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THE CAPITAL available to a farmer plays a critical role in the organization of his business. This of course is not a new idea to either farmers, bankers or farm managers. But new light is being shed on the problem of how to make the most profitable use of available funds.

As our knowledge of agriculture has increased it has become increasingly difficult to put it to work effectively. The days when farms and other kinds of "small" business could be developed successfully in the same fashion as tasty home-cooked dishes were turned out—a pinch of this and a scoop of that—seem to have passed. "Electronic brains" are now making a contribution to these difficult investment decisions.

It is increasingly important that management make the right decisions, due, in part, to the fact that it is more difficult. The cost of wrong decisions has increased sharply as agriculture utilizes growing amounts of capital and purchased materials and services per hour of farm labor.

To help farmers get off on the right foot, farm economics departments at various universities have been busily engaged in applying "electrified mathematical geniuses" to some of their toughest problems. Possibly the toughest of all is that of selecting the most profitable combinations of crops and livestock for a given size and kind of farm and for varying levels of capital and management.

Beginning farmers who have limited funds and a multitude of opportunities for investing them present the most challenging problem. Once capital is invested in particular enterprises the range of possible alternatives is reduced. What the electronic computer enables the farm economist to do is try, on paper, the whole range of alternatives and select the one which promises to be most profitable in a given situation.

These machines, of course, will never substitute fully for judgment. Skilled managers will continue to be cheap at twice their price. But the gadget can help to sharpen judgments; it can, in effect, provide the farmer, the banker, the farm manager with the benefit of endless years' experience as a background for his decisions.

Where and how can the benefits of these problem solvers be obtained? As is true of most complex, specialized gadgets, they'll not be used much by the layman. But they enable researchers to find answers to the layman's pressing problems faster and cheaper.

A recent report from Iowa State College (Research Bulletin 449) is addressed to the problem of selecting optimum farm plans for beginning tenant farmers in central Iowa. Similar reports are available for northeast and southeast Iowa. From the University of Illinois



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comes a similar report on the profitable organization of farms including non-tillable pasture land in northwestern Illinois (Illinois Farm Economics, June 1957). These are illustrative; the list is not intended to be inclusive.

Since capital is a major limiting factor for most beginning farmers, and for many others as well, the studies consider in detail how the farms should be organized for maximum profit with varying amounts of capital available. The detailed findings cannot be presented here but the critical importance of the amount of capital is illustrated in the following summary observations.

In central Iowa—"When capital is limited to \$3,000 (above basic investment in machinery) managerial ability has no effect on the selection of enterprises" The most profitable farm plan is cash crops (corn-corn-soybean rotation.) "Use of all funds for crop production and fertilization gives greatest profits" under these conditions. "In the ordering of investment some fertilization of crops is always more profitable than investment in livestock."

"Livestock does not become profitable until \$5,000 of capital is available. Optimum plans then include spring pigs. . . . Fall pigs, feeder cattle and poultry, in general, become profitable investment opportunities only when capital is increased beyond \$10,000. . . ."

In northwest Illinois—the same general picture is presented for a 240 acre farm, namely, that cash crops have first claim to capital but as the available supply of capital increases, hogs are added and the number of hogs produced expands "reaching a peak of 145 litters at a capital supply of \$17,000. Capital is too limited at that level for a feeder cattle operation. The number of steers fed on pasture reaches a maximum of 275 head at \$76,000 available capital."

These are only samples of the kinds of information which these studies can provide. And it is not intended that the results be directly applicable to individual farms. But such studies provide a wealth of background economic information that can help to guide farm investments into the most productive and, therefore, the most profitable combinations. For detailed information check with your college researchers.

Research Department