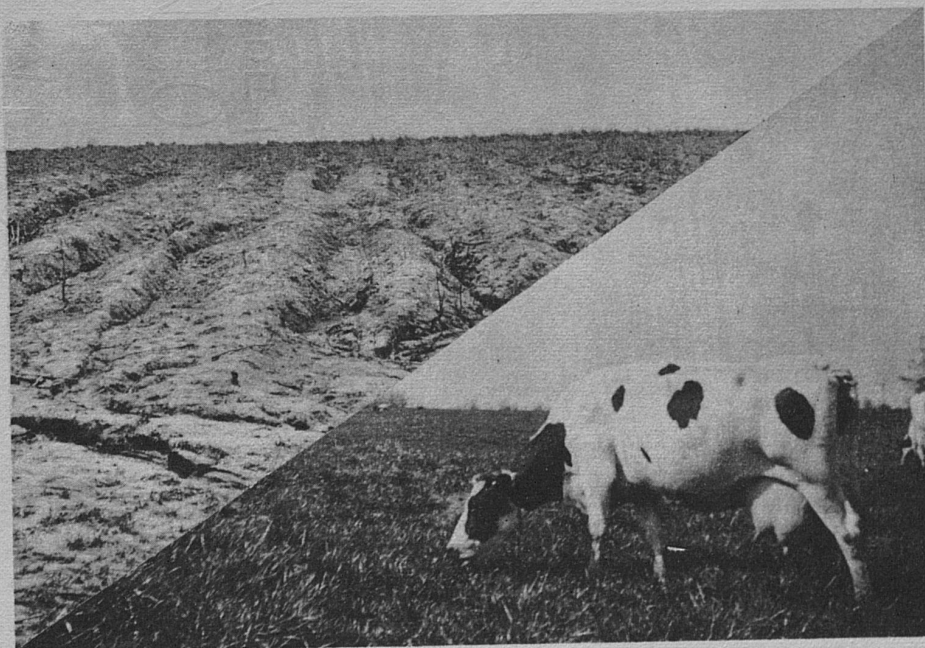


# *SOURCES OF INCOME*

## *ON UPLAND McCRACKEN COUNTY FARMS*

### *1951*

THE LAND IS THE SAME--



--THE DIFFERENCE IS IN THE INVESTMENT

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SOURCES OF INCOME ON  
UPLAND McCRACKEN COUNTY FARMS  
IN 1951

By Glenn L. Johnson

Farmers in McCracken county, one of the most rapidly developing counties in western Kentucky as far as industry is concerned, are now adjusting to problems created by:

- (1) the availability of many new jobs at high wage rates,
- (2) new markets for dairy products,
- (3) new forage production and fertilization methods,
- (4) high rural land values and
- (5) the risk of drouth damage to the new forage - livestock systems of farming.

In periods of change, farmers, money lenders, county agents, real estate men and others are especially interested in the earning power of investments and expenditures in farming. They are interested in whether livestock pay off, whether or not machinery pays off, whether or not the earnings of farm laborers are high enough to compete with industrial wages, whether grain or forage production pays most, and whether the land itself is paying its way at the high prices charged for it. In McCracken county, with its small farms averaging less than 70 acres in size, people are particularly interested in how changes in one kind of investment affect the earning power of other kinds of investments and expenditures; for example, how the earning power of labor might be increased by increasing the investment in land, or in machinery, or in livestock.

In the spring of 1952, farm management research workers from the University of Kentucky gathered financial records on 33 upland McCracken county farms.

The primary objectives in analyzing these records were:

- (1) To acquire estimates of:
  - a. the earning power of such things as livestock investments, labor, forage investments, machinery investments, land, current expenditures, and

- b. how the individual earning power of these things depend on the amount of other supporting investments and expenditures present in the farm business.
- (2) To gain insight into possible reorganization of McCracken county farms under the present rapidly changing conditions.

Adjustments to drought risks are discussed at the end of this report.

## THE EARNING POWER OF FORAGE AND LIVESTOCK INVESTMENTS

Before considering the earning power of forage and livestock investments, the question of what is meant when we speak of forage and livestock investments should be answered.

The forage investment is the investment in hay and pasture crops. It is the replacement value of the hay and pasture stands on the farm. Good, well-established stands of fescue-ladino were valued at between 35 and \$40 per acre while an acre of unfertilized lespedeza, more or less in condition to reseed itself, was valued at \$2. Other forage and hay stands were given reasonable values falling between these two extremes.

The livestock investment is the annual average investment in breeding and work stock. It includes the value of breeding and work stock on hand at the beginning of the year, less an allowance for such stock sold off the farm, plus an allowance for such stock purchased during the year. Feeder animals were not included in the breeding and work stock investment, as farmers expect at least dollar-for-dollar returns on feeders in contrast to only interest and depreciation on breeding and work stock.

As everyone knows, forage and livestock go together except for farms in a few areas selling hay or specializing in seed production. Forage does not ordinarily yield income until eaten by livestock. Thus, as both are ordinarily needed to produce income, the forage and livestock investments were added together before estimating their earning power.

### Forage and Livestock Have High Earning Power

On the 33 farms covered by the study, forage and livestock were the money getters. The "usual" investment in forage and livestock was

\$3,333.<sup>1</sup>/ Combined with the usual amounts of labor, land, machinery, and current expenditures, this investment in forage and livestock returned an estimated 52 percent on the last dollar used in 1951. This is enough to more than cover interest charges plus maintenance of forage stands and herds.

ON THE USUAL FARM STUDIED

Small Forage and Livestock Investments (\$1000) paid	Large Forage and Livestock Investments of \$10,000 paid
\$1.09 per last dollar invested	\$.25 per dollar last dollar invested
	\$3723 annually for the additional \$9000 invested
	\$1923 <sup>or</sup> annually above a 20% interest and maintenance charge on the \$10,000

Smaller investments in forage and livestock, on similar farms, paid a much larger rate of return, though the total and net, were lower than usual. On the other hand, larger investments in forage and livestock, on similar farms, paid a somewhat lower rate of return, though the total and net were higher than usual.

Larger investments in forage and livestock along with more land, machinery, labor, and other expenditures paid both higher rates and higher totals in many cases.

Forage and Livestock  
Increase the Earning  
Power of Other Investments

In addition to being profitable in and of themselves, forage and livestock investments increase the earning power of other investments and expenditures. The following table indicates how the earning power of the usual amounts of

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1/ The word "usual" is used in place of geometric mean. The usual or geometric mean amount is more representative than the common average or arithmetic means when only a few of the farms use large amounts. The "usual farm studied" is a farm using the usual amounts of each investment and expenditure group.

labor, machinery, land, and other expenditures would have been changed by increasing the forage and livestock investment to \$10,000.

Investment or Expenditure	Usual Amount On 33 Farms Studied	Earning Power	
		With Usual Forage and Livestock Investment	With \$10,000 in Forage and Livestock
Labor	12.5 months	\$40. a month	\$58.51 a month
Machinery	\$1683	\$.16 on a \$	\$.24 on a \$
Land	99 acres	\$5.65 an acre	\$8.18 an acre
Other Expenditures	\$1679	\$1.24 on a \$	\$1.80 on a \$

It should be observed that \$10,000 would develop around 80 acres of fescue-ladino and stock it with between 20 and 30 dairy cows.

#### THE EARNING POWER OF UNDEVELOPED LAND

Land was measured in terms of acres only. Thus, the figures used for land in the analysis of farm income do not reflect farm-to-farm soil differences, building improvements, forage stands, and such.

On the upland McCracken county farms studied, as one would expect, gross income was found to increase with the number of acres in the farm. On the usual farm studied, which had 99 acres, land was probably earning over \$5 an acre. The more land used, other investments and expenditures at usual levels, the lower the rate earned by land. The more supporting investments and expenditures used in combination with a given amount of land, the higher the rate earned by land.

#### THE EARNING POWER OF LABOR

The amount of labor used (or on the farm for use) was measured in terms of months. Study of the relationship between amount of labor used and gross income indicated that the earning power of labor was low. The usual amount of labor employed on the farms studied was 12.5 man-months

which earned an estimated 40 dollars a month. The analysis further revealed that:

- (1) the amount earned per month falls as more months of labor are used,
- (2) the earning power of labor increases as more assets are combined with it, i. e., when the forage and livestock investment was increased from \$1683 to \$10,000, the earning power of labor increased from \$40 to nearly \$60 a month.

### THE EARNING POWER OF OTHER EXPENDITURES

In addition to the investments and inputs considered above, each farm year's business involves expenditures for gas, oil, annual seeds, feeder stock, fertilizers whose values are consumed in one year, custom work, breeding fees, etc. The sum of the expenditures (on which farmers expect to secure at least dollar for dollar returns) is labeled "other expenditures." By and large, the McCracken county farms studied were getting back more than dollar-for-dollar returns. In fact, the estimates indicate that for the usual amount spent (\$1679), farmers were getting back about \$1.24 on the last dollar spent.

This situation is not as desirable as it appears to be. More profits could have been made had these expenditures been expanded until the last dollar spent just returned a dollar. So long as the spending of an additional dollar increases income by more than a dollar, profits can be increased by spending more dollars. <sup>1/</sup>

### THE EARNING POWER OF MACHINERY

The 33 farm businesses studied had a usual amount of machinery on them, valued (in current dollars by the farmers themselves) at \$1683. This amount of machinery was earning about 16 percent to cover interest on the investment, depreciation, repairs and/or maintenance. This rate of return, while probably adequate, is not nearly so large as that derivable from forage and livestock investments.

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<sup>1/</sup> Interest, of course, must be covered for the period of time between making and recovering an expense item.

## SIZE AND EARNING POWER

### Efficiency Increased With Size Up to a Limit, Then Remained High for Properly Balanced Farms

Results of studying the 33 farms as a group indicate that operations became more and more efficient as the farms increased from small to middle size. One of the farms had a gross income of \$890 from 48 acres, three months of labor, \$735 worth of livestock, \$30 worth of machinery, \$191 in other expenses and \$620 in land development while, on the other extreme, one farm had a gross income of over \$47,000 from close to 600 acres, 33 months of labor, \$800 worth of breeding stock, over \$12,000 in machinery, nearly \$33,000 in expenses (including feeders) and over \$10,000 in land development. Because it did not appear logical to expect increasing efficiency over such a wide range, the fifteen farms having the highest incomes were selected for separate study. The usual gross income among these 15 farms amounted to about \$7,500 and, among these larger farms, efficiency did not change greatly with size of farm as long as these larger businesses were balanced.

### McCracken's Small Farms Are Dropping Out or Becoming Larger

Between 1940 and 1950, McCracken county lost a net of 434 farms producing more than 250 dollars (in 1950 dollars) worth of products for sale. This loss occurred primarily among farms producing between \$250 and \$4,999 worth of products for sale. In fact, about 477 farms fell out of this category. Of these, 434 became rural residences, were abandoned, or were consolidated, while 43 moved up to gross incomes above \$5,000. Actually, McCracken county had 12 more farms earning over \$10,000 or higher (in 1950 dollars) in 1950 than in 1940. Only 605 farms producing products worth between \$250 and \$2,499 remained in 1950 and a large number of these are now gone.

Both developments noted above are generally desirable. If a person needing income is not grossing more than \$2,500 (about \$4,000 is probably a better minimum) at farming, he should either get out of farming or improve his farming. McCracken county farmers did both between 1940 and 1950, and this study partially indicates why: -

- A. Small McCracken county farms were not efficient in 1951.
- B. McCracken county farms can be increased in size with increases in efficiency at first and without incurring over-all inefficiencies as the farms approach, in size, the largest farms found in McCracken county.



## A POSSIBLE REORGANIZATION OF A PARTICULAR FARM UNDER 1951 CONDITIONS

The farm of one McCracken county farmer was organized as follows:

Land - - - - -	72 acres
Labor used - - - - -	12 months
Livestock investment - - - - -	\$179
Forage investment - - - - -	\$518
Machinery - - - - -	\$1,490
Other expenditures - - - - -	\$1,002

From these assets and inputs, actual 1951 gross income (excluding rental value of the home) amounted to \$1,365. This was \$516 less than would have been expected from the assets and inputs used on the basis of average performance; i. e., this particular farmer did worse than an average job of using his assets and inputs, probably because of ineffective management.

QUESTION: ASSUMING THAT THIS FARMER SUCCEEDS IN BE-  
COMING AN AVERAGE MANAGER, COULD HE REOR-  
GANIZE HIS BUSINESS TO EARN A STANDARD OF  
LIVING COMPARABLE TO WHAT COULD BE EARNED  
ELSEWHERE?

The answer will be based on 1951 conditions. And, there will be two answers: one for the next three years and another for the long pull. But first let's look at the farm business more closely.

According to this study, this farm with average management would have earned about \$3.21 an acre, \$17.40 per month of labor, in the neighborhood of 100 percent on the livestock and forage investment, less than 8 percent on the machinery investment and about \$.86 on the dollar spent for gas, oil, seeds, etc. Labor and machinery earnings were low. The livestock and forage investment was paying a high rate of return; current expenditures were not paying off well.

These probable earnings of different inputs on this farm indicate that the forage and livestock investment should be expanded, that current expenditures should be held down, that less labor should be used, and that less machinery should be used in relation to other inputs.

In 1951, this 72-acre farm was stocked with hogs (three sows and 24 feeders), 2 work horses, and a few chickens. Unimproved mixed hay and pasture occupied 18 acres of land, spring-seeded lespedeza another 10 acres, and improved pasture (fescue, ladino and lespedeza) another 5.5 acres.

This farmer could do one of two things to increase his income.

First, he could quit farming and go to work full time at some nearby urban or construction job or

Second, he could start to reorganize his affairs to develop a profitable farming business.

Let us assume that he wants to stay in farming, that he wants more income, that he is capable of becoming an average manager, and that he is resolved to accomplish these goals.

### The First Year

The first year, this man might:

- (1) work off the farm for six months to get working capital,
- (2) add (with borrowed money and money from off-farm work) six dairy cows worth \$2,000,
- (3) seed 25 acres of improved hay and pasture at a cost of \$1,000 with money out of his salary and further borrowing.

Thus, for the first year, the farm organization and expected rates of earning under 1951 conditions would be:

Land - - - - -	72 acres earning over \$6 an acre
Labor - - - - -	6 months earning \$68 a month
Livestock and forage - - - - -	\$3,697 earning 38 percent
Machinery - - - - -	\$1,490 earning 15 percent
Other expenditures - - - - -	\$1,300 earning \$1.30 per dollar

The above rates of earnings are for the last unit used. They are not average earnings. When a farm business is expanded and kept in balance not all units used earn as high returns as the last units used. In other words, middle-sized McCracken county farms are estimated to be more efficient than small farms. With the above organization under average management and 1951 conditions, the above farm would be expected to return \$3,700, which along with \$1,300 for six months off-farm work would bring total income to \$5,000 in contrast with the 1951 income of only about \$1,400.

At the end of the first year:

- (1) the six cows could be paid for,
- (2) living standards could be raised importantly,
- (3) debts could be reduced to \$1,000, mainly on the new seeding,

and, The Farm Would Be Ready For Its New Big Step Forward.

### The Second Year

In the second year, 6 more good cows could be added, a grade A dairy could be established, 15 more acres could be seeded and off-farm work could be reduced to 3 months per year. This would require an additional investment of \$2,000 in cows, \$1,000 in milking and milk-room equipment (part second handed) and \$600 in pasture for a total additional investment of \$3,600. The resultant farm organization and rates of earnings by the last unit of each input used would be as follows, if 1951 conditions continued to prevail:

Land - - - - -	72 acres at \$9.29 per acre
Labor - - - - -	9 months at \$67.11 per month
Livestock and forage - - - - -	\$5,697 at 36. percent
Machinery - - - - -	\$2,400 at 13.8 percent
Other expenses - - - - -	\$1,800 at \$1.39 per dollar

This organization with average management, would be expected to earn a gross of nearly \$5,500 under 1951 conditions, which along with \$650 from off-farm work would bring total income up to about \$6,100. This level of income would permit retirement of \$2,000 of the \$4,600 debt (\$1,000 for the previous year's seeding, plus \$3,600 invested during this year). Thus, over the two-year period, \$4,000 worth of cattle, \$1,600 worth of forage seeding and \$1,000 worth of milking equipment could be acquired at an increased indebtedness of only \$2,600.

At about this point in the reorganization, this farmer would be in position to buy more land, especially if the original 72 acres were debt free, which we will assume they were. Delay of one more year would have the advantage of permitting debts to be cleared before buying more land but would delay the development of a full-scale commercial operation.

### The Third Year

Let us assume that this man borrows \$9,000 to purchase 60 additional acres including 20 acres of improved forage land. This would permit expansion of the herd to 20 cows (3 farm-raised heifers and 5 more cows purchased at a cost of \$1,700) to provide full-time farm employment and would bring the forage-livestock investment up to about \$8,800.

As the farm would probably fail to experience further increases in efficiency as it increases in size, we should start using estimates from the 15 largest McCracken county farms studied. As reorganized, study of the 15 largest farms indicates that the reorganized farm WOULD EARN RETURNS AS FOLLOWS: over \$8,600 gross per year with returns to labor above \$100 a month, high returns to machinery, high returns to forage and livestock, moderate returns to land, with returns to expenditures on such items as feed, gas, oil, annual seeds low enough to make it advisable to conserve in their use.

### Risks are Involved Whatever is Done

Whether or not a particular low-income farmer decides to develop his farm, quit farming and take "public" off-farm work, or continue as he has been doing, risks are involved.

The process of developing a farm involves risks of price declines, bad weather, managerial mistakes, illness, and so on. Off-farm work involves dangers of lay-offs, illnesses, and such. And, continuing at a low-income level involves the dangers that needed medical care will not be secured, that children will not be educated, and that old age will be a time of poverty.

### The Possible Gains From Farm Development are Large

The benefits to be reaped from developing a substantial farm business are great. Ownership of an improved productive farm is a source of community respect, security, family stability and a good standard of living. Only a small proportion of urban laborers are ever able to command the important things in life to the extent they are commanded by persons owning good productive farms.

As pointed out above, between 1940 and '50, around 477 McCracken county farms moved out of the group producing between \$250 and \$4,999 worth of products for sale and home consumption in 1950 dollars.

Of these, 443 dropped out of farming, either completely or in the sense that they produced less than \$250 worth of products for sale. Forty-three developed their farms and moved up to produce over \$5,000 worth of products for sale -- these were headed towards high rural living standards. Forty-three new commercial farms per county in 10 years are important.

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