

CHAPTER 9 Putting the Farm Plan Together

A GOOD PLAN FITS THE FAMILY members who will use it. It is geared to the special conditions of the farm they operate, the time and skill they can put into the farming operation, the capital they have to use, and the risks they are willing to undertake.

The general farm plan cannot be separated from the family living plan. The larger the share of the family income that is put into the farm business the less money there will be for living expenses and savings. The money comes from the same pocket.

The plan should be developed by the farmer and his wife working together. True, the farmer may take on the bigger end of the planning job. But major decisions about the use of time and money for the farm business, for family living or for saving should be made jointly. Only then is family farming most effective and family living more harmonious. If older children are at home, they should take part in the planning, both to learn and to contribute their ideas.

The goals the family has in mind—and there are many kinds—must guide the farm plan. An important goal with some families is to increase the income from the farm business. Other families may decide that shorter working hours or a vacation are more important because their income is reasonably good. The goal may be to make better use of the time of 'teen age children or per-

haps to lessen the need for their help so they can go to college. Sometimes the goal may call for investing additional money in the farm; such as remodeling the house, building additional farm buildings or changing them, putting in a windbreak, or beautifying the farmstead. In another case, the goal is to lessen the soil loss that threatens to reduce future income. Obviously, the list of possible farming goals is a long one. General family goals are discussed in Chapter 13.

In any case, a good plan is one that helps the family members use their time, capital, and ability more effectively. Most people prefer a plan that looks ahead for several months, usually a year or more. They want it made up in enough detail so it will serve as a guide as they put the plan into operation—therefore it should be written down. But it should be flexible enough to allow for new circumstances that may arise.

Purposes of the Farm Plan

A good plan helps the farmer and his family in eight or more ways.

1. It helps them work out a better farming combination—that is, one that pays them better for the land, labor, and capital they use.
2. It helps them choose money-making practices that are adapted to their conditions.
3. It helps in getting the main jobs timed so they do not conflict with each other.
4. It helps them look farther ahead than they otherwise could.
5. It helps in avoiding waste; and there is waste whenever any resource is poorly used—labor, capital, land, management.
6. It furnishes a guide to go by, a yardstick when progress is to be measured.
7. It helps the farmer and his family keep a better balance between making money on the one hand and using it for family living or savings on the other.
8. It helps fit the farm business into a well-rounded family life so the family can master their own affairs instead of the farm being master of them all.

Start From Where You Are

The kind of plan that is needed depends on the situation. A beginning farm couple must start from scratch unless they can start out as partners in an operating business. They must decide on the many points already discussed in Chapter 4. Tenants need a somewhat different plan than a farm owner, especially if they are not reasonably sure they will get to stay on the same farm for a good many years. Operating farmers may need a readjusted farm plan or perhaps a completely remodeled one.

The first requirement for planning is to size up the present situation. To do this effectively, the farmer must begin by studying himself as the manager of the farm. He also will study the resources he uses; the farm, crops, livestock, machinery and equipment, workers, and the like. He will appraise market opportunities and price prospects. He may look to see how well farmers get paid for their farming in his community compared to opportunities elsewhere.

If the farm brings in a reasonably good income compared to that of other alert farmers in the neighborhood operating under similar conditions, this is good evidence that the present plan is basically sound. This does not mean that time spent in planning will not be well used. Most any plan can be improved. It simply says that the basic plan now in use will likely be continued.

But on thousands of farms, more extensive changes are needed. Evidence of needed changes would include such points as these:

1. The farmer is receiving less income than his work, skill, and capital would bring in if he were employed in some other occupation.
2. The farmer's time is not efficiently employed.
3. The farmer is using less capital per worker than good standards suggest.
4. Yields and production are low and uncertain.
5. Soil erosion is reducing the producing ability of the farm.
6. Costs are excessively high per unit of product produced.
7. The plan is hard to manage and keep on schedule.

As a general rule, only a reasonable number of changes should be considered at one time. This is because there is a

limit to the number of new things that a manager can put into effect at one time and do a good job of it. But alert people are willing to undertake the necessary changes.

About the Life Cycle

Before going far with their planning, the family members should review their own position in the life cycle. This makes a good deal of difference in many decisions.

The Younger Family—Under forty years of age. This is the age of capital accumulation. Since most farm families start with much less capital of their own than they need for an efficient farm operation, they have a strong urge to accumulate capital. In addition, as they gain experience, they will likely want to increase the size of the farm business.

Probably they start with a good deal of borrowed capital and they want most of it to be their own. Saving, then, to expand the business and increase their own capital will have a high claim on earnings. This usually means that family living expenses must be kept down—no small undertaking. It also means taking on a good many risks in the farming business in order to attain this goal. “Nothing ventured, nothing gained” will fit their planning. But too much risk might mean disaster. Finding a logical middle ground is where careful planning comes in.

Younger Middle-Age—forty to fifty-five years. This is the age of highest family living costs. The plan must take this into account. Children are of high school or college age. Perhaps the parents are helping the older children get started in life. Many farmers are paying for a farm as rapidly as possible.

Farm operations are usually larger than in earlier years. The farmer has more capital and experience—knows how to manage a larger unit. Older children usually help with the farm work and the plan must make their work effective. Home and farm improvements are frequently made; modernizing the house and adding to farm buildings. These may cost a good deal of money. Or maybe the parents plan to travel a bit to broaden their own lives and those of their children.

If the farmer has been successful in taking risks at a younger age, he may want to continue to do so. He feels more confidence in his judgment. But, during the period of middle age the

family should build up their equity rather than take on large, new ventures. Most farmers who "go broke" do so because of taking too many risks during this period of life.

Older Middle-Age—fifty-five years and over. The farmer should plan to do less physical work and make better use of his accumulated experience and capital. Often, the farmer shifts to a plan requiring less labor than the one of previous years. If he is about out of debt, money needs for the farm business are much less than formerly. The cash needs for living will be smaller after the children are gone. Security is more important now and risks should be reduced. If a man loses much of his capital at this age it is late for him to expect to recover it.

Father-son plans, often established to operate during this period of the father's life, may be in some difficulty. The basic money needs of the younger family and the older one as well as the risks that are logical for the two families are different. If they operate together, their plans must take this into account. Even so, conflicting needs are bound to be present.

Watch How Others Plan

Farmers always should be alert to the plans used by the "money makers" in the community. Pay special attention to those who are near the same age and are operating under reasonably similar conditions. The reference here is not to the flashy kind of operator who may "hit the jackpot" once or twice. Rather, it refers to those who are steady and efficient operators but financially quite successful. Try to pick out the key points that make them successful. Make joint planning with neighbors useful. If neighboring farmers use their winter "get-togethers" in an organized way, they find such discussions of great use in helping them improve their farm business.

Don't simply be an imitator. The business-like farmer learns all he can from his neighbors as well as getting information elsewhere, but applies only what fits his own case.

How "Big" a Farmer Are You

The plan must fit the man. The farmer himself is the most fixed part of any plan. He can use more or less of other resources in the plan, but there is only one of himself to use. Even so, he can improve his ability as a manager if he will.

Many farmers have a plan that is smaller than they could readily manage if they tried. They are like an automobile that never gets out of second gear. The production and income from their farm will always be lower than it should be—the level of living for the family will be lower, too.

Others make the opposite mistake. Like a machine that is continually overloaded, they are always in trouble. It may be high expenses, low yields, death losses of livestock, or waste on every hand. Trying to operate on too large a scale is about as bad as not trying to do enough—maybe worse.

How Complete a Plan?

A complete farm plan is probably the best goal. This would include making a plan of the expected use of land, labor, and capital and what the farmer expected his income and expenses to be. Doing a good job of planning, like anything else, requires skill and experience. To start out the first time by making a plan in great detail may be almost as bad as doing no planning at all. A man who makes a plan each year can do a lot better job of planning the second year than the first, the fifth year than the second.

The farmer who doesn't want to go very far with detailed planning should work on the over-all farm and home plan. He can take a brief but careful look at his whole farm operation—crop plan, livestock plan, labor plan, marketing plan, investment plan—and then look at the family spending plan. He will soon be able to pick out some of the weak spots and try to improve them.

A Part-Plan Not Good Enough

Avoid having only part of a plan and then using it for making important decisions. Common part-plans are: a crop plan, a soil conservation plan, a livestock plan. True, something is usually better than nothing. But a part-plan can easily be misleading unless it is fitted into an over-all plan.

Certain detailed plans may be needed on occasion. If the farmer is putting a set of terraces on the land, this is a detailed engineering job. So details will be needed. This also will be true if a new rotation is to be set up, a drainage system is to be put in, main fences are to be re-located, or new buildings are to be built. In the latter case, a detailed study should be made

so the new building can be located where it will serve its purpose best, save steps, be of the right size, add to the farmstead appearance, and the like. Errors in planning the farmstead are costly to correct. Make certain that building and farmstead plans are good ones before starting construction. Buildings should be designed to fit the farmer's needs, not only for next year but for many years in the future.

Make the Plan Yourself

Most of the planning will, of necessity, be done by the farmer and his wife. In some counties, a professional worker is available to help with farm planning. The farmer can use the help of a skilled person to good advantage. But the farmer must make his own plan and know why he decided that the plan should be as it is.

Where a father and son operate a farm together the plan should never be made only by the father. This may be a hard lesson for the father to learn. If the son is to help operate the



FIG. 55—Careful planning is an important part of the operation of the successful family farm. A good plan furnishes a guide to follow and a yardstick when progress is to be measured. Here the father, son and son's wife talk over farm and family plans for the months ahead.

plan, he must help make the plan. The father can help with counsel and suggestions. The son's wife should not be overlooked in the planning efforts either.

Starting the Plan

Most families do their main job of planning during the winter months after the crops are harvested. They have more time then. They can look more clearly at past accomplishments and future problems than when they are engaged in important day-to-day operations.

Some farmers need to make plans at other times. The cash grain farmer raising winter wheat must make major decisions about next year's cropping program by late summer. Many cattle feeders buy most of their feeding cattle during the fall and must have the main features of their year-ahead plan ready by this time. But for most farmers, more time can be used in making up the plan.

The farmer and his wife should consider several questions as they start their planning.

About the Farm Plan

1. Is the farm business the right size at present to use the skill and labor of the family effectively? Note that this does not suggest how large the farm business should be. In some cases, the best size would be a one-man farm; in another case a two or three-man unit.
2. Is the operating capital used per worker as nearly the right amount as possible under present conditions? And is capital well distributed within the plan, that is, where it will return the most profit?
3. Has the family looked ahead to price prospects?
4. What are the rules to be used in taking on risks?
5. Did last year's plan fail to make good use of all resources—soil, capital, workers, management?
6. What are the special skills and abilities of the manager—and his wife?

Between Farm and Home

1. How will the balance be struck between the importance of money making and that of family living?

2. Are both short and long-run family goals clearly in mind so the immediate plan can be guided toward them?
3. How will the needs of the various members for congenial and happy family living be fitted into the plan?

A Case Study

To point up some of the planning problems, an actual case may help. A farm might be chosen from any Midwest location—in the wheat country, Dairy Area, Corn Belt Area, or at any other place. The principles to be used will be the same, the details will differ.

The example chosen is a farm located in the south central part of the Corn Belt Area.¹ The farm of 160 acres had been considerably run down by a heavy cropping program when the Foundation took it over as the landlord. It had been rented with a grain share lease, although the farm is not adapted to cash grain farming.

First in importance was knowledge about the capacity of the man and the land. Since the landlord bought the farm as a profit making proposition, he appraised both the farm and the tenant as to their possibilities. He believed that the farm was worth developing—that was the reason for buying it. Obviously, an experienced tenant with adequate capital would hardly come to such a run-down farm. He noted, though, that the tenant was a good worker, honest, had a cooperative wife, and looked as though he could handle the business.

The farm was of fair to medium grade soil but it had been abused in the past and part of it was considerably eroded. Quite a lot of surface soil was gone. Many gullies, too deep to cross with machinery, led back up into the sloping fields. The buildings were in fair shape and would serve the immediate needs of the farm.

The landlord and tenant got together and went over the situation with an eye toward making the farm pay a larger profit. Both would gain if it did and they discussed this point. The time of this appraisal was during the late nineteen-thirties.

First they looked over the results of the farm plan as operated under the previous landlord. What they found is shown in Table 55.

¹ This farm is one owned by the Iowa State College Farm Foundation, J. J. Wallace, manager.



FIG. 56—A tenant house before and after remodeling. Here, a wise landlord spent a share of the higher income that came from better planning and farm operation on improved housing for the tenant's family. This was a real incentive for the tenant to try to increase the farm income for the landlord as well as himself. Photos by J. J. Wallace, I.S.C. Foundation Farms.

TABLE 55
OLD PLAN

Workers on the farm: Man-months		13	The work is done by the operator with the help of his wife.	
Capital: Furnished by tenant		\$1,220	Power, machinery, livestock, feed	
Furnished by landlord		\$4,480	160 acre farm at \$28 per acre.	
	Acres	Usual Yield	Operator's Share	Landlord's Share
Crops:				
Corn.....	20	30 bu.	300 bu.	300 bu.
Oats.....	16	25 bu.	240 bu.	160 bu.
Hay (mostly timothy)...	20	0.9 T.	9 T.	9 T.
Rotation pasture.....	6			
Crop land.....	62			
Permanent pasture.....	70			
Roads, lots, waste.....	28			
	160 A.			
Livestock:				
Milk cows.....			4	
Stock cows.....			6	
Young cattle.....			8	
Pigs raised.....			15	
Chickens raised.....			200	
Hens kept.....			60	
Income items:				
Value of crops.....			\$348	\$316
Value of pasture.....			100 (rent pd.)	100 (rent rec'd)
Total crop.....			\$448	\$416
Income over feed cost from feeding crops to livestock.....			300	
Total income for year.....			\$748	\$416

Out of the tenant's income of \$748, he must pay farm operating expenses, rent, and living costs of the family.

The landlord's income of \$416 must pay for taxes on the farm, insurance and upkeep on the improvements, and any grass seed that he furnished. The rest will be the income from his investment plus that for the work of looking after the farm.

Neither had much net income under these conditions. In fact, the tenant had a very poor living with little, if anything, left for savings. The landlord's income would hardly justify owning a farm for the small amount that is left.

Next, they listed the weak spots in the situation. Here is their list:

1. The income is low both to tenant and landlord.
2. Crop yields are low.
3. The acreage of crops is small for a one-man farm. One man should handle seventy to eighty acres of crops with a tractor and ordinary machinery, in their judgment, on this type of farm.
4. The tenant is not using much capital to go along with his labor.
5. The landlord is not furnishing much in the way of productive land. The crop yields and value of the land show this.
6. The tenant is not making much additional income from his livestock program. He is not well-employed during the fall, winter, or early spring months with so little livestock. He would like to keep more cows but the pasture is so poor that five acres are needed for one cow. Even then, pasture is short in the late summer and the cows give little milk at that time. He has little grain for hogs and chickens.

A Remodeled Plan Needed

Obviously, this farm needs a remodeled plan, not just some changes in the present one. After going over the present situation in detail, they agree that this is the case. The next problem is to set up a good plan—a potentially money-making one for this farm. It is not an easy task. But by putting in a lot of discussion both around the kitchen table and out in the fields where they can see specific changes that need to be made on the land, they work out a revised plan. Note that cooperative effort is what does the trick, not a dictatorial attitude on the part of either landlord or tenant. Here is a summary of the problems and the solution they agreed on.

<i>Problem</i>	<i>Solution</i>
Lease plan gives the tenant a low income. He has little incentive to do better.	Shift to a livestock share lease so the landlord can help furnish the needed capital and share in both risks and income. The land is not adapted to grain share rent anyway. In

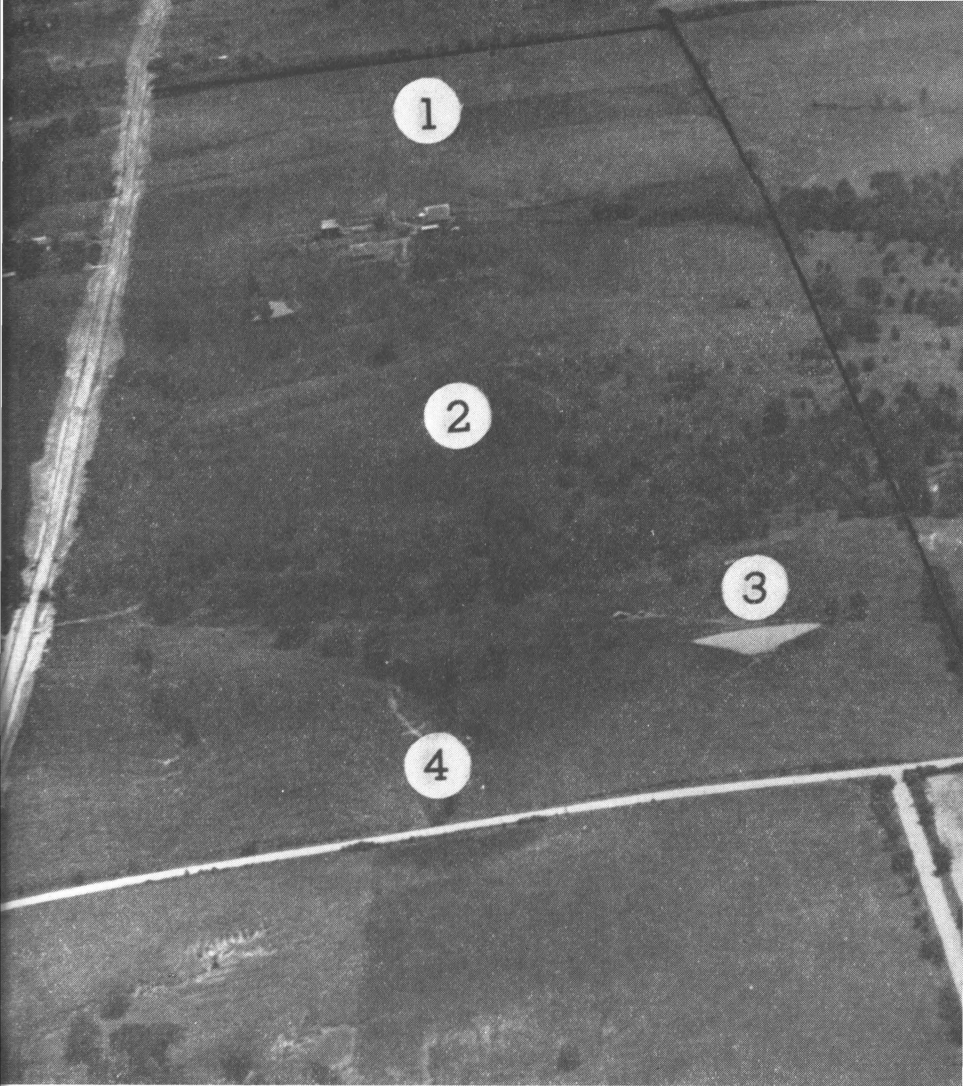


FIG. 57—By changing the crop plan on this farm and adding improved practices, the crop output was greatly increased and soil erosion brought under control. The crop plan was made a part of the over-all farm plan and not developed separately.

A few of the steps taken in replanning this farm:

1. A rotation was set up that was suitable for the 40 acres of better land and 20 acres of poorer land on this end of the farm and soil conservation methods used. Note how gullies, formerly too big to be crossed with machinery, were heeled in and grassed waterways established.
2. This 70 acres, formerly a poor bluegrass and timber pasture, supported ten cows. Now half of it has been added to the regular crop program to provide corn, oats, and alfalfa-brome pasture in sequence. A cow needs only 1 to 1½ acres of this pasture for the season.
3. A large pond to supply livestock water in a tank below the pond was built on the back end of this mile-long farm.
4. This 18 acres of nearly abandoned land was reclaimed with a lime, phosphate and sweet clover program. It now produces about 1,000 bushels of corn once in four years along with oats and hay or rotation pasture in other years. Photo by J. J. Wallace, I.S.C. Foundation Farms.

Landlord income also low. Total production must be markedly increased if either is to make money.

Crop and pasture production and yields are low; all soil on the farm shows need of lime and phosphate; some crops now used such as timothy have a low value as feed. The soil is eroding badly.

Tenant's labor is not efficiently used throughout the year.

addition, the landlord can find ways to give the tenant more incentives with stock share rent.

Landlord will add more capital since he is not putting in much now with a low producing farm. To build up the land, he will furnish all grass seed, lime, and fertilizer; improve the buildings and fences and pay for skilled labor needed to put them in shape. The landlord also will share in ownership of livestock and feed. To match landlord's extra contribution, the tenant will: clean up the place; furnish labor to put in and maintain grassed waterways; farm on the contour; help build terraces where needed; dynamite stumps; fill in ditches and do similar jobs from which both will benefit. This will be in addition to the regular farm work. If the tenant needs extra help in soil and land improvement jobs, the landlord will pay for the labor as well as for all materials.

Adopt a suitable rotation as soon as possible; corn-oats-(sweetclover)-corn-oats-alfalfa-alfalfa on the better land, corn-oats-alfalfa-alfalfa on poorer land; spread more manure since more livestock will be kept; lime and fertilize the soil (landlord's expense); use legumes in rotation on crop land, also in permanent pasture; add more land to rotation by plowing up less rolling parts of permanent pasture, getting more grain and higher yielding pasture after one crop each of corn and oats; put in grassed waterways wherever needed and maintain them; farm rolling fields on the contour; build terraces where needed; use improved crop varieties.

Shift to a dairy herd. The tenant likes good milk cows. With a good cow herd, the tenant can sell the results of his labor and get a higher rate for it—farm is not well adapted to beef cattle; dairy herd also will furnish market for the increased hay and pasture program outlined above; landlord to add

milkhouse and milking machine in due time as the herd gets large enough. Build pond on back of place for livestock water.

Since hogs pay a high return for grain, increase hog business using early spring and fall litters and better breeding stock; use clean ground system; save labor with self-feeders. Buy some additional grain until the new rotation gives larger grain production later on.

The wife and two children are not able to contribute much to the family income. They would like to do so.

Landlord will remodel hen house so it can handle 175 hens; buy a share in a brooder house. This will permit getting eggs in the fall and winter when prices are best. Wife and children also will help with milking. Landlord will encourage wife to cooperate by furnishing paint and wallpaper for inside of house; provide fencing for yard, tenant to construct; furnish material for work table and kitchen cupboards in kitchen that tenant can install—he is handy with tools.

Both agree that this list of changes cannot all be made at once. In fact, the above list includes the changes that were worked out over a series of years and added to the farm plan a few at a time. The basic outline of the new plan was made at the beginning. The additions and details were then worked out from time to time after certain of the changes had been tested out to see that they really were profit-making changes.

Further, both tenant and landlord put additional capital into the business under the new plan. The tenant could borrow some money but most had to come out of his share of the farm earnings. The landlord had the wisdom to know that this was a better idea than for him to furnish all the needed capital immediately. In no case did the landlord lend money to the tenant. The tenant had to use credit that was a sound loan in the judgment of the local credit agency.

Ten Years Later

The new plan has worked. Not perfectly, of course—many adjustments were necessary from time to time, and more will be

TABLE 56
PRESENT PLAN

Workers on the farm: Man-months.....	17	Operator, help of wife and children, 1½ to 2 months of hired labor.	
Capital: (At 1940 prices)		Tenant	Landlord
Machinery and equipment.....		\$2,180	\$ 480
Livestock and feed.....		2,050	2,050
Land and buildings.....			5,600
Total.....		\$4,230	\$8,130

	Acres	Usual Yield	Jointly Owned
Crops:			
Corn.....	36	50 bu.	1,800 bu.
Oats.....	30	40 bu.	1,200 bu.
Hay.....	30	2.0 T.	60 T. (mostly alfalfa)
Rotation pasture.....	24		
(Alfalfa mixture)			
Permanent pasture.....	25		
Lots, etc.....	15		
Total.....	160 A.		
Livestock:			
Milk cows.....			16
Young cattle.....			8
Pigs raised: spring.....			80
fall.....			70
Chickens raised.....			300
Hens kept.....			175
Income items: (At 1940 prices)			
Crop value.....			\$2,360
Pasture.....			220
			\$2,580
Income over feed cost from feeding crops to livestock..			\$2,000
Total income from farm.....			\$4,580
Income in 1938.....			\$1,164
Increase from new plan.....			\$3,416

needed. The present situation is shown in Table 56; the same farm, the same farmer, a remodeled plan.

The increase in gross income is striking, going up from less than \$1,200 to nearly \$4,600 when both are figured at 1940 prices. This is the gross income after paying for any feed and livestock purchased. Out of this gross must be paid all farm operating and fixed expenses.

This change in production and income shows what was accomplished on a particular farm by changing from a very poor plan to a very good one. Note that the farm itself had a potential producing capacity far in excess of what it was showing under the old plan. Likewise the tenant had far greater producing ability than he could apply under the old system. In fact, he surprised himself by the amount that he was able to produce. By teaming up with a landlord who cooperated in working out a plan designed to help the tenant do his best work and get the most out of the farm, and who helped set up a lease system with incentives in it, the tenant's best abilities and those of his wife were put to use.

Today, the tenant is as proud of the farm as though it were his own. The landlord is proud of it and both are getting a very satisfactory income. Formerly considered one of the least desirable farms in the community, it is now one of the most desirable. The present situation is the result of foresight, additional capital and ideas, hard work, thrifty and careful management, and a good plan. The principles of making a good income from farming have been applied in good measure. The tenant and his family have a good standard of living and can afford a vacation each year. They are looking forward to owning a farm of their own before long.

Specifically the steps taken by the landlord and tenant in the planning are as follows:

1. First, they sized up the total situation and faced it fairly; the farmer and his ability, the farm and what it might become, local markets, price prospects, capital needs and sources, and the like.
2. They checked to see if the farm could be made into a satisfactory business unit so that the farmer and the capital being used could be fully and profitably employed.
3. They worked out a lease plan suited to their special conditions. They wanted it not only to be fair but to give incentives to both tenant and landlord so they would make their best contribution to the farm business. They saw to it that good living conditions were possible for the tenant's family and would improve as the tenant demonstrated money-making ability.

4. They worked out a basic plan that fit the man and his family, the farm itself, market conditions, and the price outlook.
5. They started from where they were—didn't jump from the old plan into a brand new one all at one time. They left room for adding to or subtracting from the plan as experience and study indicated.
6. They worked hard both in designing the plan and in making the plan work. They used the best information they could get. Once they had reached a decision, they carried it through to see how well it worked out. But they kept an eye out for useful new ideas and for changing conditions.

Where Adjustments Are Needed

Farms where a remodeled plan is needed are all too common in the Midwest, especially on rented farms and smaller units. Another large group of farms can use various kinds of adjustments for the plan that is already in operation.

In some cases, the acreage of cropland does not fit the supply of labor very well. Before trying to adjust this, a man needs some idea of what a reasonably good acreage of crops per worker should be. The acreage per man-year of labor shown in Table 57 was taken from records kept by successful farmers in the various states.

To have a well-balanced unit from the labor point of view, a man should have an acreage of crops for harvest somewhere near the amounts shown above. A good deal depends on the other parts of his production combination. The dairy farmer has a lot of chores to do, so cannot handle so many acres of crops.

TABLE 57
ACREAGE OF HARVESTED CROPS PER MAN-YEAR OF LABOR *
(All Farm Work)

State	Dairy or Dairy-Poultry		Hog- Dairy	Hog-Beef Feeder	Cash Corn- Livestock	Plains Wheat
	<i>(Smaller)</i>	<i>(Larger)</i>				
Minnesota . . .	35-45	60-70	60-80	80-100	.....	.....
Wisconsin . . .	35-45	50-80	.....	.....	.....	.....
Ohio	35-45	50-70	.....	.....	.....	.....
Indiana	40-50	50-70	60-70	80-100	90-120	.....
Iowa	40-60	.....	60-80	80-100	90-140	.....
Kansas . . . .	.....	.....	80-120	100-140	.....	200-500

* From farm business records from respective states.

But the cash crop farmer can put in long days in the field during the busy season and cover a lot of ground. Much depends on the size of the power unit and machinery that the farmer uses. The dairyman seldom finds that it pays him to use large field machinery since he does not depend on crops for so much of his income. But the grain farmer must produce a lot of crops with his labor if he is to make much profit one year with another.

The man who has less land than is needed for an efficient unit should strive, first of all, to get more cropland to make his labor effective. That is, he should, if more income is important to the family. If unable to do so, then his plan should be to intensify by using his unused labor on whatever additional livestock can profitably be added to his business. He is probably aware that simply running a feed-processing factory, as some farmers do, requires special knowledge and a good deal of capital as well. Most men do better to work out a larger unit that is balanced between crops and livestock if their present acreage is too small.

Another alternative is to use an intensive cash crop with the extra time he has to use. An illustration of this is given a little later in this chapter.

What Crop Combination

The direct crop and soil problems were discussed in Chapter 6. The planning question here deals with three points. First, the farmer will choose the combination of crops that results in the largest returns, one year with another, and that does not unduly deplete the soil. He will study the seasonal labor needs of crop rotations; also the problem of fitting the feed supply and livestock plan together.

As an example, consider a farmer with 100 acres of typical good Corn Belt cropland and enough pasture on the farm so that all the crops are harvested. He is trying to choose between four different rotations. What are his problems?

First he would want to know what kind of feed supply the various rotations will provide. He might work this out as shown in Table 58.

Rotation C looks like the best deal by a good margin. It produces the largest total of feed and the most protein. It is a little low on grain, to be sure, but the other advantages look good. But if the farmer thinks about the kind of livestock he will feed the crop to, he may have other questions.

TABLE 58
FEED FROM 100 ACRES OF CROP LAND
(Assumed Yields)*

No.	Years	Rotation	Amount Raised†			Digestible Feed‡		
			Grain	Hay	Per-centage Hay	Protein	Carbo-hydrate	Per-centage Protein§
			(Units)	(Units)		(Tons)	(Tons)	
A...	4	Corn-Corn-Oats-Clover	2,950	810	22	9.5	80.5	10.6
B...	3	Corn-Oats-Clover	2,505	1,080	30	10.0	78.7	11.3
C...	5	Corn-Corn-Oats-Alfalfa	2,538	1,800	41	16.1	91.5	15.0
D...	5	Corn-Soybeans-Corn-Oats-Clover	3,057	648	17	12.2	73.4	14.3

*Yields assumed: Corn, 50–55 bu., oats 40–45 bu. depending on rotation, soybeans 22 bu., clover hay 1.8 tons, alfalfa hay, 2.5 tons.

† Feed units: Corn 1 bu. 1.00 unit Clover 1 T. 17 units
 Oats 1 bu. .45 unit Alfalfa 1 T. 18 units
 Soybeans 1 bu. 1.34 unit

‡ Computed from Morrison's Feeds and Feeding. 5,300 lbs. of soybean oil meal contains 1 ton of digestible protein; 50 bu. of shelled corn contains 1 ton of digestible carbohydrate.

§ A dairy cow ration needs 13 to 15 per cent digestible protein; young stock and fattening cattle 14 to 16 per cent; beef cows, 7 to 10 per cent; and fattening pigs 14 to 18 per cent, for a balanced ration.

Next, he may want to look at the labor requirements to put in, tend, and harvest the crop. Figure 58 shows these requirements under rather typical farm conditions on a month-by-month basis. An ordinary amount of mechanization is used in handling the crops.

Here the farmer finds some interesting questions to consider in his planning. In total, the labor requirements work out like this.

Rotation A produces 5.0 feed units per hour of labor.

Rotation B produces 4.9 feed units per hour of labor.

Rotation D produces 4.9 feed units per hour of labor.

Rotation C produces 3.7 feed units per hour of labor.

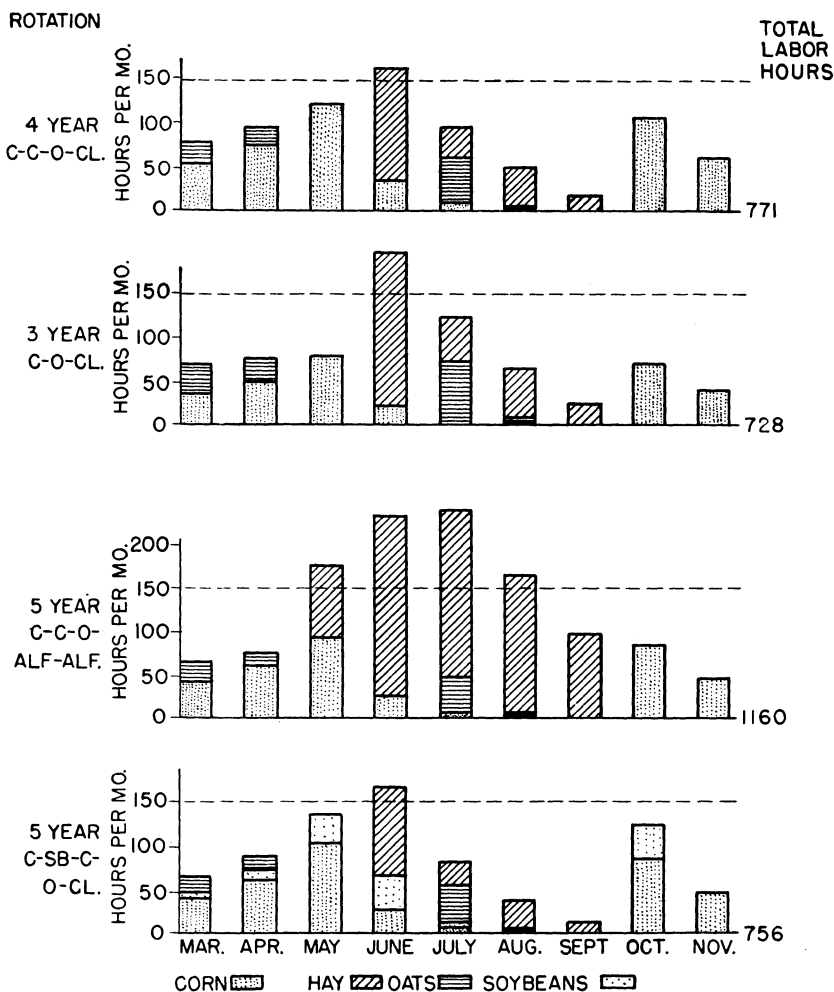


FIG. 58—Hours of labor needed for 100 acres of crops. Hours needed on a medium sized farm using a hay loader, combine, and cornpicker for harvest. Season as in central Indiana or northern Missouri. The rotation selected as well as the size and kind of machinery used greatly affects the hours of man labor required by the cropping program.

Rotation C is at a disadvantage as to labor on two counts. First, less feed is produced per hour of labor. Second, the summer months include an awkward labor peak. Very likely, the farmer will have to hire quite a little day labor during this period or hire custom work to put up the hay. Either is expensive. Rotation B also has something of a labor peak during one month. Rotation A has the best balanced labor load throughout the crop season although rotation D needs fewer total hours. The good balance of rotation A may help explain its popularity with Corn Belt farmers. With other harvesting methods, the results will be somewhat different.

But the third problem must still be faced. How does the feed supply fit different livestock programs?

Two kinds of cattle-hog plans are shown as examples. There are many other combinations that some farmers would consider. In either example, all of the feed crop is fed on the farm. Protein feeds are bought as needed. Hay will be fed as the only roughage during the winter and spring.

Hog-Dairy Farm Plans

With the dairy herd plan, no grain is bought in ordinary crop years. All the hay is fed to the dairy herd along with a reasonable amount of grain. A medium-sized poultry flock is kept. The main adjustment in grain use is to raise enough hogs to use up whatever grain the dairy herd and chickens do not use; in other words, most of the grain crop. When figured out, the results may look like those in Table 59.

The four livestock plans vary a great deal. Rotations A and D fit the man with a moderate labor supply. Livestock and crops together need 2,800 to 3,000 hours of labor per year. Odd job labor would be in addition, maybe another 500 to 800 hours. An ambitious man with the help of his wife could handle this with a month or two of extra help or the help of a 'teen age boy. If the farmer had good land and equipment and was an efficient worker, he would likely find one of these plans very good.

Plan C takes a lot of work. It comes close to being a two-man job yet isn't large enough to make their work efficient either. It should either be somewhat larger or smaller to fit the usual labor situation. A man who had a couple of good boys to help might find it about right. But they would not be around very long at that age so the plan would not be permanent. The farmer would

TABLE 59
LIVESTOCK THAT 100 CROP ACRES WILL FEED
(Dairy Herd, Hogs and Poultry)*

No.	Rotation	Feed Supply	Milk Cows †	Pigs To Raise ‡	Livestock Labor
					(hrs.)
A...	Corn-Corn-Oats-Clover	{ Corn 2,500 bu. Oats 1,000 bu. Hay 45 T.	11	108	2,330
B...	Corn-Oats-Clover	{ Corn 1,830 bu. Oats 1,500 bu. Hay 60 T.	15	72	2,670
C...	Corn-Corn-Oats-Alfalfa-Alfalfa	{ Corn 2,160 bu. Oats 840 bu. Hay 100 T.	25	51	3,680
D...	Corn-Soybeans-Corn-Oats-Clover	{ Corn 2,080 bu. Soybeans 440 bu. § Oats 860 bu. Hay 36 T.	9	92	2,000

* Extra protein in feed needed by livestock will be purchased.

† Milk cows in a dairy herd that will eat up all the hay; cows at 275 lbs. butterfat.

‡ Pigs needed to eat the rest of the grain after the dairy herd and a flock of 150 hens with replacement chickens are fed.

§ 440 bushels of soybeans will be sold or exchanged for soybean meal.

also need a good milk market with rotation C as much of his income is from the dairy herd, less from hogs. Plan B is a sort of "in between" plan as far as being of a desirable size for most farmers. It would fit some families.

Other adjustments are possible, of course. If some of the rotation grass could be used for pasture, this would help with rotations B and C. Or other adjustments could be made.

The Hog-Cattle Feeder Type

Getting rid of roughage at a profit is often a problem for the man who feeds cattle. Suppose the farmer considers the four rotation plans above. But he does not like too much risk. He prefers to produce more pork than beef; thinks 150 pounds of hogs raised for each 100 pounds of gain on steers is a good combination. He likes steer calves for a longer feed, runs them on his bluegrass for a while in the spring and summer. He keeps 3 milk cows, a flock of 150 hens and raises replacement chickens. Here are the figures he gets together if all of the hay is fed, hogs and steers kept in the proportions suggested, and enough corn and protein bought to balance out the plan.

TABLE 60
LIVESTOCK SYSTEM TO CONSUME HAY RAISED *
(Feeder Calves, Hogs, 3 Milk Cows, Poultry)

Rotation		Feed to Dairy Cattle and Poultry			Steers and Feed				Hogs and Feed			Corn to Buy
		Corn	Oats	Hay	No.	Corn	Oats	Hay	No.	Corn	Oats	
A . . .	Corn-Corn-Oats-Clover	(Bu.) 220	(Bu.) 340	(T.) 12	33	(Bu.) 1,750	(Bu.) 200	(T.) 33	95	(Bu.) 1,660	(Bu.) 460	(Bu.) 1,130
B . . .	Corn-Oats-Clover	220	340	12	48	2,544	288	48	137	2,300	872	3,230
C . . .	Corn-Corn-Oats-Alfalfa-Alfalfa	220	340	12	88	4,800	250	88	253	4,930	250	7,790
D . . .	Corn-Soybeans-Corn-Oats-Clover †	220	340	12	24	1,272	144	24	69	1,173	376	585

* Extra protein feed for livestock will be purchased as needed.

† The soybeans will be sold or traded for soybean meal.

Rotation C with lots of alfalfa hay turns out to be the risky one as it is set up now. "Makes a man take too many chances," most farmers are likely to say. Rotation D looks like a good one for a farmer with suitable land who operates a one-man unit. Rotation A is about as good but the farmer would no doubt have to hire some extra help for the peak seasons. Rotation B has some of the same faults as does C.

If some of the rotation grass could be pastured by the cattle, rotations B and C would fit much better. But the man who has bluegrass pasture or who feeds a plainer grade of cattle that does not fit a pasture program would not like these rotations as to the feed supply they furnish. It is true that both rotations A and D might cause some erosion difficulty on sloping soil. Perhaps the farmer could handle this by contouring or terracing, or both, perhaps not. At any rate, the cattle feeder who is not in position to use a good deal of rotation pasture finds the higher roughage programs less desirable. Those who can use such pasture often like them.

Feed Needs Depend on Livestock Efficiency

Feeding efficiency on individual farms may vary a great deal just as crop yields do. An important point to remember is that efficiency in the use of feed is more nearly under the control of the farmer than are crop yields. The choice of kind of crop raised for feed is also the farmer's own choice.

Suppose farmers are discussing the hog raising part of the farm plan. One question is how many hogs to raise. Another is when to have the sows farrow. A third is how to raise hogs. And a fourth is at what weight to sell them.

They look at questions three and four. Maybe one man expects to have 1,500 bushels of corn available for hogs out of his crop. How many hogs should he raise if he does not plan to buy additional corn? A farm record study shows the following results.

An average farmer would have thirteen more hogs of the 220-pound size to sell or eleven more 260-pound hogs from the same 1,500 bushels of corn by using the clean ground system. Surely this would bring in a nice additional profit. But having such a plan means looking ahead so the right kind of pasture will be ready and in a location where it can be used. It also

TABLE 61
NUMBER OF HOGS THAT 1,500 BUSHELS OF CORN WILL FEED OUT*†

If raised in the old lots:	
Hogs sold at 220 pounds each	92 head
Hogs sold at 260 pounds each	78 head
If raised on clean ground:	
Hogs sold at 220 pounds each	105 head
Hogs sold at 260 pounds each	89 head

* Based on Iowa Farm Record Studies.

† Small grain is included as corn, pound for pound. The hogs were fed a ration that was balanced or nearly so from the protein standpoint. They had good care. Feed for breeding stock is included.

means having a feeding and watering system arranged to save labor. Otherwise the extra work of raising hogs in the pasture may be too great.

As indicated in Chapter 8, choosing the weight at which to sell hogs depends on prices at that time as well as on the feed supply.

The problem of adjusting the plan to allow for the level of feeding efficiency applies to other kinds of livestock as well. Wide variations show up from one farm to another in the feed needed per head of livestock or per unit of product produced. This was discussed more fully in the livestock chapters. Each farmer may well estimate about how much feed he uses under his own conditions. This is necessary before careful farm plans can be made. Those who do not have detailed information about their own farms can use some of the average figures available.

Use a Feed Budget

Farmers find that a yearly feed budget is a simple but useful guide in helping them plan the livestock program for the year ahead. Late August or September is the best time to make it out. By that time most of the crops have been harvested except corn. The corn crop can be estimated quite closely. So the feed supply is pretty well known.

The price outlook for the year ahead will not be quite so clear. But the farmer can make a reasonable estimate of possible prices and leave the plan flexible enough to allow for changes to be made later.

A sample of one farmer's feed and livestock budget is shown in Table 62. He estimated the feed needed per head for each kind of livestock and the total feed needed for the number in

the plan. He then totaled up the feed needed during the following year for his livestock plan. He balanced this against the feed supply on hand after harvest.

In his case the feed plan is not far out of balance. It is a little short on grain and a bit long on roughage. So the adjustment will be simple to make. It may be wisest for him to feed a little less grain per head or buy enough to balance out. Feed prices will be his guide. Corn can be substituted for part of the oats or the other way around depending on which feeds are more plentiful and cheaper. Or he may want to change the livestock

TABLE 62
FEED AND LIVESTOCK BUDGET
(For Year Sept. 1 to Aug. 31)

Livestock— Present and Planned	Feed Per Head				Total Feed Needed			
	Corn	Oats	Silage	Hay	Corn	Oats	Silage	Hay
	(bu.)	(bu.)	(T.)	(T.)	(bu.)	(bu.)	(T.)	(T.)
60 spring pigs on hand, will make them gain 100 pounds more.....	8	.....	.....	.....	480	.....	.....	.....
Raise 30 fall pigs to 240 pounds each.....	16	6	.....	(some)	480	180	.....	0.5
Keep 7 sows for March pigs; pigs at 150 pounds by August—50 head....	9	6	.....	(some)	450	300	.....	0.7
Seven milk cows at 280 pounds butterfat per cow	20	33	2½	2	140	230	17½	14.0
Six calves and heifers to keep.....	5	9	1	1	30	45	6	6.0
Team of horses.....	15	25	.....	2½	30	50	.....	5.0
10 medium grade steers to sell in spring.....	35	.....	2	1	350	.....	20	10.0
150 pullets to keep.....	0.4	0.6	.....	.....	60	90	.....	.....
400 baby chicks, early April.....	.....	.....	.....	.....	40	40	.....	.....
Total Feed Needed.....					2,060	935	43½	35.2
<i>Feed Supply</i>								
On hand and in field								
Corn for silage, 5 acres at 9 T.....					.....	.....	45	.....
Corn for grain, 35 acres at 50 bu. plus 50 bu. of old corn.....					1,800	.....	.....	.....
Oats in bin, 900 bu. less 50 for seed.....					.....	850	.....	.....
Hay in mow 32 tons, last cutting in field, 8 tons...					.....	.....	.....	40
Short or long.....					260 bu. short	85 bu. short	2½ T. long	4.8 T. long

plan itself, either upward or downward, buy more feed or sell some of his crops.

Fortunately, the roughage supply is ample. It is always better to have a little extra roughage than to run short. Sometimes hay is scarce and hard to buy if more is needed. Many farmers do not like to buy hay because of the danger of getting noxious weed seed. Also, the winter may be longer and colder than usual and extra roughage will come in handy. A surplus allows for flexibility in the livestock program.

Protein feed needs could be added to the feed budget. But except for larger operators, this is not so important. Few farmers care to buy and store any large quantity of protein feed. Sometimes quantity buying at the right time makes a saving possible.

A pasture budget can also be made up for the summer. This is a little more difficult since the supply of grass depends as much or more on spring and summer rainfall as it does on the kind of grass being used. But with a well-planned pasture program, a reasonable estimate can be made.

Problems on the Smaller Farm

The smaller operator often has some special planning problems. One of these is to use his own and family labor so as to produce a larger income. As an example, assume an Indiana farm with sixty acres of cropland using a moderate amount of mechanization. The farmer might get the following answers in making out his farm plan.

	<i>Gross Income</i>	<i>Labor Needed</i>
Crops raised: 20 acres corn, 10 acres oats, 10 acres wheat, 20 acres hay.....	\$2,000	800 hours
By feeding the crops to livestock, he can expect these additional results	1,000	1,200 hours
Total obtained by feeding his own crops to livestock..	\$3,000	2,000 hours
Suppose he buys \$1,000 of additional feed, handles more livestock; results (over cost of feed)	\$ 500	400 hours
Total by increasing the size of business.....	\$3,500	2,400 hours

Buying additional feed looks like a good idea. Of course, there would be some other costs in addition to the cost of feed. But he would have more manure to put on his cropland and

would need somewhat less commercial fertilizer. If he had to hire additional labor in case extra feed were bought, the idea would not look so good. But if more livestock meant a more effective and profitable use of labor already available, the farmer would gain a good deal from the new plan. However, as shown in Chapter 11, past records show results of all the way from a loss of \$130 to a gain of \$870 from \$1,000 of feed fed.

Many possibilities are open to farmers along this line, especially farmers on a smaller acreage who can increase the number of livestock without having to hire extra help. The decision usually depends upon how large the margin will be over the cost of feed. In the example above, the farmer bought \$1,000 of additional feed and added \$1,500 to the cash sales, a \$500 gain. This is a 50 per cent feeding margin. If the margin were only 25 per cent, buying the extra feed would be of doubtful merit. Many men are able to get a feeding margin of 60 to 80 per cent because of their skill with livestock.

Larger Business Can Mean More Labor Efficiency

In the above example, the extra hours of labor needed did not increase as much as the amount of feed used. This will often be true. A man can raise sixty head of pigs in only a little more time than thirty will require. An extra 100 chickens do not add a lot of labor if they can be handled in a single house. With milk cows, however, the increase in labor needs is very nearly in proportion to the increase in the number of cows.

TABLE 63

REVISING A SMALL FARM PLAN BY ADDING AN INTENSIVE CROP TO THE ROTATION

	Crop Plan	
	Old Plan	New Plan
	(<i>acres</i>)	(<i>acres</i>)
Corn for grain	10	10
Corn for fodder	10	10
Wheat	10	6
Oats	10	10
Hay	20	20
Tomatoes for canning		4
Total	60	60

TABLE 64
LABOR REQUIRED — HOURS

	Old Plan				New Plan				
	Corn	Small Grain	Hay	Total	Corn	Small Grain	Hay	Tomatoes	Total
Mar...	12	12	.....	24	12	12	.....	.....	24
Apr...	40	10	.....	50	40	10	.....	13	63
May...	50	.....	.....	50	50	.....	.....	30	80
June...	30	.....	114	144	30	.....	114	20	164
July...	10	54	30	94	10	44	30	17	99
Aug...	.....	.....	40	40	.....	.....	40	54	94
Sept...	60	15	16	91	60	9	16	112	197
Oct...	30	19	.....	49	30	11	.....	36	77
Nov...	104	.....	.....	104	104	.....	.....	.....	104
Dec...	44	.....	.....	44	44	.....	.....	.....	44
Total.	380	110	200	690	380	86	200	280	946

Crops Can Be Adjusted, Too

Many smaller operators adjust their cropping plan to increase income and employ labor more efficiently. The example in Table 63 is of this kind.

Next, the labor requirements of the new rotation are examined to see how they fit the labor supply. Labor requirements are those of a smaller farm.

TABLE 65
INCOME RESULTS OF TWO PLANS

Crop	Old Plan			New Plan		
	Gross Value	Cash Costs*	Remainder	Gross Value	Cash Costs*	Remainder
Corn.....	\$ 660	\$200	\$460	\$ 660	\$200	\$460
Small grain.....	280	150	130	216	118	98
Hay.....	240	140	100	240	140	100
Tomatoes.....	.....	.....	.....	292	90	202
Total..	\$1,180	\$490	\$690	\$1,408	\$548	\$860
Rent for land.....	.....	.....	\$360	.....	.....	\$360
Extra labor hired.....	.....	.....	.....	..... (50 hours).....	.....	20
To family for own labor.....	.....	.....	\$330	.....	.....	\$480
Return per hour.....	.....	.....	47.8c	.....	.....	53.5c

* Does not include labor used.

The farmer finds that a good deal more labor is needed where tomatoes are grown. September is the heavy labor month, but if family labor is available, this may be no great problem. Livestock work at that time of year is often fairly light and longer days in the field are possible. Most other farmers are not so busy then and a neighbor boy might be hired.

Next, look at the income side. That will be the final factor in the decision. The figures below show how this can be estimated. (This is an example, not an actual case.)

This case is one where the farmer shifts from a cash crop with a small labor requirement (wheat) to a cash crop that requires a large amount of labor. Not only that but the labor on wheat is well mechanized while tomatoes require much hand labor.

By shifting to tomatoes, the farmer and his family sell more of their labor during the year in crop production, 896 hours instead of 690. They get nearly 6 cents per hour more for their labor. If they figure just the labor over 690 hours, they get nearly 73 cents per hour for the extra work. But the work is harder and there are two months with a rather high labor peak.

Risk would also have to be taken into account. In canning factory areas, tomatoes are often sold on contract which protects the price. But the yield will be uncertain. A seasonal crop like tomatoes also ties the family down more, especially at the time of year when farm families feel they can more easily take a vacation.

Other choices are to shifting from a feed crop to a cash crop or vice versa. These are more involved problems because they may call for changes in the livestock as well as the crop plan.

Replan the Chore System

On livestock farms, the daily chores take up a lot of the farmer's time. Often, choring is tedious work. And chores must be done every day of the year.

Few farmers realize that they are likely to be inefficient in this part of their work. Recent studies have shown this to be the case. Likely, most farmers picked up certain habits about doing chores on their father's farm. Chore plans are largely a matter of habit. Few have ever checked themselves to see whether their system is a good one or not.

Two illustrations are used here. Farmer A is a younger, quite successful, hog-dairy farmer on a 220-acre farm. Like most

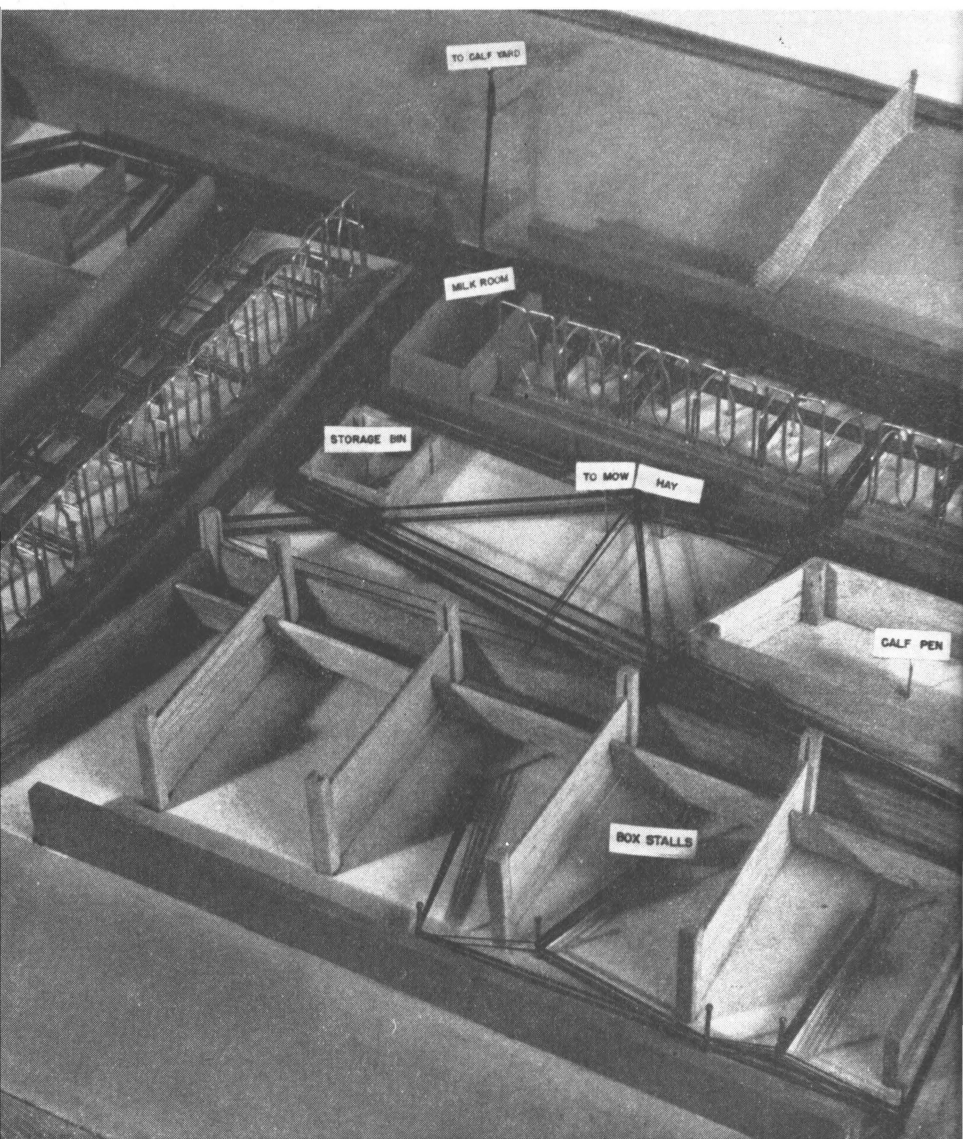


FIG. 59—The black string follows the steps made in doing chores in this dairy barn before a new plan was adopted. Note how many of the jobs were done in a back-and-forth fashion. Photo USDA Extension Service.

other farmers, he had never questioned his chore habits. Chores had to be done. He knew that the faster and harder he worked at them, the sooner they would be finished. But that was about all.

The farm management department at the college made a chore study. Farmer A cooperated along with several others. He wasn't particularly different from other farmers in his chore plans. None of them were very efficient. Figure 59 is a sketch of how he did his barn chores. The specialist from the college followed him around with a model of the barn, unrolling a string to show where the farmer went. This specialist used a stop-watch to see how much time was required. Another model (not shown) was made of the other choring jobs; taking care of the hogs, chickens, and so on.

When the farmer and specialist sat down and figured up his chore time, the farmer and his wife were amazed. Between them, they had walked 1,093 miles per year doing the chores. Chores required about 1,600 hours of their time per year.

Next they did some planning. The farmer didn't want to move any buildings or re-build them. But he was willing to make changes that he could afford. As it turned out, the changes didn't cost much. Here are some of the changes he made:

Old Way

1. Silage carried to cows in a basket.
2. Grain carried in basket to cows from an outside granary.
3. Milk separated and utensils washed at the house.
4. Hand stripped cows.
5. Carried water to calves.
6. Carried feed and water to hens in the hen house.

New Way

1. Silage cart used; filled directly from silo.
2. Overhead feed bin built in barn. Hammer mill has a long pipe, blows ground grain from granary to barn. Bin has down spout; cart is used for feeding.
3. Milk house built in corner of barn, water piped in. All separating, washing, and storage of utensils here.
4. Use machine stripping.
5. Changed calf pen location, piped water into barn.
6. Built two storage bins in hen house, one for mash, another for grain. Piped water in with automatic waterer.

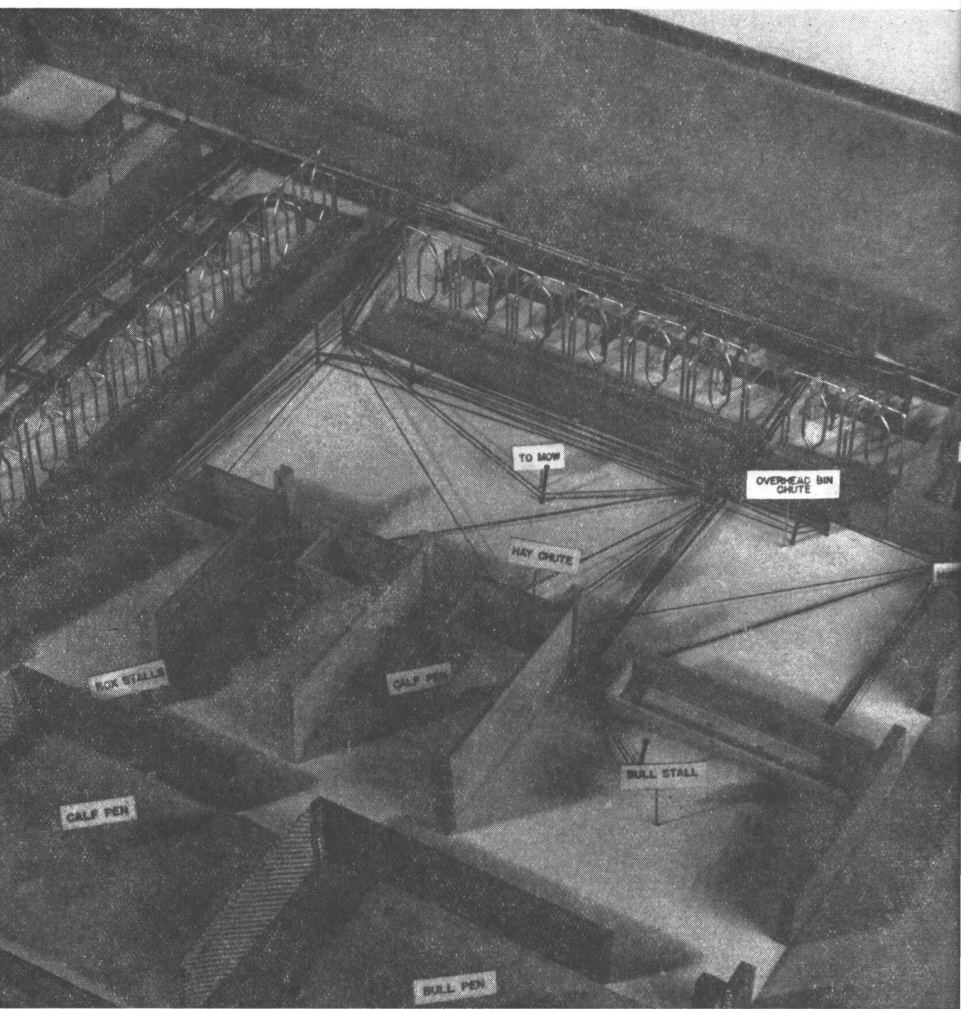


FIG. 60—Note the change from Figure 59 in the number of back-and-forth steps. By changing the barn plan, adding labor saving conveniences, and working in a circular fashion, the number of steps was greatly reduced as well as time saved. No longer do the farmer and his wife feel that doing milking chores is a drudgery. Photo USDA Extension Service.

TABLE 66
MILES WALKED PER YEAR DOING CHORES

	Old Plan	New Plan
	(miles)	(miles)
Feeding the cows.....	169	34
Milking the cows.....	229	225
Cleaning and bedding barn.....	22	16
Separating, washing, storage.....	233	46
Feeding and watering calves.....	17	3
Total dairy chores.....	670	324
Caring for hogs.....	305	87
Caring for hens.....	118	27
Total chores.....	1,093	438
Chore hours per day, average.	5 hours	3 hours

7. Feed hogs by hand, carried water. 7. Bought a large self feeder; self-feed practically all hogs raised, use automatic waterer.

The cost of making all these changes was about \$600. A good deal of the labor used in making the changes was that of the farmer, and he used a good many odds and ends of lumber about the place.

Figure 60 was made after Farmer A had changed his chore system. Again the specialist came out and followed him about, checking the distance covered and time spent. Here are the results.

Another Chore Plan

Farmer B is also a hog-dairy farmer, a good one. He was another of the farmers whose chore time was checked. He had studied farm planning a good deal and put together an excellent crop and livestock plan—a highly profitable one. But it never occurred to him to check his chore routine.

Farmer B sells cream to the local creamery from a herd of twenty-four cows. The skimmilk, other than what the calves need, goes to the pigs.

The separator room was at the end of the barn, a good location. But from there, he carried the skimmilk down the hill to the hog house, two pails at a time. It wasn't easy to carry the

milk down, especially in rainy or snowy weather. Nor climb back to the barn again.

He or his hired man carried seventy-three tons of milk a year, a distance of 200 feet. That's equal to moving two tank cars of milk with a bucket, enough to make a man old—fast.

The farmer and the specialist looked the problem over to see what could be done. They decided to pipe the milk down the hill. Since the barn was above the hoghouse, it would run down by gravity. Otherwise they could have used a small rotary pump. Taking the milk to the hogs requires very little time or labor now. By rinsing the pipe out promptly after each milking, it is kept sanitary.

Farmer B took extra good care of his cows. In fact, he had a high-producing herd. But when he was timed, he spent more time than necessary at the milking. Although he used a milking machine, he was carefully hand stripping each cow.

A revised milking procedure based on careful time and production studies made by experiment stations with dairy herds was worked out for his herd. The time saved was amazing.

Time per day needed	{	Old method: 5 hours and 8 minutes.
to milk 22 cows:		New method: 3 hours and 5 minutes.

Here was a clear saving of 760 hours per year on the milking job alone. This was impressive, especially when the farmer thought how tired he often was at the end of a busy day. He looked around his chore routine for other possible labor-saving ideas. Among those used were: an overhead feed bin was built in the barn for cow feed; a feed cart was used instead of carrying the feed to each cow by hand; a small elevator was used to move feed and avoid hand scooping; the hog program was rearranged; and others.

In total, Farmer B reduced his chore travel from 2,250 to 1,590 miles per year, a saving of 660 miles annually or nearly 2 miles per day.

Any farmer can check up on his chore plan if he is interested. Probably he will need the help of his wife as errors in routine habits are hard to see. He should ask himself such questions as:

1. What jobs can be done by working in a circular fashion rather than back and forth? The two farmers described changed from

a back-and-forth method of feeding the cows to a one-trip-around-the-barn system.

2. What jobs can be done by using gravity, wheels, or the like? On farms above: feed now drops by gravity from overhead bins into the feed cart; grain and silage roll on wheels to the cows instead of being carried by the worker.
3. Is feed stored where it is to be used rather than in a distant bin or granary? These two farmers built storage bins in the cow barn and hen house; built large self feeders for hogs that would hold a load or two at a time.
4. Can power and machines be substituted for hand labor? The farmers above now strip the milk cows by machine; blow or elevate feed into bins; pipe water where it is needed by a pressure system and the like.
5. Is the chore system and that of doing field work the result of habit or the one chosen by planning? Both of the above farmers had to have a desire to change their old habits before they could adopt new labor-saving methods.

Summary of Steps in Planning

1. Start the plan by reviewing family goals as to what family members are trying to accomplish. Only then will it be possible to plan with real purpose.
2. Look over the amount of resources available to the family and the outlook for the period ahead. Remember that the two most fixed factors are the farmer himself as the operator and manager, and the farm to be operated. But both can be adjusted, the farm more than the farmer in the short run. Capital and labor to be used are more flexible.
3. The next step is to study the results of the family's past performance. Build the new plan around the strong points, correct or drop the weak ones.
4. Study and readjust each part of the plan—crop system, live-stock plan, etc.—with the whole farm and family plan in mind. In operation, the whole plan must work smoothly as a unit if it is to be a good one. One poor part will weaken the whole. One strong part in an otherwise weak plan is not enough.

Anyone can find many plans that are built around the one main interest of the operator. They are not often very successful.

5. Ask the advice of others. Both neighbors and professional people can give the family useful ideas. But the family must decide which of the ideas to use.
6. Make a final check before putting the plan into operation. Does it undertake too little or too much; too risky or not enough; well-fitted to the family and the outlook; one that the family will have pride in and enjoy operating?

Remember, too, that there is no "best" plan for a group of farms and farmers. Even the finest one that the family can devise must be adjusted as times change and the family changes.

A planning handbook will be useful in drawing up the plan. Many state colleges have devised such handbooks and made them available through the county extension office.