) the writing off or forgiving of loans or portions of loans that were made to produce the crop that failed, (2) the reamortization of annual crop loans over three or four years to give the farmer a chance to stretch repayments over a longer period, (3) a system of crop or loan insurance, either optional or mandatory, that repays the loan in case of crop failure.

Extremely low farm prices in a given year can be just as disastrous to a farmer's repayment ability as crop failure. Credit agencies may consider working out a system of repayment in kind, that is, in bushels of grain rather than in rupees, which would help alleviate this problem. Such a program, however, would probably need government sponsorship and funds and could be very expensive to operate.

A policy of writing off loans in bad years would be simple to administer except for making the determination of what a "bad" year is. Such a policy would invite political pressure on the agency to declare certain areas as disaster areas when perhaps they are not. Such a collection policy might also damage the reputation of the agency if it is known that such a "soft" collection policy is practiced. Such a

policy might make it more difficult to collect from borrowers who have had no disaster.

X. INTEREST RATES

There are several dimensions of the problem of what interest rates to charge on short-term farm loans. From the loan institution point of view, the first question to be answered is what the objectives of the loan agency are. Once this is answered in terms of increased production goals, "equitable" distribution of loan funds goals, and overall development objectives; then it must be decided whether the agency is to be self-supporting or not. If the agency is to be self-supporting, then interest rates must be set high enough to provide revenue for paying all operating costs. It is unlikely that government sponsored loan agencies, if they have objectives related to equalization of economic and social opportunities, will be expected to operate on a self-supporting basis. Frequently, the interest rate to be charged by government loan agencies is set by the legislative body that creates the agency and appropriates funds. Other agencies may have government loan guarantees which provide for making loans to farmers at the going commercial rate, but with government paying the administrative cost of operating the agency.

The objectives of the loan agency have a bearing on the rate of interest that should be charged. If the objective is to help marginal farmers gain a foothold on poor land, a very low rate of interest on which the agency loses money may be in order. Other agency objectives

may call for different rates of interest to different categories of borrowers. Perhaps low income farmers could borrow at a lower rate than high income farmers.

From the farmer's point of view the interest rate determines the profitability of adopting a new practice. If investment opportunities are available that should yield a 50 percent return on money invested, then an interest rate as high as 30 percent may not discourage investment. If investment opportunities are yielding returns on only 20 percent, then perhaps an interest rate as low as 5 percent may not even induce farmers to run the risk of investing. The potential returns to the farmers when using additional credit should be considered in setting interest rates.

The interest rate also determines to a great extent how much money a farmer needs to borrow in subsequent years. The example of Farmer A in Section VI of this chapter shows that it would be seven years before Farmer A could cease borrowing some money for crop expense while paying 20 percent interest. If his interest rate were lower, then he could cease borrowing in less time and could borrow less each subsequent year than he would need to borrow while paying 20 percent interest.

The relatively high interest rates charged by moneylenders who have no expressed objectives other than to maximize profits may be viewed as being comprised of three components. One component is the opportunity cost of money that the moneylender foregoes when he loans to a farmer. This opportunity cost is here defined to be the rate of return he could receive on his money by investing it in relatively safe securities that require no risk or loan servicing on his part. Normally, the rate of

return on such securities, such as short-term government securities, bank savings accounts, or bonds, is relatively low. In this case, let us assume the moneylender could buy government guaranteed short-term securities at the local bank that pay 5 percent interest.

The other two components of the interest rate are return to the moneylender for his labor in servicing his loans and the return to him for the risk involved in loaning his money to farmers. If a moneylender is charging 30 percent interest and the opportunity cost of money is 5 percent, then the difference of 25 percent could be allocated to risk and servicing cost. It would be very difficult to allocate this 25 percent between these two components and probably only the moneylender himself could make the allocation, if he has thought of interest in such conceptual terms.

XI. ACCESS TO LOAN FUNDS

Making loans accessible to farmers is another problem that is compounded in Mysore State due to the lack of transportation facilities. Most farmers have no conveyance other than bullock carts which are slow and cumbersome. Since farmers are generally unable to travel very far to obtain loans the loan agency may consider carrying credit to the farmers. The cooperative movement has tried to solve this problem by the creation of thousands of village credit societies at the local level. However, these societies are often very inefficient and the trend now seems to be one of consolidating village societies into larger cooperatives that can serve many villages and hire full-time qualified personnel.

One idea that has been suggested to help solve this problem is the concept of a mobile bank that services villages on a regular schedule. The mobile bank could be owned by a commercial bank or cooperative in a not too distant town where the accounts are kept. The mobile bank could make regular visits to villages where new loan applications could be taken, disbursements made to clients, and collections could be received.

CHAPTER V

IMPLICATIONS FOR FUTURE CREDIT RESEARCH IN MYSORE STATE

If the literature and farmer situations reviewed by the author are at all indicative, there are several lines of credit-related research that would seem appropriate for Mysore if future decisions are to have a solid base. In the author's opinion many of the problems encountered by credit agencies could have been anticipated and perhaps avoided if adequate research had been done prior to launching of the credit scheme. Of course, research is expensive and can be carried to infinite lengths if not properly directed. Probably decisions will ultimately have to be made with less data than are desired. However, a small amount of properly directed research might assure much better decisions by the administrators.

One question that merits further investigation is to determine exactly what farm-level capital needs are emerging in Mysore. Are there many farmers with needs comparable to Farmer A's situation? Are there a few farmers in every village who have emerging credit needs or do certain villages tend to have many farmers interested in new practices and others have none interested? How much will these capital needs vary between villages in different areas of Mysore? Are there many farmers who would consider adopting a few new practices or high-yielding varieties in a piecemeal fashion with some additional credit? Is a lack of adequate credit a critical deterrent to the adoption of new practices for most farmers? These and other questions about emerging credit needs should be investigated before launching new credit schemes.

In addition to knowing more about emerging capital needs research is needed to ascertain to what extent existing credit sources are able to meet the expected demand. Also, research into the possibility of mobilizing family savings for investment, rather than using borrowed funds, is needed. If some accurate estimates of the marginal propensity to consume of families enjoying increased incomes were available, it would aid in planning for amounts of credit needed in subsequent years.

Due to the vast numbers of farmers and diverse social customs in Mysore, theories need to be developed, based on scientific research, that will enable planners to predict the probable response of a particular village or group of farmers to a certain program. It is too expensive to do exhaustive research in each village to identify specific needs and probable responses. Theories to help improve classification of villages or farmers after obtaining sample data from them are very much needed. Perhaps certain key variables such as educational level, social status, and income are indicative of probable responses. If so, these variables need to be identified through research.

At the aggregative level, there is a need to know how much additional capital and credit resources will be needed to meet expected demands. Are existing channels for moving loan funds into agriculture adequate to meet these increased demands?

In planning credit schemes that have the ultimate objectives of increasing agricultural production and promoting overall economic development, while at the same time maintaining (or creating) a democratic society that is more or less egalitarian, some attention must be paid

to problems that are not directly apparent when looking for the most practical way of increasing production. When credit schemes operate under the constraint of having social objectives as well as production objectives, as virtually all government programs have operated, then more information is needed. The social and political consequences of a credit scheme that makes loans only to large owners of irrigated land, for example, might be harmful from a social standpoint even though it appears to be the most feasible way of increasing production. It will be difficult to assess social consequences of programs before they are instigated, but attempts should nevertheless be made at this assessment.

An accurate determination of the preconditions that should exist in order for a credit program to be successful should be made before a program is tried. For example, a credit facility that is located in an area in which there are no suppliers of new productive inputs is not likely to have much effect in increasing production. It needs to be determined just what preconditions are absolutely necessary and which are desirable for a given credit program. A source of inputs may be a necessity while an extension service may be highly desirable, but not essential to a particular program.

The exact role of the moneylender and whether or not he is the "villain" of the small farmer's dilemma is a question that needs to be answered through scientific research and not through hearsay evidence. There is little doubt that no one in village India knows more about the agricultural situation and credit problems of small farmers than the moneylenders. If their talents and knowledge could be mobilized for

economic development, the results might be very surprising. Unfortunately, few credit schemes have made provision for constructively using the moneylenders, but instead have set the moneylenders up as villains and have attempted to encroach on their clientele. Perhaps there are ways to use the moneylender's knowledge for the improvement of credit schemes, but a better understanding of the actual functions he serves and could serve is needed.

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