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Capital and Credit In New Farming Systems

By Donald B. Ibach

Changes in farming systems require shifts in types of investment and expansion in the use of capital on farms. In this discussion the writer analyzes a capital, credit and loan repayment plan of aid in shifting from cotton to cotton-livestock farming on medium-sized farms in the Southern Piedmont area of North Carolina.

PRESSURE OF EVENTS in recent years has brought about the need for rapid changes in farming. The nature and extent of the needed changes vary with the type of farming. They are more drastic in the areas where the major crops are those which depend largely on an export market. Technological changes at home and new developments in other countries make the problem doubly acute in these areas. Furthermore, in some the prevalence of small farms and a generally low level of capitalization of the farm business intensify the difficulty of making desirable changes.

New capital investments are needed to make the changes possible. Frequently these new investments cannot be made without the use of credit. Returns from such investments are often delayed. Because existing assets are often inadequate as security for loans under usual credit practices, there is a call for the development of ways in which the potential lender's capital can be utilized more fully as an aid in making these changes, under an arrangement in which repayments are geared to the returns.

An analysis of the credit problems involved in making changes in farming systems in the Southern Piedmont area of North Carolina provides the basis for this discussion.¹ The report of that analysis outlines the existing organization, income, and expenses on small, medium, and large farms, and sets up budgets for the period of adjustment. The suggested change is from specialized cotton to cotton-livestock systems of farming. The analysis of the credit aspects of the problem as applied to a medium-sized farm is presented here. Medium-sized farms, as defined in this study, are

those on which from 45 to 74 acres are used for crops. Emphasis is on the principle of credit extension and loan repayment, based on appraisal of expected increases in net farm income both during and following the period of transition.

This analysis represents what good management can attain in the area. The data are not presumed to represent average results that would be obtained if all farmers undertook the shift from cotton to cotton-livestock farming. Many of the difficulties involved in the use of credit to bring about needed changes in farming are obvious. These include the problem of getting farmers to analyze the relative advantages and disadvantages of alternatives. Recognition of the soundness of certain alternatives in relation to existing systems, is also a creditor problem. In many instances, extension of credit on the basis of a conservative estimate of future returns from an improved system would be more profitable—to the creditor as well as to the borrower—than its use to finance present systems even when in the latter case the loan is amply covered by present assets. But because of new risks, a more careful analysis is needed, and this means some added costs as well as a change in the general attitude as to the potential role of credit in farming. Certain aspects of some of these problems are discussed more fully in a later section.

New capital investments that are needed in changing from cotton to cotton-livestock systems on medium-sized farms in this area include those for soil improvements, livestock, buildings and fences, and machinery.

Investments for soil improvement consist of use of lime, use of certain fertilizers that have a substantial residual effect hence are not applied every year, establishment of mechanical practices such as terracing, and the seeding of pastures and of perennial legumes. Although these improve-

¹ This present paper contains part of the analysis that is found in North Carolina Agr. Expt. Sta. Tech. Bul. 89, INVESTMENT CREDIT TO IMPROVE FARMING SYSTEMS, by D. B. IBACH and G. W. FORSTER. Raleigh, N. C. Dec. 1949.

ments are replaceable, they directly affect yields, and if they are maintained they result in a permanently higher level of yields. Because they increase productivity there is a basis for charging them off over a period of years. If credit is needed for any of these improvements, it is even more justifiable for those of this type, than for buildings, machinery, or even livestock, because soil improvements provide the foundation for future income.

Investment in additional buildings and fences, as shown in table 1, represents only the estimated necessary cash outlays rather than total value. Included in total value is the value of unpaid farm labor and farm-produced materials used. The principal items for the medium-sized farm are for poultry housing and fencing.

The added initial investment in livestock is mostly for three dairy cows or heifers. The dairy enterprise would be expanded through saving heifers until the desired number of producing animals is reached. An alternative would be to buy, at the start, the full number of cows. The choice would be determined by the farmer's experience with the dairy enterprise. In this area, the management now found on the existing representative cotton farm is relatively inexperienced with regard to problems that would arise in shifting from two or three ordinary cows that are accustomed to "roughing it," to a herd of, say, 10 high-grade dairy cows that would require reasonably good dairy-management practices. Aside from this factor, starting with a full-sized enterprise would represent sounder financing.

Changes in Farm Organization and Production

Major changes in farm organization consist of the addition of dairy and poultry enterprises. Many individual farmers in this area have made such changes but they have retained cotton as one of the principal sources of income. There would be a measurable reduction in the proportion of cropland used for intertilled crops, and a considerable increase in the proportion of total farm land in permanent pasture. These changes in land use, accompanied by increased annual use of fertilizer on some crops and investment in heavy applications of lime, phosphate, and potash for pasture and alfalfa, greatly change the quantity and nature of crop and pasture production.

TABLE 1.—*Loan advances for new investments during period of adjustment*

| Type of investment | Year of adjustment | | | |
|----------------------------|--------------------|-------------|-------------|-------------|
| | 1 | 2 | 3 | Total |
| | <i>Dol-</i> | <i>Dol-</i> | <i>Dol-</i> | <i>Dol-</i> |
| | <i>lars</i> | <i>lars</i> | <i>lars</i> | <i>lars</i> |
| Soil improvement | 503 | 0 | 161 | 664 |
| Buildings and fences | 815 | 116 | 0 | 931 |
| Livestock | 480 | 0 | 0 | 480 |
| Machinery | 138 | 0 | 0 | 138 |
| Total | 1,936 | 116 | 161 | 2,213 |

Changes in Farm Income and Expenses

Cotton would continue to be an important cash crop, but the income from cotton and from all crop sales would be exceeded by that from livestock enterprises. Farms in this area, as well as in the South generally, are operated with less capital relative to labor, than in most of the principal farming areas. The suggested adjustments would increase the amount of capital utilized and would create an all-year market on the farm for much of the available family labor (table 2).

The increases in the net cash farm income shown in table 3 come from changes made in the farming system that are supported by the new investments. Theoretically, the indebtedness incurred for each investment should be repaid from the returns attributable to that investment. But the nature of the farm business makes it impossible to obtain a good measure of the returns from each investment. For example, not all of the increase in yields and net value of crop production can be attributed to soil improvements.

Other practices—such as the use of improved varieties—do not require credit, but they increase the yields and, when used in conjunction with soil improvements, they contribute to sustained higher levels of crop production. The investment in a barn may yield returns through different livestock enterprises. A laying house contributes to increased returns from the poultry enterprise, but it is usually accompanied by better feeding, and attention to numerous items that represent good management. A laying house is built in recognition of the need for better utilization of the labor and feed available on the farm. Thus, in a credit

TABLE 2.—Organization and principal items of production before and after adjustment

| Item | Unit | Before adjustment | Adjusted 5 years |
|-------------------------------------|--------------------|-------------------|------------------|
| Organization: | | | |
| Farm land: | | | |
| Cropland: | | | |
| Cotton..... | Acre..... | 10.3 | 10.3 |
| Corn..... | do..... | 12.3 | 10.0 |
| Small grain ¹ | do..... | 20.3 | 16.7 |
| Lespedeza ² | do..... | 7.8 | 9.7 |
| Alfalfa..... | do..... | 0 | 7.7 |
| Other—including garden..... | do..... | 2.3 | 1.0 |
| Idle..... | do..... | 2.0 | 0 |
| Total cropland..... | do..... | 55.0 | 55.4 |
| Permanent open pasture..... | do..... | 9.6 | 23.0 |
| Woods, farmstead, etc..... | do..... | 55.4 | 41.6 |
| Total farmland..... | do..... | 120.0 | 120.0 |
| Percentage of— | | | |
| Cropland in— | | | |
| Intertilled crops..... | Percent..... | 41.1 | 36.6 |
| Legumes..... | do..... | 14.2 | 31.4 |
| Farm area in permanent pasture..... | do..... | 8.0 | 19.2 |
| Livestock: | | | |
| Dairy cows..... | Number..... | 4 | 10 |
| Hens..... | do..... | 42 | 300 |
| Production: | | | |
| Cotton lint..... | Hundredweight..... | 51 | 54 |
| All grain, corn equivalent..... | Bushel..... | 621 | 965 |
| Hay..... | Ton..... | 13 | 32 |
| Permanent pasture..... | A. U. M..... | 22 | 83 |
| For sale: | | | |
| Lespedeza seed..... | Hundredweight..... | 18 | 43 |
| Milk..... | do..... | 129 | 548 |
| Eggs..... | Dozen..... | 181 | 3,700 |

¹ Oats and wheat.

² Lespedeza for seed or hay also grown following small grain.

TABLE 3.—Estimated cash farm income and expenses by years of adjustment

| Item | Year of adjustment | | | | | |
|-----------------------------|--------------------|----------------|----------------|----------------|----------------|----------------|
| | 0 | 1 | 2 | 3 | 4 | 5 |
| Cash farm income: | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> |
| Crops..... | 1,202 | 1,556 | 1,392 | 1,393 | 1,382 | 1,145 |
| Livestock and products..... | 471 | 892 | 1,241 | 1,572 | 2,003 | 2,956 |
| Total..... | 1,673 | 2,448 | 2,633 | 2,965 | 3,385 | 4,101 |
| Cash farm expenses..... | 1,013 | 1,496 | 1,555 | 1,703 | 1,764 | 1,962 |
| Net cash farm income..... | 660 | 952 | 1,078 | 1,262 | 1,621 | 2,139 |

TABLE 4.—*Calculated repayments on the principal of new investment loans*

| Item | Unit | Year of adjustment | | | | | |
|---|--------------|--------------------|-----|-----|-------|-------|-------|
| | | 0 | 1 | 2 | 3 | 4 | 5 |
| Cash available for repayment ¹ | Dollar..... | 60 | 352 | 478 | 662 | 1,021 | 1,539 |
| Increase: | | | | | | | |
| Over base year..... | do..... | 0 | 292 | 418 | 602 | 961 | 1,479 |
| Cumulative..... | | | | | | | |
| Actual..... | Dollar..... | 0 | 292 | 710 | 1,312 | 2,273 | 3,752 |
| Percentage (5th year=100) ² | Percent..... | 0 | 8 | 19 | 35 | 61 | 100 |
| Repayments: | | | | | | | |
| Cumulative ³ | Dollar..... | 0 | 177 | 420 | 775 | 1,350 | 2,213 |
| Annual ⁵ | do..... | 0 | 177 | 243 | 355 | 575 | 863 |
| Available for other purposes ⁶ | | 60 | 175 | 235 | 307 | 446 | 676 |

¹ Net cash farm income (table 3) minus \$600 estimated cash expense for family living.

² The percentage the cumulative increase each year is of the total cumulative increase attained at the end of the adjustment period when income would be stabilized.

³ The percentages on the preceding line multiplied by the total loan advances.

⁴ Total of loan advances from table 1.

⁵ Difference between successive cumulative repayments.

⁶ Net cash available minus annual repayments on principal.

program, loans for all the capital items that mean a better utilization of farm resources, may be grouped, and the repayment schedule may appropriately be based on the estimated available net income.

The unit prices and costs used in developing these estimates are not forecasts. In general, they represent somewhat lower levels than are now being used by most price specialists. They are considered to be adequately conservative to provide a safety margin when developing farm budgets as a basis for the use of credit. The prices used recognize that the general agricultural and business economy can be prosperous while at the same time prices of some "surplus" crops might, without artificial supports, reach levels that would be unprofitable to all but the most efficient producers. Prices used for major sources of income (taken from North Carolina State Report to Improve Farming Opportunities in the South, June 30, 1946), are cotton \$0.124 per pound; milk \$2.90 per cwt.; eggs, \$0.28 per dozen. Major items of expense are fertilizer at from \$28 to \$39 per ton depending on grade; dairy and poultry supplemental feeds \$2.50 and \$3.25 per cwt., respectively; ginning, \$4.90 per bale, and custom combining of small grain, \$3.50 per acre. In this table, cash farm expenses do not include interest on loans for new investments.

A Method of Calculating Repayments

Repayments on the principal of all new investment loans are related to the increases in the net cash farm income, minus family living needs, cumulative to the year in which it is estimated that the adjustments would be completed. The last item of table 4 shows the estimated cash left after principal payments; it is available for other purposes, including the payment of interest on unpaid balances.

Whether the repayment schedule is arranged to liquidate all, or only part, of the loan by the time income stability is attained, is a matter to be decided according to the amount of cash income that will probably be available each year for the purpose. In some instances, the expenditures for family living will have to be increased during the period of adjustment. Investments in home improvements are needed on many farms. Some of these types of investments not only improve the living conditions but they are reflected indirectly in greater efficiency in farm production. Therefore, in working out loan repayments in individual cases, attention should be given to probable needs for increasing the budget for family living and household investments.

The repayment schedule suggested here represents a compromise between the system of short-

term credit as now generally practiced and a plan that would be truly in keeping with the nature of the investment. As the investments are of a permanent character there is sound basis for spreading the repayments over a much longer period, provided the borrower is carrying out the plan and is maintaining the value of the improvements, aside from unavoidable depreciation.

Comparison of Repayment Plans

Figure 1 illustrates the principle of annual repayments based on anticipated returns from the new investments on the medium-sized representative farm. The three curves represent: (1) the net cash available annually for repayments during the 5-year transition period; (2) the annual payments of principal and interest when computed as indicated in table 4; and (3) the annual payments required to retire the loan during the same period, when computed according to the standard amortization plan of equal annual installments. The curve illustrating the standard amortization plan is not level throughout the period because the loan is not all advanced in the first year.

The suggested plan follows the general shape of the curve of increasing farm income. With each succeeding year after the first, the spread widens between the available income and the repayments that are based on increases in income. This has practical advantages because as net farm income rises from a very low or moderate level, there is opportunity to make improvements in the house or to improve the level of living. Where new investments for more profitable farming are most needed, there is usually a backlog of unfilled needs. The repayment plan should take this into account either by progressively increasing the sum estimated for family living, or by leaving room for some increase in living expenses after the scheduled repayments are made (figure 1).

The standard plan is unrelated to the farm income that is available to retire debt. It would require a payment the first year that would be larger than the amount of the available cash. The payment the second year would leave no margin for contingencies. Taking the deficit the first year into account, this plan could be followed only if the farmer reduced living expenses during the first 3 years below the nominal sum of \$600 set aside for this purpose. If careful esti-

mates of net cash income are made, such a plan of repayments would not be set up in actual practice for cases similar to the one illustrated. But without such estimates, this plan of repayment would bring hardship and disappointments. A forward-looking analysis of the farm business will demonstrate the soundness of investment-credit programs that relate annual repayments to increasing returns.

Figure 1 suggests a principle which may be applied generally to medium-sized cotton farms in the Piedmont area on which credit is to be used to aid in making the change to a cotton-livestock system. The percentage the cumulative repayment each year is of the total, is given in table 4. Each of these subtracted from the succeeding one, gives the percentage the annual principal payment is of the total, when scheduled as indicated. Thus, for the medium-sized farms of this description, assuming that progressive improvement in management accompanies the changes made, and with price relationships as indicated, a 5-year repayment plan for a loan of appropriate size might properly call for retirement of about 8, 11, 16, 26, and 39 percent of the principal each year from the first to the fifth, respectively. Amortization tables that provide for increasing annual payments per \$1,000 of principal, could be based on different sets of percentage data like these, after analyzing such a repayment plan as applied to different types and sizes of farms. This approach would provide numerous plans, each of which would be designed to fit a representative set of conditions. The actual credit program for a farm would then take into careful account any factors that render it different from the representative farm. For example, increases in income available for repayment may be less, in individual cases, than that estimated for the representative situation. But, after developing a farm plan and deciding upon the loan program, it would be possible to select the repayment plan that best suits the conditions.

The Farmer-Borrower's Cash Position

The farmer's cash position, from the beginning through the adjustment, is shown in table 5. This table summarizes the financial picture, showing the unpaid balances at the beginning of each year, the interest payments, and the cash remain-

TWO PLANS FOR PAYMENT OF PRINCIPAL AND INTEREST ON NEW INVESTMENT LOANS COMPARED WITH NET CASH FARM INCOME AVAILABLE

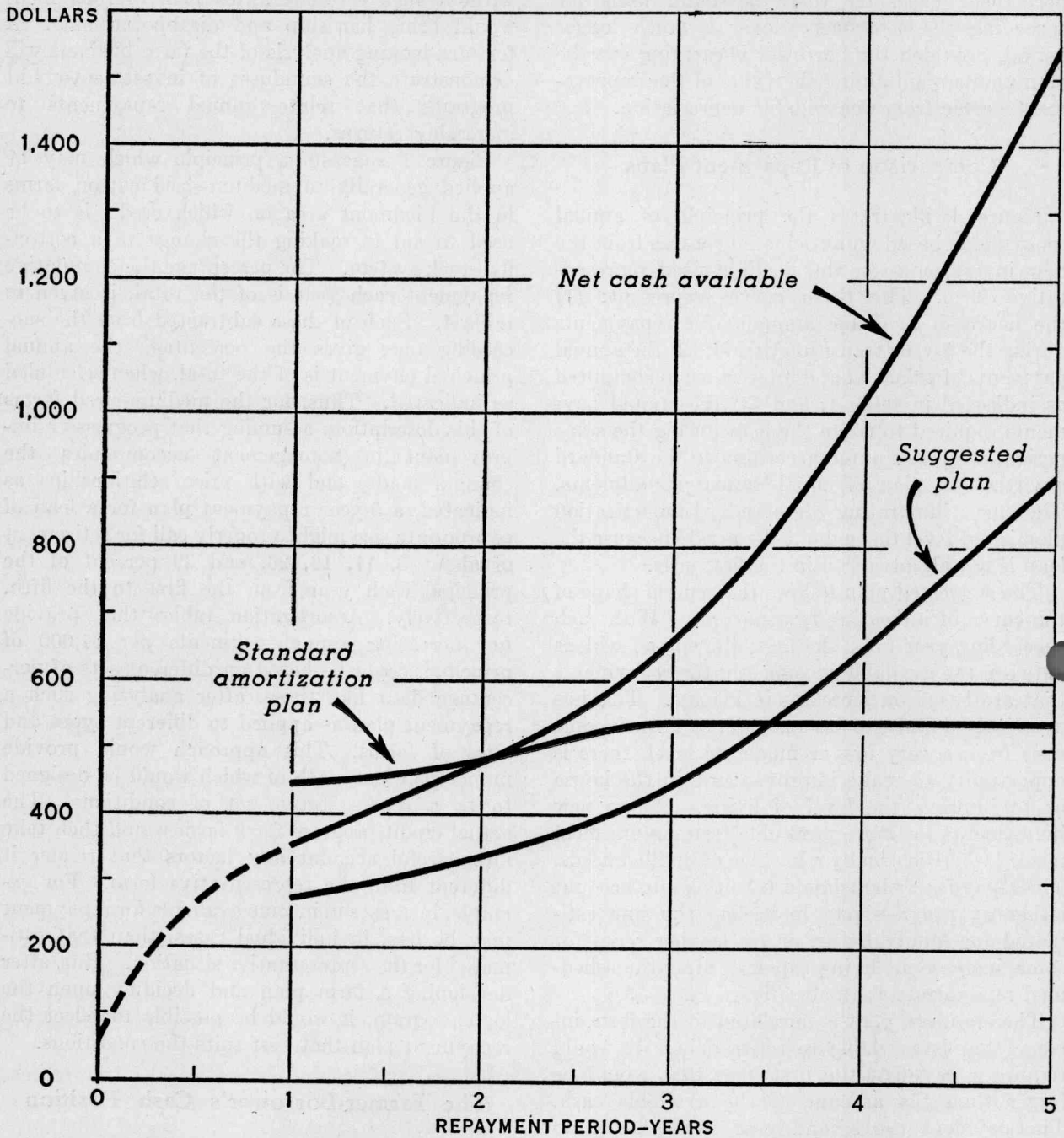


TABLE 5.—*Loan advances and repayments as related to net cash income available*

| Year of adjustment | Loans for new investments | | | Net cash income available ² | Principal payments ² | Unpaid balance beginning of year | Interest payments at 5 per cent | Total principal and interest payments | Available for other purposes |
|--------------------|---------------------------|--------------------|----------------|--|---------------------------------|----------------------------------|---------------------------------|---------------------------------------|------------------------------|
| | Soil improvement | Other ¹ | Total | | | | | | |
| | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> |
| 1----- | 503 | 1,433 | 1,936 | 352 | 177 | 1,936 | 97 | 274 | 78 |
| 2----- | 0 | 116 | 116 | 478 | 243 | 1,875 | 94 | 337 | 141 |
| 3----- | 161 | 0 | 161 | 662 | 355 | 1,793 | 90 | 445 | 217 |
| 4----- | 0 | 0 | 0 | 1,021 | 575 | 1,438 | 72 | 647 | 374 |
| 5----- | 0 | 0 | 0 | 1,539 | 863 | 863 | 43 | 906 | 633 |
| 6----- | 0 | 0 | 0 | 1,539 | 0 | 0 | 0 | 0 | 1,539 |

¹ First year, \$480 for dairy cows, \$138 for grain drill, \$815 for buildings and fences. Second year, additional fences.

² From table 4.

ing for other purposes such as increased expenditures for family living, household improvements, or other investments.

The loan contract would allow for, but would not require, a more rapid repayment than that based on a conservative estimate of the total cash income available for retirement of debt. Whether the schedule calls for completion of repayments earlier or later than indicated, it would be based on the cumulative increases in the net cash available. The rate of repayment is a matter to be determined by local conditions, including natural and human risks. The important thing is to gear the repayments to conservative estimates of returns, rather than to a fixed period of years.

Changes in Borrower-Creditor Equity

The investment position of farmer and lender is summarized in table 6, in which is shown the gross investment, the indebtedness, and the net worth for each year during the repayment period. At the end of the period, repayments are completed and depreciation is not offset by any further reduction in debt that would increase the operator's equity. At the end of the repayment period this operator's assets will have increased by \$4,586. As there was no indebtedness at the beginning of the first year, this sum represents the increase in net worth as a result of the changes.

The ratio of unpaid obligations to gross assets is a measure of the creditors' margin of safety. It has been said that there are "sound" loans, and

"safe" loans. The former are based on a reasonable estimate of the productiveness of the venture; the latter have a good margin of safety between the value of the property taken as security and the size of the loan. The possibility of default in payments necessitates a good margin of safety, even though careful analysis indicates that a larger loan would be justified. The type of credit program here suggested for the Southern Piedmont is sound, if estimates of income available for repayment are based on experience and are adjusted for special factors that may be present in each case. In the illustration here given, such a program is also safe, as is indicated by the low ratio of indebtedness to gross value.

In footnote 1 of table 6, reference is made to the re-appraised value of land, beginning in the fifth year. The increase in productive value is derived through capitalization of the estimated increase in the net rental share of crop production, after allowing for annual expenditures for maintenance of soil improvements and additional cash expenses and depreciation on buildings as a result of the new investments. Derived in this way, the increase per acre in land value would be about 8 dollars. The known effects of the soil-improvement investments on crop yields justify such a re-appraisal. In developing the re-appraised value, net rent is capitalized at an interest rate 1 percent higher than is used in arriving at present capitalized value. This is done as a means of offsetting the influence of improved management that is reflected in the part of the increased yield that

TABLE 6.—Investment, indebtedness, and net worth of the farm business during the period of adjustment

| Item | Unit | Year of adjustment | | | | | |
|---|--------------|--------------------|---------------|----------------|----------------|----------------|----------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| Assets: | | | | | | | |
| Land ¹ | Dollar..... | 5, 835 | 5, 000 | 5, 000 | 5, 000 | 6, 779 | 6, 779 |
| Other real estate ² | do..... | 1, 219 | 3, 073 | 3, 099 | 3, 008 | 2, 917 | 2, 826 |
| Livestock..... | do..... | 665 | 1, 266 | 1, 471 | 1, 816 | 2, 787 | 2, 787 |
| Machinery and equipment ² | do..... | 386 | 483 | 437 | 391 | 345 | 299 |
| Total | do..... | 8, 105 | 9, 822 | 10, 007 | 10, 215 | 12, 828 | 12, 691 |
| Indebtedness ³ | do..... | 1, 936 | 1, 875 | 1, 793 | 1, 438 | 863 | 0 |
| Net worth ⁴ | do..... | 6, 169 | 7, 947 | 8, 214 | 8, 777 | 11, 965 | 12, 691 |
| Indebtedness as a percentage of assets..... | Percent..... | 24 | 19 | 18 | 14 | 7 | 0 |

¹ Land value after the first year reflects value of timber removed for use in new buildings. The re-appraised value is shown, beginning in the fifth year.

² Data reflect depreciation and the value of new investments.

³ Unpaid balances on investment-loan advances. No initial indebtedness.

⁴ At the end of each year.

is unrelated to soil improvement. Another reason for using the higher rate in developing the re-appraised value is to allow for the probability that, as farm income rises, part of the increase will be used for family living, so that all of it would not properly be capitalized in calculating the increase in land value. Adjusting the rate of capitalization provides a simple method of taking these influences into account.

A Successful North Carolina Cotton-Livestock Farm

The potential role of credit for new capital investments depends on whether the changes are feasible and profitable. This question has apparently been answered in the affirmative with regard to changes from cotton, to cotton-livestock systems in the Southern Piedmont area. A brief description of the farm organization, and a statement of income and expenses for one farm in this area is given to illustrate what may be accomplished.

Crop acreages, livestock numbers, and a financial summary, are shown in table 7 for a farm in Union County in North Carolina. There are 60 acres of cropland and permanent open pasture on this farm, compared with 78.4 acres on the reorganized medium-sized representative farm as shown in table 2. The income is shown in terms of the prices that were used in the analysis of the representative farm. The actual net cash

farm income in 1947 was, of course, much greater than that shown in table 7. The total net cash farm income shown for the medium-sized representative farm, after reorganization, is \$2,139, (table 3), compared with \$1,994 obtained by the operator of the farm in Union County, if the 1947 sales and expenses are calculated on the same price basis. Net cash farm income per acre of cropland and permanent pasture for the farm in Union County is nearly \$6 larger than that of the reorganized medium-sized farm. If the net cash income per acre for the Union County farm was applied to the larger acreage of the representative medium-sized farm, the total net cash income of the latter would be about \$450 more than is estimated in this analysis.

The cotton-livestock system is followed on this actual farm, but a larger flock of hens is maintained than is indicated for the representative medium-sized farm. The pullets are provided with a range shelter placed on clean ground. Most of the important improved practices are followed; for instance, Ladino clover is used in combination with orchard grass for pasture, in addition to Sudan grass or lespedeza to furnish summer grazing for the dairy herd. Such practices, together with proper treatments of the soil and feeding of proper rations, have paid good returns. Table 7 indicated that they could pay good returns under much less favorable price conditions than those now prevailing.

TABLE 7.—*Organization, income, and expense of a successful cotton-livestock farm, Union County, North Carolina*¹

| Item | Amount | Item | Amount |
|--------------------------|---------------|------------------------------|----------------|
| | <i>Acres</i> | | <i>Dollars</i> |
| Organization: | | Income: | |
| Farm land: | | Cotton..... | 576 |
| Cropland: | | Cottonseed..... | 93 |
| Crops: | | Milk..... | 1,001 |
| Cotton..... | 7.0 | Cull cows..... | 180 |
| Corn..... | 2.5 | Eggs..... | 4,828 |
| Wheat..... | 9.0 | Poultry..... | 356 |
| Oats..... | 12.0 | Pigs..... | 25 |
| Barley..... | 4.0 | Total..... | 7,059 |
| Hay..... | 19.0 | | |
| Garden..... | 1.5 | Expense: | |
| Total..... | 55.0 | Crop: | |
| Double-cropped..... | 9.0 | Fertilizer..... | 2 454 |
| Total..... | 46.0 | Lime..... | 2 18 |
| Idle..... | 2.0 | Other..... | 2 350 |
| Total cropland..... | 48.0 | Livestock: | |
| Open pasture..... | 12.0 | Feed..... | 2,938 |
| Farmstead and woods..... | 2.0 | Chicks..... | 100 |
| Total farmland..... | 62.0 | Other..... | 88 |
| | <i>Number</i> | Machinery and equipment..... | 604 |
| Livestock: | | Farm improvement..... | 115 |
| Dairy cows..... | 4 10 | Hired labor..... | 252 |
| Hens..... | 4 1,000 | Taxes and insurance..... | 146 |
| Sows..... | 1 | Total..... | 5,065 |
| | | Net cash farm income..... | 1,994 |

¹ Data for the organization and production are for the year 1947. Income and expenses are computed on the basis of price and cost rates used in developing table 3.

² Includes 15 tons of fertilizer and 4.5 tons of lime. In addition, 6.45 tons of fertilizer on pasture, and 17.75 tons of lime were applied, the cost of which is not a recurring

annual expense, but an investment charged off over a period of 5 years. One-fifth of the cost of this additional fertilizer and lime has been included here.

³ Baling, combining, ginning, cost of seeds and plants.

⁴ On hand, end of year. Not average number in production during the year.

These returns were obtained at a capital investment (not including dwelling) of approximately \$11,500, which is comparable with that shown for the reorganized representative medium-sized farm. A barn and a poultry house were built in 1946, using farm materials when possible. The farmer, and other members of the family, did most of the work. The cash cost of the buildings was about \$800. Three brooder houses were built with lumber from obsolete buildings. These have cared for as many as 1,300 chicks, handled in three broods during a season. The farm buildings are simple but they fill essential functions in a way that is not always true of those that cost much more. Practices regarding farm buildings are commensurate with those relating to

fertilizer, cropping, and feeding, in helping to maintain a high standard of efficiency in the use of productive resources. They emphasize that expensive investments in farm buildings are not necessary when getting started in livestock enterprises here. The total value of farm-service buildings (not including the dwelling) on this farm is approximately \$2,000. At the close of 1947 the livestock and equipment were valued at \$2,450 and \$3,579 respectively. The latter figure includes \$2,300 for a tractor and truck.

Demonstrations of profitable changes in farming may be observed in all counties in the Southern Piedmont area, and similar changes are being made on farms in other parts of the State. These farms serve to illustrate the feasibility not only of

cotton-livestock systems of farming, but also of the use of credit, when it is needed to enable good farmers to make the necessary new investments.

Problems in Use of Credit to Improve Farming Systems

In this area, and on many farms in other areas, there is need for developing farm capital investments so that farmers can utilize the benefits of modern technology in conducting an efficient farm business. As organized now, the medium-sized farms in this area have net incomes only barely large enough to permit a nominal expenditure of \$600 for family living, at prices used in this analysis. In a study of farming opportunities in this area it was found that medium-sized farms comprised nearly half of all those included in a selected sample.² On the small farms, which comprised nearly one-third of the sample, the situation is much more acute. The farms in both of these groups need changes that will permit reasonably good management to yield higher incomes. These changes require capital investments that cannot be paid for out of earnings from the present organization at conservative prices. In the case of the small farms (excepting those operated as part-time farms) there is need for additional land.

Additional problems arise when credit is based largely on anticipated returns rather than altogether on the farmer's equity. Then the farm plan becomes of still greater importance. Technical assistance, and a means of checking on current progress, become an essential part of the credit program. This combination has been practiced in some of the governmental credit programs, such as that of the Farmers Home Administration. Commercial lenders might find ways of entering this field, and ultimately make such loans generally available to farmers who need them, who can qualify, and who are willing to develop adequate farm plans as a basis for loans. The general procedure would be no different from that in current practice, except that the economic basis for the loan would rest primarily on a complete

² This study, OPPORTUNITIES FOR ADJUSTMENTS IN FARMING SYSTEMS IN THE SOUTHERN PIEDMONT AREA OF NORTH CAROLINA, by W. W. McPHERSON, W. H. PIERCE and R. E. L. GREENE, was published in Sept. 1949 as North Carolina Agr. Expt. Sta. Tech. Bul. 87. Raleigh, N. C.

and conservative estimate of future net returns.

Private capital might be drawn into this type investment credit through a plan of governmental under-writing of development loans to farmers on much the same basis as is now practiced in the case of home owner loans. Potential loan funds might be obtained through sale of a special type of farm-investment credit bonds based on carefully placed and properly serviced loans. If the loans were placed for only sound undertakings as revealed by well-developed farm plans, they would pay out. A governmental guarantee would not need to cover the entire investment in order to provide adequate insurance to the investor. This kind of an arrangement would involve certain additional costs incident to the development of the farm plans, and some follow-up technical assistance. A substantial part of such additional costs might perhaps be met from public funds as the expenditure would be in a program to promote changes in farming that would be consistent with most efficient use of farm resources.

The function of servicing this type of credit through adequate farm planning and follow-up assistance calls for further development. This could take the form of a training program that would include appropriate representatives of lending agencies. This training would aid them in judging the adequacy of farm plans without working out all of the details. Under such an arrangement borrowers would be included in the plans of the agencies that assist farmers in making their plans. To the extent that these are public agencies, this phase of the cost of credit might be borne by public funds along with other educational and service work.

Several nonlending agencies of the Department of Agriculture (such as the Soil Conservation Service, and some of the State Agricultural Extension Services) have programs that include the development of farm plans with a great many farmers. In some States assistant county agents are employed for this work. A separate farm-management advisory service has been suggested as a means of encouraging desirable changes in farming or of strengthening existing systems in which no major changes are needed. Its function would be to fit technical recommendations into well-rounded farm plans and to test the economic feasibility of alternative combinations of enterprises and practices. Commercial farm-

management service agencies might sell this kind of planning assistance profitably to operators of family-size farms. Whether such planning and follow-up assistance were rendered by a private or a public agency, the farm plan would service both borrowers and lending agencies in a way to insure the success of this type of credit program.

As research and educational agencies are continually pointing out new developments that can

mean more efficient production, there is an ever-growing problem of combining managerial skill with natural and capital resources in order to take advantage of these developments. This problem involves the lending agencies and the agencies that assist farmers in developing farm plans, if credit is to attain its potential role as a major activating agent in promoting desirable adjustments in farming.

The War Records Project of the Department of Agriculture

By Wayne D. Rasmussen and Gladys L. Baker

Current interest in experiences of World War II invites a report on the War Records Project of the Bureau, beginning with its establishment in the Department by the Secretary of Agriculture on December 31, 1941.

THE DEPARTMENT PROJECT was one part of a Government-wide project initiated by the Bureau of the Budget after that agency found that the records of World War I were in an unsatisfactory condition as far as its needs were concerned. This feeling of the inadequacy of records of experiences in that war was widespread. The Extension Service, for example, when drawing up plans for the mobilization of local farm labor, found that records of a similar activity carried on during World War I were virtually nonexistent. Then it was recognized that careful and succinct analyses of current achievements were needed as well.

Thus, when the Bureau of the Budget requested the Secretary of Agriculture to compile a history of the administration of activities of the Department as they related to defense and war efforts, the Secretary responded by a memorandum dated December 31, 1941, which assigned the responsibility for the compilation of such a history to

the Director of Information, and asked all agencies of the Department to send quarterly concise histories of their defense activities to the Director.

After the entrance of the United States into the war, the Bureau of the Budget expanded its project. An Advisory Committee on the Records of War Administration was appointed as a result of a letter from President Roosevelt to the Director of the Bureau of the Budget dated March 4, 1942. The Committee had two primary functions: (1) to stimulate the major war agencies to set up historical units so as to develop and preserve full and accurate records of their wartime experience and (2) to advise the special research staff within the Bureau of the Budget on current analyses of administrative problems in major policy fields of the war. Subsequently, the War Records staff of the Bureau of the Budget, drawing in large measure upon materials collected and prepared by the War Records staffs of the Government departments and agencies,