amo... of these ca... portant than ano... are abundant except one ... for example), this one becomes the limiting factor and methods of supplying it becomes the important means of increasing the yield. In short, the secret of successful corn culture is to maintain a proper balance of moisture, heat, and fertility.

Having laid down these essentials, C. P. Hartley and L. L. Zook, of the Office of Corn Investigations, Bureau of Plant Industry, in Farmers' Bulletin 773, Corn Growing Under Droughty Conditions, proceed to discuss in detail methods by which this balance can be maintained. The following facts are taken from this bulletin, recently published by the United States Department of Agriculture.

Corn, the authors point out, possesses characteristics which appear to make it adapted to drought conditions, and, on the other hand, has qualities which limit its possibilities as a crop for semiarid regions and call for special adjustments. In producing a given weight of feed or dry matter, corn uses less water than certain other crops, as oats, clover, and alfalfa. It is deep rooted and can, if necessary, draw water from a depth of 5 or 6 feet. In hot, dry weather the rolling of the blades reduces the loss of water. On the other hand, the heat requirements and peculiar flowering habits of this crop make it less adapted to semiarid regions than other grain or forage crops.

Corn makes its entire growth during the season of highest temperature, growing best when the thermometer registers 80 degrees to 100 degrees F. It can not grow in early spring or late fall, and its growth is retarded during the summer by cold nights or cold weather. It needs its greatest supply of moisture during the summer weeks when droughts are most likely and when rains are less effective because of losses from evaporation. In other words, the heat requirement of corn prevents growth at imes when moisture conditions are likely to be most favorable, while lack of moisture frequently retards growth when heat conditions are most favorable. The problem, therefore, where heat is great and moisture deficient, is to store up moisture; and where moisture is plentiful and heat deficient, so to handle the soil as to prevent moisture from lessening unduly such heat as may be available.

In the case of corn, which differs in this respect from perfect flowering plants, the setting of seed and the filling of the ears are seriously interfered with by summer droughts. Corn has two kinds of flowers, the tassel or pollen bearer and the seed-forming or silk-bearing flowers. The pollen from one falling on the silk of the other is necessary to the development of grain. Droughty conditions often hasten the shedding of pollen, but delay the appearance of silks, with the result that the pollen is mostly wasted. If fertilization is prevented in this way, no amount of later rain can cause kernals to form or make a good grain yield. The corn crop is sometimes injured by hot winds that do less damage to such crops s alfalfa and the grain sorghums The problem here is by the choice of planting time and the selection of early-maturing or late-maturing varieties to bring about the double flowering of the corn at times when drought is least liable to interfere with fertilization.

Everything corn gets from the soil is in liquid form, and the crop can not grow unless the soil contains moisture to spare.

In our semiarid reg'ons the soils for the m st part are fertile, and the limiting factor is either water or heat. Raising corn may be likened to raising steam in an en_ine. Too much water lowers the temperature, whereas too little water is dangerous. Growth can take place only while there is a proper balance between heat and water. The two must be in the soil at the same time. Water falling as snow or rain before heat is present should be stored in the soil. The boiler should be filled before the fire is started.

In northern sections and at high altitudes the lack of heat limits corn yields, while in southern sections it is the lack of moisture. Abundant soil moisture reduces soil heat—desirable in the South, but undesirable in the North. Far north a soil with a wet surface is usually a cold soil. Here the conservation of heat is more important than the conservation of moisture. Evaporation keeps the soil cool Soil moisture rises to the surface t replace that which evaporates. Cultivation checks the rise of soil moisture to the surface, enabling the surface to dry more rapidly. The dry surface then becomes warm by taking in heat, which otherwise would have been wasted in evaporating water from below. Corn cultivated late in the afternoon may be frosted that night, while adjoining uncultivated rows escape the frost. The more rapid evaporation caused by recent cultivation first cools the surface, but as soon as the surface dries, the soil becomes warm quicker and the crop grows more rapidly than it would have done without the cultivation.

In northern localities, where lack of heat is a factor limiting corn yields, summer fallowing nd moisture conservation tend to keep the soil cold and seldom give increased yields of corn. In southern localities, where lack of moisture is the limiting factor, summer fallowing and practices which increase soil moisture give increased yields of corn.

In the southern part of the Great Plains lack of moisture is the chief limiting factor. Ignoring special instances and speaking generally, every operation should be conducted in such manner and at such time as to enable the soil to take in and retain water. But just how and when is this to be done? Should the land be plowed deep or shallow; in the fall or in the spring? On what date should corn be planted, and how many times should it be cultivated?

...RM LOAN AS ...APPLIED, ETC.

(Continued from page 1)

... national farm loan associations ... up to twenty times the capital stock of the banks. The lending capacity of these banks is automatically increased by requiring the farm loan associations to reinvest in the capital stock of the banks one-twentieth of the amount their members borrow. Thus the capital stock of the banks increases in the same ratio as their loans. The banks acquire additional money for lending by selling their own bonds to investors.

When a bank lends money and takes first mortgages on farms in exchange it issues bonds against these mortgages and sells the bonds to produce more money to lend

The bonds issued by one bank are secured by the assets of all the banks operating under this system, and the rate of interest on the bonds is adjusted by supply and demand. The rate of interest charged to members of farm loan associations for money which they borrow from the banks, cannot exceed by more than 1 per cent the rate of interest paid on the bonds. This margin is provided to pay the cost of operating the banks. So, if the bonds sell at 4 per cent and the cost of operating is 1 per cent, the interest rate to the farmer-borrowers will be 5 per cent. If the cost is held down to one-half of one per cent, the interest rate to the farmers would be 4 1-2 per cent.

So, briefly, the members of the associations of farmers borrow from the banks; the banks issue bonds against the farm mortgages and borrow money from investors; the farmers invest an amount equal to one-twentieth of the amount they borrow, in order to provide an increasing capital for the banks, and the whole process is done under governmental supervision and without profit to any individual.

ARTICLE II.

Only farmers or prospective farmers who wish to borrow money may join the national farm loan associations under the federal farm loan act. It takes ten or more to make up one of these associations. If a farmer wishes to borrow he should find out if such an association has been formed in his community. If it has, he should make application to the secretary-treasurer for membership. If no association has been formed, he should attempt to get ten or more farmers who wish to borrow to meet for the purpose of organizing.

The process of organization is very simple. One of the members should write to the Federal Farm Loan Board, Washington, D. C., for blank articles of association When they have been received a meeting of the prospective borrowers should be called and these articles of association should be adopted, signed, and acknowledged by each member. Each member will indicate the amount he wishes to borrow and the value and description of the land he wishes to use as security.

This association elects five or more directors, and these directors then elect a president, a vice-president, a secretary-treasurer, and a loan committee of three members.

This is as far as the association can go until after the federal land bank of that district is established. Then, upon application, the federal land bank will furnish the local association with a blank application for charter, which should be filled out and filed with the federal land bank, along with the articles of association.

These documents should be accompanied by a written, unanimous report of the loan committee placing a valuation on the lands of the members.

Then the appraiser of the federal land bank will come to inspect the lands of the members and O. K. or reject the valuation prepared by the loan committee.

No one farmer may borrow more than $10,000 nor less than $100. No national farm loan association may start with less than $20,000 of loans.

Each member joining the local association must buy stock in the association equal to 5 per cent of the amount he borrows. If he borrows $1000 he will get $950 in cash and a certificate of stock for $50. Or he may make his loan $1050 and thus have a net loan of $1000, taking as long a time to repay the $50 invested in stock as on the thousand borrowed. This investment is for the purpose of providing the increasing capital stock of the federal land bank, and the local association invests it in the land bank stock. The borrower will get his money back when he pays off his mortgage, and will get what dividends it earns while it is invested

Now, what is the object of requiring the borrowers to thus group themselves into loan associations.

Primarily that the loan associations may eventually own the federal land banks.

This is a co-operative banking system, and the machinery must be provided for the government of the banks. Each of the local loan associations has a vote in the election of the directors in one of the federal land banks. The loan committee, provided by the local association, is the agency for the valuation of the lands. The board of directors of the local association admits or rejects new members, according to their wishes. But most important of all, since the system is co-operative, the borrowers must provide the money for the increasing capital of the bank—and they do this by investing in the local associations.

Loans made under this system may not exceed 50 per cent of the appraised value of the land used as security, and 20 per cent of the appraised value of the permanent, insured improvements thereon.

Non-land owners may become members of an association by indicating in their application what land they expect to come into possession of and against which the mortgage will ge placed.

ARTICLE III.

How Loans Under the Farm Loan Act Are Designed To Be Helpful To the Borrower.

It has always been recognized that the most effective aid one can get is that which enables him to help himself.

Some critics of the federal farm loan act have charged that this objection is met by very carefully limiting the use to which the borrowed money may be put and by the requirement that farmers gradually each year must reduce their indebtedness.

The farm loan act was designed to be helpful to the farmer of average operations who has hertofore been denied adequate credit. It wisely limits the loans to 50 per cent of the oppraised value of the security, be cause this limitation makes the security of a high character, thus satisfying the investor, and therefore results in a lower rate of interest.

The use of the money is carefully limited to the purchase of land, to pay off existing indebtedness, to purchase live stock, or to make any productive improvements such as fencing drainage, buildings and machinery.

When money can be borrowed cheaply for productive use, a mortgage becomes an investment rather than a handicap The farmer is enabled to get money to put his land to better use, so that the profits of his investment will pay off his indebtedness. Hereafter judicious borrowing on the part of the farmer will be regarded as business enterprise, just as it is now considered beneficial for large commercial institutions to borrow.

The farm loan act creates a form of indebtedness which peculiarly fits the farmers' needs. It recognizes that the farming business is one of slow returns.

So, it provides that a mortgage made under the act shall be paid on the amortization or installment plan through a long or short period of years. The mortgages may be made to run from five to forty years, at the option of the borrower, and they must be paid off, interest and principal, in equal installments through the period of the loans. Permission is given to pay all of the loan or any part of it on any interest-paying date after it has run five years.

To give the prospective borrower an exact idea of the size of the payments required annually to wipe out a mortgage in a given period, amortization tables have been prepared. The following table shows the amount of annual payments required to extinguish, in the period indicated, a thousand-dollar loan bearing interest at 5, 5 1-2 and 6 per cent.

	—Rate of Interest—		
Years	5 p. c.	5 1-2 p c	6 p. c.
10	$129.50	$132.67	$135.87
15	96.34	99.63	102.96
20	80.24	83.68	87.18
25	70.95	74.55	78.23
30	65.05	68.81	72.65
35	61.07	64.97	68.97
40	58.28	62.32	66.46

So it will be seen that the farm loan act, in addition to providing a way for the farmer to borrow to the limit of safety, provides that he must put his borrowed money to productive uses, and furnishes the machinery to get him out of debt in an honorable and businesslike way. The farm loan act helps the farmer by placing within his grasp the means to help himself. It makes the business initiative and independent.

ARTICLE IV.

From the Viewpoint of the Investor.

Farm lands have always been regarded as the safest security in the world. But loans made against farm lands have generally exacted a higher interest rate than loans made on other good security.

There are several reasons for this. Such loans are not readily transferable, i. e., marketable. Farm loans are usually desired for long periods. A loan for less than five years is usually of little value to the farmer. If the loan is made for the purpose of buying land the farmer's chance to pay it off is to make the money out of the land. It is against reason to expect that land will pay for itself in five years.

Well managed commercial banks cannot make a business of lending money on farms and carrying the loans themselves. It is not good banking. It ties up their funds in permanent investments and if persisted in continually would ruin any bank. This fact limits the supply of local money for farm loans, and partially accounts for high interest rates on them.

The farm lands of the United States constitute a great mass of valuable assets against which money ought to be borrowed at fair rates of interest. But it has been a chaotic mass of value. No agency has ever undertaken to assemble this mass of assets into negotiable form so that it could be readily handled as a marketable security.

Now the government steps in and provides this agency. It says to the farmer who wants to use his land as security:

"'You join a national farm loan association and contribute your mortgage to a great federal land bank pool of mortgages. We have provided the machinery for this purpose and adopted rules for its operation so that the interest of all will be safeguarded. When your mortgages are massed together, a federal land bank will take these mortgages and issue bonds against them; sell the bonds to investors, and re-lend the money to farmers. The pooled mortgages of the farmers of the United States will be security for every bond. The high character of this security means that people who have money to invest will jump at the chance to put their savings up against your security at a low rate of interest. We will let you have this money at actual cost to us, plus not to exceed 1 per cent to cover the cost of operating this money-assembling and money-lending machinery.

Then Uncle Sam turns to the investor and says:

"We have enabled the farmers of the United States to give us their massed mortgages. We are offering you bonds which are in reality first mortgages against the farms of all who join this pool. It is the best security in the world, because every dollar a farmer borrows is represented by $2 worth of land plus the stock each farmer has purchased in his local association. To make these bonds even more attractive, so as to eventually give the farmer a lower interest rate, we have exempted them from all forms of taxation. Even Uncle Sam will not collect any tax from them, nor from the income upon them. No state or municipality may tax them. We have made these bonds in small denominations from $25 up so their purchase will be easy among people with small savings, and we will have the bonds printed and engraved by the Government Bureau of Engraving and Printing to protect them against counterfeiting, and the United States Secret Service will watch over them."

So the farm loan act, in addition to providing money for land purchase and farm development, provides a new form of security which ought to become one of the most popular in existence, because it is based on the land values of the entire country.

To the Farmers of St. Tammany Parish

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