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MANAGING THE SMALL

PART-TIME FARM



BY H. S. WILT

COOPERATIVE EXTENSION SERVICE
MICHIGAN STATE UNIVERSITY

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WHERE TO FIND FACTS ABOUT PART-TIME FARMING

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Managing the Small Part-Time Farm

By H. S. WILT¹

INTRODUCTION

Part-time farming has thrust itself into an important spot in Michigan agriculture. Industrial workers, many with a farm background, enjoy the benefits of rural living in areas near industrial centers. Farmers, especially those on smaller acreages, add to their farm income with money from off-farm jobs.

The 1950 Census of Agriculture defines a farm as "part-time" if farm sales totaled between \$250 and \$1,199 in 1949 and if the operator either worked off the farm at least 100 days a year or his and his family's nonfarm income totaled more than farm sales. A "residential" farm is one on which the total value of farm products sold was less than \$250 in 1949. (This does not include "abnormal" farms, which are institutional farms, experiment farms, community enterprises, grazing associations, etc.)

How important are such farms in this state? The 1950 Census of Agriculture classified nearly 24,000 Michigan farms as part-time. Another 24,000 places outside of town were called residential. (See Table 1.)

TABLE 1—Michigan farms by economic class, 1949*

Class	Value of farm products sold	Number of farms
Commercial farms:		
1.....	\$25,000 or more	949
2.....	10,000 to \$24,999	6,082
3.....	5,000 to 9,999	20,990
4.....	2,500 to 4,999	32,921
5.....	1,200 to 2,499	30,658
6.....	250 to 1,199	15,249
Other farms:		
Part-time.....	250 to 1,199	23,893
Residential.....	less than 250	24,665
Abnormal.....	.....	114

*Source: 1950 Census of Agriculture.

¹Shawwassee County assistant agricultural agent and former member, Department of Agricultural Economics, Michigan State University.

Together, these two groups make up nearly one-third of the state's farms and occupy over two and one-half million acres. This is nearly one out of every 6 acres of Michigan's farm land. In 1949, these farms sold more than 17 million dollars worth of farm products. Their operators spent nearly 13 million dollars for machine hire, feed, seed, gasoline, fuel and oil, machine repair, and hired labor.

Besides the part-time and residential farms of the state, many rural residences are normally considered part of the rural area. Many of these rural residences are located on sizeable acreages. They were not counted as farms in the 1950 census because the value of products sold in 1949 was less than \$150. Many of these places provided the family with agricultural products and some cash income. They have about the same problems as part-time farms.

The 1950 census classified as "commercial" more than 15,000 farms which in one way are part-time operations—although these places sold farm products valued at \$1,200 or more in 1949, their operators worked 100 days or more at off-farm jobs. Such places have many of the same management problems as part-time and other small farms.

In this publication, unless specifically stated otherwise, the broad term "part-time farm" will include not only part-time farms but also residential farms, rural residences, and commercial farms where the operator worked 100 days or more on an off-farm job.

Many different problems have resulted from the impact of industry on the people of Michigan. Civic, social, and health problems in the "country-city" fringe area have received a lot of attention. The advantages and disadvantages of part-time farming have been presented in a number of publications.

Nevertheless, the best way to use the land is a problem too often overlooked by those who buy a small acreage in the country. Choosing enterprises and fitting them together to best use available land, labor, and capital resources on the small farm have been left pretty much up to the individual. Often, this has been a trial-and-error process. For many, it has proven expensive.

If you own or plan to buy a small farm, this publication can help you with your management problems.

Much data for this publication came from a 1953 survey of 60 Eaton County part-time farms in Delta and Windsor township, southwest of Lansing. This study provided valuable information about the farming operations and home life of a typical "country-city" fringe area common to many Michigan communities.

Only farms of less than 100 acres were included in this survey. It was assumed, in the survey, that farms of 100 acres or more could be operated as full-time commercial farms and that management principles suited to the larger commercial farm would apply to them.

MANAGEMENT PROBLEMS

Managing a part-time farm presents many special problems. As the operator of a part-time farm, you will have most of the problems of the operator of a larger commercial farm, plus special problems found only on part-time farms.

To be most efficient as a farm operator, you should try to combine your land, labor, and capital resources (livestock, equipment, money, etc.) in such proportions that they will yield you the greatest possible net profit over a long period of time. If you have land which you cannot work because you lack time or equipment, then you may not be getting a satisfactory return from your investment in land. If you have too much invested in machinery and equipment for the amount of land you can operate, then the return from your investment in equipment will be low.

In many ways, managing your part-time farm efficiently is harder than managing a larger commercial farm. On small farms, it is hard to follow the usual crop rotations without having a number of small fields. Small acreages do not justify owning much equipment, except on such intensive operations as fruit or truck crops. Small equipment is limited in the kind and amount of work it can do. Using larger equipment may boost machinery costs too high for your small farm. Custom operators charge more to work in small fields or may not work in them at all.

Small-scale livestock enterprises usually have higher costs per unit of product than do the larger enterprises found on most commercial-size farms. Caring for a small flock or herd requires more hours per animal than a large one. High costs—either for feed raised or bought—will cut into your livestock profits.

Marketing small amounts of farm product often costs a lot in time and money. Members of your family may have to do the marketing. You may save money by producing food for your own family; however, it may be hard for you to meet the competition of commercial producers when you try to sell on the market.

As a part-time farmer, you may have an added problem. Your work schedule on your off-farm job may not always leave time to do the farm jobs when they should be done. The amount of labor, the season, and the time of day when you can work on the farm are important factors for you to consider in deciding the type and extent of operations on your part-time farm.

One of your problems on a part-time farm will be that of management itself. To successfully manage a part-time farm, you will need a great deal of experience as well as ability to make decisions based on knowledge and sound judgment. If you have had little or no farm experience, you have a lot to learn. Many operators may have spent the early years of their life on a farm but have had little actual management experience. Even those who have recently operated a full-time farm are faced with new management problems. Persons who are employed in industry usually have their work planned for them. As a farm operator, you must not only do the work but also plan it—decide what you should do, and when and how you should do it.

Part-time operators who know very little about farming may hesitate to start certain kinds of farm work. To them, the small value to be gained is not worth the effort needed to get enough knowledge and skill to do the job.

On the other hand, some folks lack knowledge but believe they have all the answers. For them, experience may be an expensive teacher. The part-time farmer who recognizes his lack of knowledge and is willing to learn will be successful—that is, if the cost of the lessons learned doesn't outweigh their value.

The very nature of farming will force you to take action. Seeding and harvest time come and go. Livestock reproduce and grow. You may put off choosing what you will produce and how you will use it. However, sooner or later, you will be forced to make a decision, either to act or not to. It may cost less to let your land lie idle than to suffer a greater loss by trying something you are not sure will make money.

Although part-time farms raise many management problems, they have some advantages over commercial farms. If you are a part-time farmer, you may have more available cash from your off-farm job for current operating expenses and for investment in livestock, equipment, and buildings. With a steady cash income, you

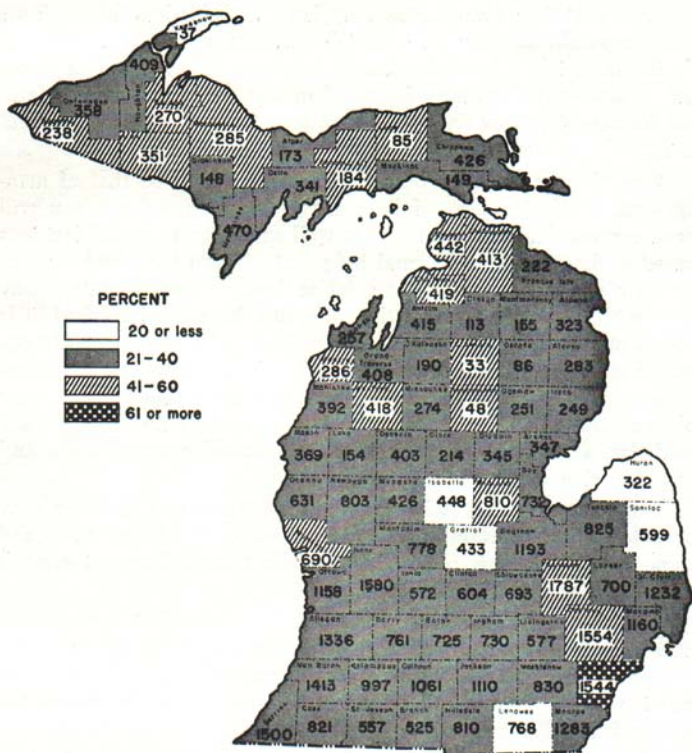


Fig. 1. Number and percent of Michigan farms classified as part-time and residential, by counties, 1949.

may be able to take advantage of "good buys" on feed, equipment, and other supplies. Crop failures or other losses won't hurt you as much as they will a full-time farmer. And you may be in a good position to sell your produce through the men you work with. You may even be able to deliver produce on your way to work.

You cannot measure income from your part-time farm in dollars alone. You can be closer to your family while you work on your

part-time farm than even the farmer on a commercial farm. These values of your part-time farm may overshadow the low cash returns:

- A place to get away from the rapid tempo of the industrial city.
- A place for recreation.
- A home where your family can live, work, and play together with fewer distractions.

PART-TIME FARMING IN MICHIGAN

Part-time farms were found in every county in Michigan in the 1950 Census of Agriculture. The greatest concentration of this type of farm was found in the highly-industrialized areas in the southern part of the state. More than 75 percent were located in 41 counties below the Clare-Isabella county line, an area which contains more than 80 percent of the state's commercial farms (Fig. 1).

Part-time and residential farmers tend to be less efficient in using their farm acreages than are commercial farmers. A higher percent of the land is not harvested and crop yields are lower on part-time and residential farms (Table 2).

In 1950, more than 95 percent of the part-time and residential farms in Michigan were owned by their operator. Less than 3 percent of the part-time farmers in Michigan hire any labor.

TABLE 2—A comparison of land use by different classes of farms in Michigan, 1949*

Item	Class of farm		
	Commercial	Part-time	Residential
Average size (acres).....	136.2	66.4	44.4
Cropland per farm (total acres).....	90.9	39.6	25.7
Cropland harvested (percent).....	74.6	54.7	35.1
Cropland pastured (percent).....	17.2	21.4	23.2
Cropland not harvested (percent).....	8.2	23.9	41.6
Crop yields:			
Corn (bushels per acre).....	52.2	42.0	34.2
Wheat (bushels per acre).....	25.8	21.1	15.0
Oats (bushels per acre).....	34.2	25.7	22.2

*Source: 1950 Census of Agriculture.

Compared with commercial farms, the average Michigan part-time and residential farms had fewer farm conveniences in 1950. Thirty-four percent of the part-time and residential farms had no farm power. Ten percent had garden tractors. Forty-five percent had wheel tractors other than garden tractors. Less than 3 percent of the farms had any of the larger specialized equipment such as grain combines, corn pickers, or pickup balers. Over half the tractors on part-time and residential farms were 10 years old or older.

Part-time farmers are a little younger, on the average, than commercial farmers. Their families are quite likely to be at home. Many of them have had some farm experience in their youth. For example, the survey mentioned on page 5 showed that in the Delta-Windsor area 60 percent of the husbands and 40 percent of the wives on part-time farms were born on a farm. The operators and their families had spent an average of more than 10 years on their present place. Seventy percent of the families moved from the city to their present location.

The average operator was 35 years old when he started farming on his present place. Sixty-three percent of the families had children at home. The average size for all families was 3.5 persons. Of the children in these families, 52 percent were under 10 years of age.

REASONS FOR HAVING A PLACE IN THE COUNTRY

When asked "What are your reasons for having this place in the country?", part-time farmers in the Delta-Windsor area gave these answers most often:

"We like to live in the country"; "We like the wide open spaces"; "We both were born and reared on a farm and we just don't like living in a town"; "My husband is really a farmer at heart"; "I like to work in the soil"; "I like to grow flowers and a garden."

Many believed the country to be a better place in which to rear children. Children have more room to play. It is a better place to keep pets. Children can learn to work by helping with chores and the garden.

Among the economic reasons given were: The farm provides part of the family living; it offers some security when things get bad in the shop; living is less expensive than in the city. A number mentioned the farm as a place to retire—a place where they would have something to do and with which they could add to their retirement income.

Eighty percent of the operators said they planned to continue as part-time farmers. Seventy percent planned to retire on their present place. Eighteen percent wanted to become full-time farmers. Only 2 percent planned to get out of farming entirely.

Twenty-five percent of the operators believed that their places (averaging 43 acres) would, if necessary, provide a living for the family. The remaining three-fourths believed that their places (averaging only about 13 acres) would provide only partial support for the family in event of a long period of unemployment.

Most of the operators had full-time work off the farm. They averaged 258 8-hour days at their off-farm jobs during the year. Many of those working in automobile plants were putting in overtime. This overtime gave them less time for farming operations and less need for adding to the off-farm wage with farm income.

An operator with 5 acres of garden, orchard, and small fruit apologized for the looks of his place. He pointed out that when he worked only 30 hours a week, everything was properly cared for. However, when he worked 50 or more hours a week, he couldn't find time to do everything on the farm the way it should be done.

Many of the operators were not too concerned about the management of their place. They did not depend on it for their entire living. Some seemed to think of their place more as a home in the country. They bought a house in the country and got some land with it. For them, the cash cost of owning the land was very low, even though it was left idle. Some looked upon their farm as a hobby and probably would have done many of their farming operations without much thought of income. Any money they made from the farm helped pay for the recreation they received from operating their place.

Other part-time farmers need and want to make their places pay. And if outside incomes were to drop, probably many more would not only be concerned about making their places pay, but they would also want to expand their operations.

PLANNING THE BUSINESS

The fact that part-time farms are generally small acreages seems to make many people think that setting up a profitable farm organization should be a fairly simple matter, compared to a larger commercial farm. Actually, making a profit is harder on a small farm. Agricultural specialists at Michigan State University often receive requests like this: "I have 10 acres of land near (a certain city). What kind of crops should I grow? How much livestock can I keep? What will my expenses be? How much profit can I expect to make?" Such questions are asked not only by new owners but also by others who have tried part-time farming without success.

Too often, people fail to get advice on their problems until real trouble arises. They could avoid much grief and expense by seeking advice in advance. Many people have the training and experience which qualify them to give you sound advice about a part-time farm. These include county agricultural agents, teachers of vocational agriculture, specialists at Michigan State University, and many others. Many part-time farmers have been operating their places for a number of years and have gained valuable experience. It may be profitable for you to talk with a number of such operators about their experiences.

If you are to show a profit from your part-time farming operation, you must not only give attention to what you produce but also to how and where you spend your money. Each additional dollar spent for such current operating expenses as feed, seed, fertilizer, tractor fuel, etc., should return a dollar or more of income. An additional dollar invested in livestock, equipment, or buildings should earn enough to cover depreciation and interest on the added investment.

The values of feed, seed, labor, etc. which go into production are called "inputs"; the crops and livestock production obtained are called "outputs". Dollars spent for some inputs return more than others. The ideal situation is to have all inputs returning just enough to cover the cost of the last unit of each input used, as explained in the next two paragraphs. Few farm businesses studied in the 1953 survey were so ideally organized.

If a farm has too much of an input such as machinery, then the earning power of that machinery will be low and part of the money you invested in it might yield a greater return if you spent it for fertilizer or invested it in livestock. The fact that an input yields

a high return doesn't mean that additional amounts of the input will continue to earn the same return.

For example, 100 pounds of fertilizer per acre on wheat may increase the value of wheat produced greatly over the cost of buying and applying the fertilizer. A second 100 pounds of fertilizer may produce enough additional wheat to be profitable, but may not return as much profit as the first 100 pounds. At some point, the cost of the last pound of fertilizer applied will just be covered by the value of the increase in yield resulting from its application. If another pound of fertilizer were to be added, it would not pay for itself from the resulting increase in wheat yield.

Finding the amount of return from dollars used for different inputs is a complicated job for the research worker. However, it is important that you understand some of these basic economic principles.

How Large a Business?

While most people figure the size of a farm business in number of acres, the use of those acres is far more important. An acre used for such intensive enterprises as vegetable gardening, berries, or poultry may provide a larger business and higher gross income than several acres of general field crops. However, intensive operations require more labor per acre; investment and expense per acre may be higher than for less intensive enterprises.

One way to measure the size of business is to figure the number of days of work that the business would require in a year. More labor is required for part-time farming than for the same enterprises in typical commercial production. For example, caring for a dairy cow requires about 100 hours of labor a year in commercial herds of 20 to 30 cows. Taking care of a dairy cow or two under the conditions on many part-time farms might require 200 or more hours per cow annually. This depends a lot on facilities for cleaning the barn, bedding, feeding, watering, and handling the milk.

By checking Appendix Table 1 (page 44), you can figure the number of days of work for enterprises of different sizes or for different combinations of enterprises. Usually, as the size of the enterprise increases, labor requirements per unit drop. This is especially true if the enterprises become large enough to justify labor-saving equipment.

As part-time farmers, you and your family should try to plan a workload that you can handle with your available labor. If the workload is too heavy, you and your family will soon find yourselves slaves to the farm. Too small a workload may result in your not getting the highest net return from your place. You can pretty much control the amount of work on your place by choosing enterprises suited to your labor supply and other conditions.

By developing efficient work methods, you and your family may need less time to do your present work and free yourselves for other jobs or for more leisure time together.

The amount invested in real estate and farm personal property gives some idea of the possible size of a farm business. However, the amount of investment may be misleading, especially if large amounts are invested in elaborate buildings or in equipment which is not being used.

Gross income usually gives a good idea of the amount of business done. It isn't too reliable, though, in showing the possible profit from a business—expenses may also be high. However, the business with a small gross income cannot pay even small expenses and have much net income left for the operator.

How Much Labor?

You and your family must be prepared to work if you expect to make anything from the operation of your part-time farm. Families on the farms surveyed spent an average of 760 hours per farm at farm work during the year. Of this, the operator contributed about two-thirds, the wife and children about one-third. This included time spent doing field work, taking care of livestock, and working in the home garden. Under general farming conditions in central Michigan, this 760 hours would be about one-fourth of a man's full time for a year. With this much labor, he could operate about 26 acres. The average for farms surveyed was 17 tillable acres per farm. This means that many farmers were not working at top efficiency.

There are several reasons why small part-time farms require more labor per tillable acre than larger commercial farms.

(1) Part-time farms usually have a higher percentage of intensive enterprises with high labor requirements.

(2) Small livestock and crop enterprises usually require more labor per unit of production than do larger enterprises.

(3) Part-time farmers cannot profitably use as much labor-saving equipment on their small acreages as can the larger commercial operators.

Crop enterprises have high labor requirements during the production and harvesting season. Be sure not to plant crops with greater peak labor requirements than you can handle. Livestock enterprises usually have more uniform labor requirements throughout the year, but for this reason they keep you on the place all year.

Labor used on part-time farms generally brings a very low cash return. The part-time operator no doubt gets other rewards from the work he does: The satisfaction of seeing things grow, accomplishing work with his own hands, and the recreation he gets from outdoor activity.

The first hours of labor used on an enterprise usually pay best. As more and more labor is used, the return for each additional hour of labor becomes less. For example, Delta-Windsor area farms showed a return of only about 11 cents an hour for the last hour of labor used. This would indicate that labor was not being used efficiently on many of these farms.

Many of the operators and their families obviously spent more time than was necessary to do many of the jobs on these part-time farms. Because of their outside jobs, these part-time operators were not dependent on income from the farm. Work time on many of the farms would otherwise have been leisure time and work was approached in a leisurely manner. Labor used on hand operations, with small or outdated equipment, or on jobs at which the operator has not become too skillful, cannot be expected to yield a very high return.

How Much Land?

The amount of land in part-time farms varies greatly from farm to farm. The operators of part-time farms generally pay little attention to size of farm when they buy their place in the country. They find a piece of property located within what they consider reasonable driving distance of their job. They consider the kind of a house, the neighborhood, the school, etc. The place may be 1 acre,

25 acres, or more. When they find a combination they like, they buy; then they start deciding what to do with the land.

Many places have more acreage than it is profitable to own under the existing farm organization. This indicates that part of the acreages are not being used efficiently. A substantial part of the acreages in these farms produce very few, if any, crops.

On places of 5 to 10 acres, it is common to find one-half acre in garden and the rest in weeds or poor-quality hay. Weeds are allowed to mature and the seed to spread to nearby land because the operator doesn't have the equipment or desire to control the weeds. Sometimes the hay is given to a neighbor who is willing to cut it.

Land in the "in-between" size farms of 2 to 20 acres is usually operated less efficiently than either the smaller acreages devoted mainly to garden and small fruit or the larger acreages handled more like full-time commercial farms.

A difference of 5 or 10 acres in the amount of land in a small part-time farm is much more important than that same difference in acreage on a 200-acre commercial farm. What, then, are possible ways to use different-sized acreages operated part-time?

Just an Acre

Small places of an acre or so can make a substantial contribution to your family living at reasonable costs. By hiring the garden plowed and using hand tools for other operations, you can keep costs low. There is plenty of room for a half acre or more of vegetable garden, some small fruit, and a small flock of 20 to 25 hens. It is generally more economical to buy most of the poultry feed than to try to raise it. A few chickens and a garden require from 300 to 400 hours of labor per year, about all the time many persons are willing to devote to farming.

"Don't expect too much from a small place" was the advice given by a young couple who, with the help of a son 6 and a daughter 8 years old, were operating a place of between 1 and 2 acres. Both husband and wife had previous farm experience. The husband worked full time in an auto factory. Together, the family spent about 450 hours a year taking care of an acre devoted to a vegetable garden, small fruits, a few fruit trees, and a flock of about 30 hens.

A general-purpose barn—old but in good repair—served as a garage, tool storage, poultry house, and feed storage, and was valued at \$60. A 4-year-old garden tractor with plow and cultivating attachments and a few small tools added another \$200 to the investment, bringing the total investment in land, buildings, equipment, and poultry to about \$1,100, plus 450 hours of labor.

Annual farm expenses included about \$96 for feed, \$5 for seeds and plants, \$5 for plowing the garden, \$3 for spray materials, \$6 for baby chicks, and \$10 for fertilizer, fuel, insurance, taxes, etc., making a total expense of \$125. In addition to fresh fruits and vegetables for table use, surplus farm produce was canned or used to fill a 14-cubic-foot freezer.

Production for home use by this family of four included: 104 dozen eggs, 10 yearling hens, 11 fryers, 5 bushels of tomatoes, 2 dozen heads of cabbage, 100 servings of lettuce, 3 bushels of carrots, ½ bushel of red table beets, 50 dozen onions, 4 bushels of snap beans, ½ bushel of peas, 10 bushels of sweet corn, 17 bushels of potatoes, 3 bushels of pepper squash, 25 muskmelons, 1 bushel of pears, 34 quarts of cherries, 100 quarts of red raspberries, and 60 quarts of strawberries.

Value of this quantity of produce on the Lansing municipal market would have been \$250 or more. An additional \$150 income resulted from an increase in poultry inventory and the sale of surplus eggs, pears, and small fruit.

The \$275 net income received by this young part-time farmer and his family resulted from a better-than-average job of farming and was, no doubt, an above-average return. The comment of this young couple was, "What you get out of a place like this depends pretty much on what you put into it."

Two to Twenty Acres

Places of 2 to 20 acres are too large to be worked with hand tools. Small power tools limit the acreage that can be handled satisfactorily, as well as the kind of operations that can be carried on. However, larger power equipment can hardly be justified.

To operate a place of this size intensively generally requires more labor than can be supplied by the family. An extensive type of operation on such places may result in higher total costs per acre and lower returns than could be expected on larger commercial farms. As a

result, on many such tracts of land, an acre or so is operated intensively as a vegetable garden or berry patch and the remaining acreage grows up to weeds.

Custom hiring of equipment or share-renting appears to offer the most profitable solution to the problem of operating such places. Finding a dependable custom operator or tenant is not a simple matter. In areas with a large number of part-time farms, the number of commercial farmers with combines and other large equipment is limited. Custom operators do not care to work in small fields and generally charge more than the usual rates in order to make any money on the small acreages. The custom operator usually takes care of his own crop first, leaving the custom jobs until last.

One of the more successful operators of a small "in-between" size acreage in the Delta-Windsor area used about one-half acre for garden and poultry and share-rented the remaining 8 acres. The wife contributed most of the 300 hours devoted to the vegetable garden and poultry. Investments on this place included a \$75 brooder house, \$10 in small tools, and about \$90 in poultry and swine for a total of \$175. This was in addition to the land, which was probably worth at least \$200 per acre.

Annual expenses for purchased feed, seed, fertilizer, supplies, and baby chicks amounted to \$50. Value of farm produce used in the home, including eggs, poultry, pork, vegetables, and small fruit, amounted to \$324. Twenty-five dollars worth of strawberries were sold and the operator's share of the small grain not used for feed added another \$32 to income. The total net income of \$331 resulted from a farm investment of about \$1,875 and 300 hours of labor done by the family.

The operator of another 10-acre place who was referred to by neighboring part-time farmers as "the farmer in our neighborhood" was successful for at least two important reasons: (1) his 20 years of experience as a part-time farmer on the same 10 acres, and (2) his willingness and that of his two daughters, 15 and 17 years old, to spend 800 hours a year at work on their farm.

A small barn and brooder house on this place were valued at \$925. Equipment included a small 13-year-old one-plow tractor, a plow,

springtooth harrow, cultivator, mower, hay rake, hand corn planter, hay forks, and small tools. The total depreciated value of all equipment was less than \$300.

Investment in livestock totaled about \$400 and included one cow, one heifer, a veal calf, and eight hens. With land valued at \$200 per acre, total investment in farm property (exclusive of the home) was estimated to be \$3,625.

Current operating expense, including feed bought, seed, fertilizer, tractor fuel, machine repair, insurance, etc., on this 10-acre place was only \$160. One hundred and twenty dollars worth of fruit and vegetables were used fresh, canned, or frozen. Livestock products used in the home were valued at nearly \$500 and included all the milk, butter, eggs, dressed poultry, and beef for a family of four. Net return from the \$3,625 investment in farm real estate and personal property and for the 800 hours of labor contributed by this part-time farmer and his family was \$460.

Although the part-time farmer who depends on a custom operator runs the risk of losing an occasional crop, he may still find custom hiring one of the most profitable ways to handle the small "in-between" size place of 2 to 20 acres. This is especially true of the operator who may lack experience, or one who is limited in the time he has to spend on farming operations. By custom hiring, a farm operator not only hires the use of a machine but also gets the operator's labor.

Twenty Acres or More

Part-time farms of 20 acres and larger can be operated extensively with the available labor of the part-time farmer and his family. Increasing the amount of equipment may be justified with larger acreages.

For the smaller acreages, it seems wise to restrict the kind of crops and number of different crops in order to limit the amount of equipment needed. Such operations as combining, corn packing, and baling are generally hired. Seedbed preparation and cultivating are usually done by the operator or members of his family. Such operations are limited to the amount of time the family is willing to devote to them.

Labor becomes an increasingly scarce item on part-time farms of 40, 60, or 80 acres or more. On such places, it is good business to replace hand labor with a machine when the machine saves enough labor to cover its annual cost.

Even under the most extensive system of crop farming, an 80-acre farm will take 2 to 3 months of labor. The work on crops must be done during a few months. Adding any amount of livestock will cause labor requirements to increase rapidly. If you hope to operate alone a place of 80 acres or more, you should be prepared to put in some long days and many hours of work. Most operators of such places in the Delta-Windsor area planned to become full-time farmers and were using the off-farm income to pay for the farm and to stock and equip it. They were really doing two jobs.

When a shift from part-time to full-time farming takes place, a change in the type of farming may be necessary. Unless more acres are added, it may be necessary to change from an extensive type of operation, requiring limited labor, to a more intensive type which will market all of the operator's labor on a full-time basis.

One of the more extensively operated, larger part-time farms surveyed was a 72-acre place used entirely to produce wheat. By alternating wheat and mammoth clover, the 63-year-old operator of this place annually raised 36 acres of wheat and plowed down 36 acres of clover for next year's wheat crop. Plowing and seedbed preparation were done evenings and on days off during the summer. Drilling wheat took 2 or 3 days. Combining required about a week. Altogether, the operator spent 272 hours growing and harvesting the 36 acres of wheat, or about one 8-hour day for each acre.

Farm buildings on this place were valued at \$800 and included an old barn used for equipment storage, and an old granary. Equipment consisted of an 8-year-old two-plow tractor, a two-bottom plow, a springtooth harrow, a secondhand grain drill, mower and combine, and a 1933 model 1½-ton truck. The total depreciated value of equipment was \$1,400.

Total expenditure for seed, fertilizer, machine repair, fuel, taxes, insurance, etc., was \$575. Value of wheat produced was \$1,700. The net return of \$1,125 resulted from a total farm investment of \$13,000 in land, buildings and equipment, and 272 hours of the operator's time. Although this program has worked well in the past, it may not work too well under a regulated agriculture with acreage allotments.

One of the more successful intensively operated, larger part-time farms surveyed was an 80-acre general farm with 56 acres of cropland. A total of 2,400 hours were devoted to the operation of this farm during the year by the husband, wife, and three children. About \$200 was spent for hired labor. The wife appeared to have better-than-average ability to carry on farming operations with the help of the children while the husband was at work on his off-farm job. The wife and children contributed about one-third of the total family labor.

The investments on this place included: \$4,500 in a barn, silo, poultry house, brooder house, garage, and milkhouse; about \$1,100 worth of used farm equipment; and livestock valued at \$1,700, including five cows, one heifer, five calves, and 90 hens.

Operating expenses on this 80-acre part-time farm were 1,855. This included about \$200 for hired labor, \$550 for purchased feed, \$100 for seeds, \$150 for machine hire, \$160 for commercial fertilizer, \$240 for tractor fuel, \$75 for building repair, \$125 for taxes and insurance, \$40 for veterinary medicine and breeding fees, and \$215 for supplies and miscellaneous expenses.

Income from sale of products was \$2,845, and included \$2,400 from livestock and livestock products and \$445 from sale of wheat. Farm products used in the home by this family of five were valued at \$675. Included were milk, eggs, dressed poultry, beef and fruits and vegetables. In addition to products used fresh, much was canned or frozen.

This part-time farm family received a net return of \$1,665 for their 2,400 hours of work and investment of \$15,300 in land, buildings, equipment, and livestock. In addition, this family appeared to gain much personal satisfaction from working together on a place of their own in the country.

What Crops to Grow?

Crops are grown for a number of reasons: (1) To provide food for the family, (2) for cash sale, (3) as feed for livestock, and (4) as soil builders. Generally, the part-time farmer's goal should be to get the greatest possible net return from his land over a long period of time.

While the production of crops for feed or sale may appear more profitable than plowing under a crop of clover, future yields may be higher and income greater if the land is used at reasonable intervals to grow a soil-building crop. This is especially true if there is no barnyard manure to apply to the land.

On small acreages such as are common on part-time farms, it is generally more economical to limit the number of crops grown to reduce the number of different kinds of machines needed. Avoid crops which require large, expensive pieces of equipment.

A Vegetable Garden and Small Fruit



You can care for the area devoted to a well-planned vegetable garden with a minimum of cash outlay and it will supply your family with plenty of fresh vegetables in season. Ninety-five percent of the part-time farmers interviewed in the Delta-Windsor area had vegetable gardens. Using Lansing Municipal Market prices, the value of garden products used in the home averaged \$72.28 per farm. The value of produce per farm ranged from a few dollars to over \$180.

Gardens on these places averaged six-tenths of an acre in size. Sweet corn, snap beans, and tomatoes were among the more widely-grown crops. Others included red beets, onions, radishes, lettuce, swiss chard, spinach, cabbage, cauliflower, broccoli, cucumbers, and carrots. A few people liked to grow their own potatoes.

Dollars invested in small fruit had high earning power. Strawberries and raspberries were reported easy to raise, and any surplus over those used by the family generally found a ready market. Tree fruits proved less popular and less profitable for part-time farmers. In some instances, the present owner was not interested in the orchard or could not find time to prune, spray, and otherwise care for the trees properly.

A good garden soil is an important factor in the success of the vegetable garden. Heavy clay soils are difficult to work and discourage the gardener. Very sandy or gravelly soils tend to dry out. Sandy loam or loam soils are easiest to work and, when supplied with plenty of

organic matter, withstand a reasonable amount of dry weather and still yield well.

Although there is a market for some garden produce, you should not depend on selling a large quantity of products unless you have a good location for a roadside stand or are willing to take time to develop a market for your products.

Much more garden produce is given away by part-time farmers than is sold. Only 30 percent of the farms surveyed in the Delta-Windsor area reported any sales from their vegetable garden and small fruits. The farms reporting averaged only \$50 in sales per farm. Garden products which sold best were raspberries, sweet corn, potatoes, tomatoes, melons, and strawberries.

For gardens of not over one-fourth acre, hand tools, including a wheel cultivator, are all the equipment you will need if you hire the plowing and seedbed preparation done.

Information supplied by the following publications of the Michigan Agricultural Experiment Station and the Cooperative Extension Service can help those interested in producing garden vegetables and fruits on a part-time farm.

- | | |
|------------------------|---|
| Mich. Ext. Bulletin E4 | <i>"The Home Vegetable Garden"</i> |
| Mich. Ext. Folder F17 | <i>"Pest Control Programs for Home Orchards and Small Fruits"</i> |
| Mich. Ext. Folder F71 | <i>"Grapes in the Home Garden"</i> |
| Mich. Ext. Folder F74 | <i>"Hints for Raspberry Growing"</i> |
| Mich. Ext. Folder F116 | <i>"Fruit Varieties for Michigan"</i> |
| Mich. Ext. Folder F136 | <i>"Dwarf Fruit Trees"</i> |
| Mich. Ext. Folder F149 | <i>"The Home Fruit Garden"</i> |
| Mich. Ext. Folder F167 | <i>"Selling Farm Produce Direct to Consumers"</i> |
| Mich. Ext. Folder F176 | <i>"Hints on Strawberry Growing"</i> |
| Mich. Ext. Folder F224 | <i>"Fertilizers for Fruit Crops"</i> |

Crops for Sale

If you have more than enough land for a vegetable garden, you may want to expand the production of some garden crops or small fruits. You may want to try producing such field crops as field corn, wheat, field beans, potatoes, or hay. You will need power equipment

to prepare the seedbed and care for these crops. You will have to custom hire such special equipment as a combine, corn picker, hay baler, etc., unless the acreage of the crop is large enough to justify buying the special equipment.

Crops for Feed

Feed crops grown will depend greatly on the type of livestock kept. Approximate feed requirements for different classes of livestock are given in Appendix Table 2 (page 45). Cattle or sheep are able to use large proportions of roughage in their ration. Poultry and hogs are primarily grain consumers, but they will use some pasture and a small amount of excellent hay in their ration.



On small acreages where livestock is kept, it is best to limit crop production to pasture, and plan to buy other feed. This will limit machinery requirements to seedbed preparation and seeding equipment. If your place has more acreage than you can use as pasture, consider producing feed crops which you can handle with a minimum investment in equipment and with available labor. On small acreages, you can plant and harvest corn by hand methods. You will need power equipment to prepare the seedbed and do some cultivating. On larger acreages, you will need mechanized planting and harvesting equipment.

The production of small grains requires special equipment for seeding and harvesting. On most part-time farms, it will be necessary to rent or custom hire a grain drill and combine harvester. You can put up small acreages of hay as loose hay with a minimum of investment in equipment. A mower and rake are necessary. You can load the hay by hand or with a hay loader on a trailer or wagon for carrying to the storage. For larger acreages, it may be economical to hire a custom baler or forage chopper to handle the hay crop.²

²See Karl A. Vary (1953). Custom work in Michigan. Mich. Ext. Folder F161.

Crops to Build Soil

Maintaining plenty of organic matter in the soil is important to the part-time farmer. If you keep no livestock, you will have to do this mainly through the use of crop residues and composts, and by plowing down green crops. Crops which are commonly plowed down as green manure are rye, clover, buckwheat, etc.

Rye can be sown in late summer or early fall to serve as a winter cover crop as well as a source of organic matter. Clovers have the advantage of adding nitrogen to the soil. Buckwheat can be sown in late spring and plowed or disked into the soil later in the summer. It grows well and adds large quantities of materials to the soil in a short time. Adding nitrogen fertilizer is usually necessary when large amounts of plant growth are turned under or disked into the soil.

Use commercial fertilizer to supplement applications of barnyard or green manure; apply it as recommended for the crop under specific soil conditions.³ Most counties in Michigan have a soil-testing laboratory to determine the lime and fertilizer needs of soil.⁴

What Livestock to Keep

The reasons usually given for keeping livestock on a farm are: (1) To make use of labor not otherwise being used efficiently; (2) to use pasture and other roughage for which there is not a ready market; (3) to use grain produced on the farm; (4) to increase the amount of business done on the farm; (5) to use existing buildings; (6) to take advantage of special markets in the vicinity; (7) to use particular skills of the operator; (8) to help maintain soil productivity; and (9) to provide livestock products for home use.

As a part-time operator, you are in a little different situation than the commercial farmer. You are limited in the amount of labor you have available. You may be buying grain instead of marketing your own farm grains through livestock. Producing livestock products for home use is probably a much more profitable use of your time than trying to compete with large commercial producers.

Livestock farming is more confining than crop farming. Most classes of livestock need almost daily attention. If you plan to keep livestock, you must be prepared to stay pretty close to home unless you are able to leave your stock in capable hands. Labor requirements

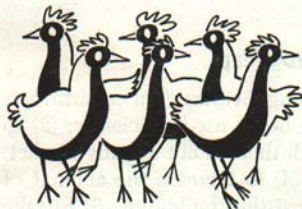
³Miller, et al (1954). Fertilizer Recommendations for Michigan Crops. Mich. Ext. Bul. 159. 39 pp.
⁴Kirk Lawton (1953). Test Your Soil. Mich. Ext. Folder F174.

vary greatly between classes of livestock. For example, it requires five times as much work per year to care for a dairy cow as it does to take care of a beef cow.

Dollars invested in livestock and forage crops yielded high returns on the part-time farms studied. This indicates that, on these farms, it would have been profitable to keep more livestock and to have produced forage for them. Livestock on the farms surveyed generally consisted of poultry, and dairy and beef cattle, and was produced mainly for farm use.

One of the reasons given for not keeping livestock was the fact that taking care of it was too confining. For many part-time families, the limited income possible from a small livestock enterprise is not worth the cost in terms of being tied down to regular chores. Keeping a few animals is almost as confining as having a large flock or herd.

A Laying Flock



A small laying flock is one of the most common livestock enterprises found on part-time farms. Chickens were kept on 55 percent of the farms surveyed. Fifteen or 20 minutes per day spent taking care of a small flock of hens will provide your family with fresh eggs through most of the year.

Surplus fresh eggs usually find a ready market. Dressed poultry from the flock will supply a substantial part of your family's meat supply. Housing for a small poultry flock need not be expensive as long as it is dry, free from drafts, and warm enough to protect the birds from extreme cold.

Under good management, a hen should lay between 180 and 200 eggs during her pullet year. Each hen will need between 90 and 100 pounds of feed, about equally divided between farm grains and laying mash. Feed costs make up about 60 percent of all costs in egg production, including labor.

Farm price of eggs is usually 25 to 30 percent below retail store prices unless eggs are retailed at the farm. The part-time farmer producing for home use is performing all functions from producer to consumer for those eggs used by his family. However, when he produces for sale, he must figure on up to 30 percent less than retail

price for his eggs, depending on how much of the marketing job he performs.

A large poultry flock kept for commercial production is well adapted to the small farm. Hens can be confined and require very little land. Much of the feed eaten by poultry can be bought. This puts the poultry enterprise on the part-time farm in a position to compete more favorably with the commercial producer than enterprises using large amounts of home-grown feed. In flocks of 400 to 500 birds or more, labor requirements can be reduced to 2 hours or less per hen per year when the operator can use automatic waterers and feeders.

Domestic Rabbits

Although rabbits are often suggested as an enterprise for the small place, only one of the farms surveyed in the Delta-Windsor area raised them, and they were kept mainly as pets for the children. Rabbits require little space and relatively inexpensive equipment. A buck or two or three does, carefully cared for, will provide all the rabbit meat an average family will need. Keeping the hutches clean is an important and time-consuming part of rabbit raising. While there is a market for some rabbit meat, the beginner would be wiser to start with a few does and expand as he develops a market.



Dairy Cows



The producer may receive only 6 or 8 cents for milk which retails at 20 cents or more per quart. Keeping a dairy cow makes it possible for a family with several children to save quite a bit on their food bill, even though production costs may be higher for each cow than on a commercial dairy farm.

Unless your family is large enough to use the entire production from a dairy cow, it may cost you less to buy the dairy products you

need. To make best use of the production from a dairy cow, your wife should be willing to churn butter and make cottage cheese from the milk left over after the family's whole milk needs are filled. In some neighborhoods, there will be a ready market for the surplus. In other communities, marketing the product would take a lot of time; the surplus might better be fed to poultry or hogs.

All milk for human use should be pasteurized as a safeguard against milk-borne diseases. A number of small pasteurizers on the market have proven quite satisfactory. Be sure to follow closely the manufacturer's directions for pasteurization.

A cow with a tendency to produce uniformly throughout her lactation (milk-producing period after having a calf) will prove more satisfactory than one producing large quantities at the beginning of her lactation and then tapering off rather quickly. It is reasonable to expect 3,000 or more quarts of milk during a normal 10-month lactation. If you keep only one cow, you will have to buy your milk during a dry period of about 2 months.

Caring for the family cow will require about 200 hours per year, depending on the facilities. Housing need not be expensive. The stable should be as convenient as possible for milking, feeding, watering, and cleaning. Any building which is warm enough for the milker to work in comfortably during cold weather will be warm enough for the cow.

The dairy cow will be able to use an acre or more of good pasture. She will eat, in a year, about 2½ to 3 tons of good-quality hay (in addition to pasture), from 1,000 to 2,000 pounds of farm grains, and will need 500 to 1,000 pounds of straw or other bedding material. If pasture is not available, the cow may be barn-fed during the entire year. Under such circumstances, she will need 4½ to 5 tons of hay during the year.

If you try to expand your dairy enterprise beyond a family cow, you will face a number of problems. Feed, labor, and equipment costs run high on a small herd of 12 to 15 cows or less. Meeting the sanitary regulations necessary to market whole milk is expensive, and marketing cream is less profitable. The part-time operator who tries to handle a dairy enterprise that is big enough to allow real efficiency will soon discover he has a full-time job. Only 28 percent of the farms surveyed kept dairy cows and no farm had more than six milk cows.

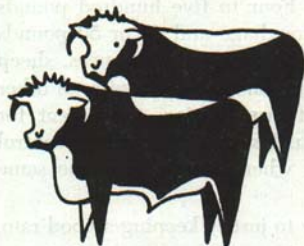
Milk Goats

Dairy goats have sometimes been called the "poor man's cow." As a small-unit milk producer, the goat fits well into the scheme of the small farm. Three goats will produce about half as much milk as an average dairy cow, or more nearly what a family may be able to use. The goats can be bred to freshen at different times to produce a more uniform supply of milk for the family.

A frequent belief that goats' milk always has an undesirable flavor is not correct. Goat's milk that is properly produced carries a mild characteristic flavor that to most persons is wholly desirable.⁵ However, before buying goats, it might be well for a family to try goat milk to decide whether or not they like it.

No goats were kept on any of the 60 farms surveyed.

Beef Cattle



A beef breeding herd on the part-time farm will use pasture and other roughages. Five or more beef cows can be cared for with the labor required for one dairy cow. Shelter and equipment can be fairly inexpensive. Beef cattle are usually found on part-time farms of 40 acres or larger.

Income from the beef herd is restricted to the annual calf crop and sale of surplus breeding stock. The calves can be sold at 7 to 9 months of age as feeder calves weighing about 400 pounds. Prices will vary with economic conditions. A fair gross return would be between \$60 and \$100 per head. This amount must cover all expenses, including labor. While the net return is not great, the beef enterprise does use to good advantage such resources as feed and the limited amount of labor found on most part-time farms.

If enough feed is available, the calves raised may be kept, fed out as steers, and marketed at a weight of about 1,000 pounds. Feeder calves may be bought and marketed as steers. Success in the feeding of beef steers requires considerable experience. The part-time farmer would be wise to try his skill with a few animals, perhaps feeding out

⁵E. C. Scheidenhelm and Earl Weaver (1947). Milk Goats. Mich. Ext. Bul. 284.

and slaughtering a steer for home use, before trying such a project on a large scale. Often, a quarter or half of a beef may be sold to persons with home freezers or lockers.

A beef cow and calf will require 1 to 2 acres of tillable pasture, 2 to 3 tons of hay or other roughage, and very little, if any, grain. Feed requirements of the fattening steer will vary with the age and quality of the animal.

Sheep



While sheep are not common on part-time farms, sometimes they are found on places of 20 acres or larger. Sheep are primarily roughage-consuming animals; they require very little grain. An acre of improved pasture will carry three ewes and their lambs. Four to five hundred pounds of good quality legume hay or other roughage and 40 or 50 pounds of grain should be provided for each ewe. In some instances, sheep are kept to use the available pasture land on the place, with all other feed being bought. With this type of organization, equipment for operating the place is kept at a minimum. A systematic parasite control plan should be carried out, especially where sheep graze the same pasture year after year.

A flock of 20 to 30 ewes is necessary to justify keeping a good ram.

Housing for the ewe flock may be relatively inexpensive. A shelter against heavy, wet snow or rain is important. A fairly warm place for ewes with newborn lambs should be provided. Ten to fifteen square feet of floor space should be provided for each ewe, depending upon whether the ewes lamb in winter quarters or on pasture. Labor requirements for sheep are low except at lambing time, when special attention is important. Care of a flock of 20 to 30 breeding ewes and their lambs should require not more than 150 hours per year.

Sheep provide two sources of income—wool and lambs. A good medium-wool ewe should yield 8 or 9 pounds of wool. A well-managed flock of ewes will average between 1 and 1¼ lambs per ewe. An 85-pound lamb dressed out for home use will yield a 40-to-50-pound carcass.

Hogs

Hogs are not too well adapted to the small farm. While pigs are able to use kitchen scraps and surplus skim milk, they need grain to produce good-quality pork. Hogs will use a limited amount of rape or clover pasture. Fencing to contain hogs is difficult and expensive, especially where only one or two are kept. Confining hogs to small quarters or running them on the same ground year after year results in sanitation and parasite control problems.



On places where they are kept, one or two pigs will supply all the pork products needed by a family of five. The family will probably buy weanling pigs rather than trying to keep a sow and raising the pigs. If you need only one or two hogs for your own use, you may find it less risky and just as profitable to buy them, ready for slaughter, from a nearby commercial producer.

For the part-time operator who has a surplus of corn or small grains, hogs usually provide a good market for grain. On farms equipped to handle hogs, it may be profitable to buy feeder pigs to use the feed supply. Homegrown feeds should be properly balanced with protein supplement and minerals. By using self-feeders and automatic waterers, a farmer can handle a large number of hogs with a few minutes of labor each day.

HOW MUCH EQUIPMENT?

Fitting equipment to the small acreage found on many part-time farms is one of the hardest tasks facing the operator. Machinery is used mainly to enable a man to accomplish more or to make his work easier. To justify its cost, a machine should do a job for less cost in cash and human effort than hand labor. In many cases, farm machinery on the part-time farm replaces labor which is used in a leisurely manner. Labor used in this way returns little cash income and the return on investment in equipment to replace it may not be enough to cover the cost of owning the equipment.

Cost of Owning Equipment

Before buying a piece of equipment, it is wise to consider the annual cost of owning such a machine and the probable saving in labor which will result.

Machine costs can be divided into two main types: (1) Fixed costs, or costs which are pretty much the same regardless of the amount of use made of the machine; and (2) variable costs, or costs which vary with the amount of use the machine receives.

Fixed costs include depreciation, interest on the investment, repairs (determined for the life of the machine), taxes, shelter, and insurance (Table 3). Depreciation is based on the years of expected life for the machine under the conditions in which it will be operated. It is estimated that, under the limited use it receives on part-time farms, well-cared-for equipment may last 10 years or longer, depending on the type of equipment.

Fixed costs on machinery are high per unit of use where machines are used on only a few acres. There are several ways to reduce fixed machine cost per acre and per unit of output. The use of smaller-size, lower-cost machines or used machinery cuts total fixed costs by reducing interest on investment and depreciation. Using the machine on more acres and getting higher yields per acre reduces the cost per acre and per unit of product. Custom hiring of some of the operations requiring large pieces of equipment is one of the best ways to keep costs low. On small farms, cost per acre drops rapidly as the number of acres on which a machine is used increases.

TABLE 3—Suggested rates for determining machine costs

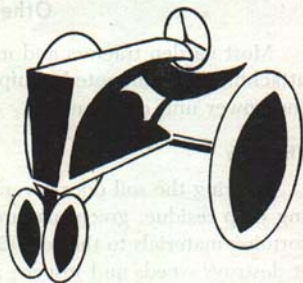
Item	Percent of original cost
Depreciation.....	10
Interest.....	3
Repairs*.....	4
Taxes, insurance, shelter.....	3
Total fixed costs.....	20

*It is recognized that repairs vary to some extent with the amount of machine use. Repairs during the life of the machine are assumed to equal 40 percent of the cost of the machine or an average of 4 percent annually.

Variable costs include fuel, oil, grease, anti-freeze, labor for maintenance and operation of the equipment, repairs due to wear, and any other expenses directly connected with the operation of a machine in performing a specific kind of work.

Power Equipment

You can use a small garden tractor to mow lawns, prepare seedbeds, cultivate, and do other light work within its capacity. Tractors that are light in weight and limited in power are not satisfactory for plowing and other heavy work. Soil type is an important factor affecting the ease of plowing and tillage. Try equipment under the soil conditions on which it must operate before deciding what to buy.



A small tractor pulling a small implement and traveling at 1 to 1½ miles per hour will require many man-hours of labor to plow, fit, plant, cultivate, and harvest an acre of crops. To figure the acreage covered per hour, multiply the width of the implement in feet (W) by 5,280 (feet per mile) times the miles per hour (MPH), and divide by 43,560 (number of square feet in an acre).

$$\text{Formula: } \frac{W' \times 5,280' \times \text{MPH}}{43,560} = \text{Acres per hour}$$

A tractor moving at the rate of 1½ miles per hour with a 2-foot cultivator attached would cover only a little over one-third of an acre per hour.

$$\text{Example: } \frac{2' \times 5,280' \times 1\frac{1}{2} \text{ (MPH)}}{43,560} = .36 \text{ acre per hour}$$

A tractor moving at the same speed with an 8-inch plow would require nearly 8 hours to cover 1 acre. A regular wheel tractor with a single-bottom plow would take a little over 2 hours to cover the same area.

Many part-time farmers have turned to the smaller wheel tractor as a source of power. On the farms surveyed in the Delta-Windsor area, two-thirds of the wheel tractors owned were bought second-hand. Many of these cost little more than a larger garden tractor. Much of the other equipment on these farms was also bought as used equipment. Wheel tractors with mounted equipment enable the operator to get into corners in small fields and garden plots.

Other Equipment

Most garden tractors and many of the smaller wheel tractors have attachments or mounted equipment to perform the operations which the power unit can handle.

The Plow

Plowing the soil does several important things: (1) It helps in adding crop residue, green manure, barnyard manure, and other humus-forming materials to the soil; (2) it creates a deep, mellow seedbed; (3) it destroys weeds and insects; and (4) it leaves the soil in such a condition that air can circulate through it and moisture be held in it.

Tractors that are light in weight or of less than 3 horsepower cannot be expected to handle a plow under all conditions. In heavy sod, on heavy soil, where large amounts of crop residue (such as stubble) exist, or in other difficult plowing conditions, it is best to hire a wheel tractor to do the plowing. Fitting and cultivating operations are much easier to perform on soil where a good job of plowing has been done.

The Disk

Next to the plow, the disk harrow is used most in fitting operations: (1) It is used after plowing to pulverize the soil in preparation for planting; (2) it can be used before planting to cut up vegetative matter and break up the topsoil to allow a more effective job of plowing; (3) it can be used to cultivate some crops; and (4) it will destroy weeds when used for summer fallowing.

To be effective, the disk must be heavy enough or be weighted down enough to penetrate the soil. The farmer must handle it with a tractor large enough to move it along rapidly so it can exert a throwing force upon the soil. Tractors that are too small or too light cannot do an effective job of disking.

Cultivators

It is the purpose of the cultivator to destroy weeds, break up the soil for better aeration, improve moisture penetration, and improve moisture-holding capacity. Cultivators should have teeth which can be adjusted as to depth, distance apart, different row widths, and type of teeth required for different jobs.

Mowers

Many garden tractors have mower attachments suitable for mowing the lawn and trimming up around the farmstead. Such tractor-mower combinations should be light and maneuverable to be best for lawn work. A regular mower attachment on a wheel tractor will prove much more satisfactory for the larger haymaking operations. Occasionally, an old horse-drawn mower converted to tractor use will provide a very economical piece of mowing equipment for the farm with a small acreage of hay.

A small dump rake, windrower, or side delivery rake will be necessary if the farmer produces more hay than he can handle with a hand rake.

Special Equipment

On small acreages, owning such special equipment as a grain drill, corn planter, combine, corn picker, etc., cannot be justified. The small operator should plan to rent or custom-hire machines for these operations. Occasionally, on the larger part-time farm, enough small grains, beans, or corn are grown to justify owning one or more of these special pieces of equipment. Census data shows that very few part-time and residential farms are equipped with the larger pieces of specialized equipment.

Part-time farms vary widely in the amount of type of machinery and equipment used. The earning power of machinery was low on the Delta-Windsor area farms studied, indicating that these places had more machinery than could be justified from a dollar-and-cents point of view. You should realize, however, that returns from machinery cannot be measured in dollars alone. Equipment lightens the load by replacing physical effort with machine power. If you are mechanically inclined, you can get much enjoyment from operating power equipment.

BUILDINGS FOR THE SMALL PLACE

The basic purpose of farm buildings is to provide shelter for livestock, storage of feed and crops, and space for storing and maintaining equipment. The requirements vary greatly from farm to farm, depending on the type of farming. On part-time farms, building requirements may range from a place for small tools in the corner of the garage to a standard dairy barn or multiple-story poultry house.

On many part-time farms, the problem is one of putting to good use buildings that are already on the place. These may once have been the main set of buildings on a larger place.

In most cases, it will save you money to buy a farm with buildings on it than to buy bare land and construct the buildings. Many older buildings are sound and can be remodeled to serve as multiple-story poultry houses; pen-type housing for dairy, beef, or sheep; or as equipment storage and shop space. However, it may cost almost as much to repair old buildings in poor shape as to build new ones. Buildings for which there is no present or anticipated use should be moved off or torn down to reduce insurance and maintenance costs.

On small agricultural holdings which have recently been part of a larger farm, there may be few, if any, buildings. Before launching into a building program, the owner of such a place should carefully consider his building needs, both present and future. (See Table 4.)

Cost of construction, maintenance, efficient layout, and general

TABLE 4—Building space required for livestock and feed storage

Item	Space required
Poultry:	
Baby chicks (per 100).....	50 sq. ft. floor
Laying flock (per hen).....	3 to 4 sq. ft.
Cattle:	
Cow.....	50 to 75 sq. ft.
Calf (individual pen).....	12 to 15 sq. ft.
Sheep or goats:	
Mature animal.....	15 to 16 sq. ft.
Manger (per animal).....	15 to 18 inches
Hogs:	
Individual pen.....	48 to 64 sq. ft.
Feed storage:	
Hay (per ton).....	200 to 600 cu. ft.
Ear corn (per bushel).....	2½ cu. ft.
Grain and mill feed (hundredweight).....	3 to 5 cu. ft.
Silage (per ton settled).....	50 cu. ft.

TABLE 5—Suggested rates for annual building costs

Item	Percent of original costs
Depreciation.....	2 to 5
Interest.....	3
Repairs and maintenance.....	1.5
Taxes and insurance.....	.5
Total annual cost.....	7% to 10%

utility are important factors to consider in the construction of buildings. It is quite a common mistake to build more expensive farm buildings than are necessary or justifiable. It is important to have buildings which can be used a number of ways.

Buildings normally last 25 to 50 years, depending on the type of construction and use. A building constructed for a particular use today may not be useful 15 or 20 years from now unless it can be remodeled or adapted to new uses.

Can the Cost be Justified?

Building costs are mostly fixed costs. They include depreciation, interest, repairs and maintenance, taxes, and insurance. The occupants of a building, whether they are chickens, cows, or machines, must return enough added income, or save enough on some other expense, to cover these costs if the building is to be justified from an economic point of view. (See Table 5.)

The annual cost of owning a building costing \$1,000 would be between \$70 and \$100, depending on the type of construction and probable life.

On the farms surveyed, the earning power of the last dollar invested in buildings was less than 3 percent, or only about half enough to cover the cost of the investment.

Housing for Poultry

Housing for a small flock of hens to produce meat and eggs for home use can be a 10- by 12-foot brooder-type house. Such a house will do for chicks, broilers, pullet replacements, or layers. Use the

house for only one type of birds at a time, and carefully clean and disinfect it before brooding a new batch of chicks. Each laying hen needs 3 to 4 square feet of space; allow one-half square foot per chick brooded. Housing for poultry need not be expensive if it is warm, well-ventilated, and free from drafts and dampness.

The part-time operator who plans to get into commercial egg or broiler production should make a careful study of housing problems before remodeling or building.

Housing for Cattle, Sheep, and Goats

Shelter for mature cattle, sheep, or goats need not be warm but should protect them against severe cold, rain, and snow. Very young animals will need extra protection against cold. Arrange the shelter so you can do feeding, cleaning, and other chores with a minimum of effort.

Cattle can be kept in stanchions or allowed to run loose in pens. Pen housing for cattle gives more flexibility in use of space. Pens may be partitioned off and used for different types of livestock, or partitions may be removed and the building used for storage of feed or equipment.

Housing for Hogs

Part-time farmers will find individual portable hog houses most satisfactory for producing pork on a small scale. Provide a 6- by 8-foot to 8- by 8-foot house or pen with an adjoining run for each sow and litter. Move the portable house to clean ground each year to reduce infestation with soil-borne parasites. In summer, four posts set in the ground to support a sun shelter will be quite satisfactory. A frame covered with old wire fencing will support straw, brush, or anything which provides shade.

Pens for hogs must be well built of plank or tightly-stretched woven wire. Allow at least one-fifth acre of pasture per hog in small lots.

Silos

A silo will not prove satisfactory for the farmer with a small herd of cattle. To prevent spoilage, a silo should have 2 to 4 inches of silage removed each day. Even in an 8-foot diameter silo, this will amount to between 300 and 600 pounds of silage, or enough for a fairly liberal daily feeding for 10 or more cows.

General-Purpose Barns

On some part-time farms, a small general-purpose barn may be used for a combination garage, machine storage, feed storage, and stable. Partitions can separate the different areas of the building. Housing hogs in the same building with other livestock or too near the home is generally not very satisfactory.

It is hard to figure the earning power of farm buildings. Those which have a useful life of 50 years or more have comparatively low annual fixed costs. Many buildings have multiple uses.

Older buildings may have become obsolete or are not suitable for the enterprises now found on the place. Buildings that are too elaborate or those with much unused space are bound to have very low earning power.

FARM RECORDS HELP

It will pay the part-time farmer well to check on the financial success of his farm business, even though it may be small. A simple farm record can be helpful in several important ways: (1) It shows the source and amount of individual farm expenditures and income; (2) it helps point out both weaknesses and strong points in the farm organization; (3) part-time farmers who operate their farms as a business will find a good farm record handy at income-tax time; and (4) records can help in getting credit for farm operations.

Certain types of accounts will show the profitableness of individual farm enterprises. For example, they can be used to determine the cost of producing a dozen eggs or a quart of milk.

Simple Farm Accounts

These are used to determine the profit or loss on the entire farm business. They include a record of all cash income and expenditures, of inventory changes, and of such depreciable capital investments as buildings, equipment, etc.

A record of crop and livestock production is a valuable supplement to the simple farm account. It includes crop yields, planting dates, fertilizer applications, livestock production, birth dates, and other information of importance in planning the farm business. On many part-time farms, a record of farm produce used by the family will make a valuable addition to the simple farm account.

Enterprise Cost Accounts

These are used to record all items of income and expenditure on an individual farm enterprise. The part-time farmer who questions the profitableness of an enterprise on his farm may want to keep a cost account record on that enterprise. Such an account should include a record of all inputs and the value of all production obtained from that enterprise. (A summary of items to be included in a cost account record for the dairy enterprise is shown in Appendix Table 3, page 46.)

To keep enterprise cost accounts requires quite a bit of time. Usually, such records are kept on only one or two enterprises at a time. By keeping records on every enterprise in the farm business, the operator could have a system of complete cost accounts. Few people would be willing to do this amount of recordkeeping at any one time.

Record books for keeping either Simple Farm Accounts or Enterprise Cost Accounts have been developed by the agricultural economics department at most state colleges. You can get one from your county agricultural agent at the county Cooperative Extension Service office.

FOOD PRESERVATION AND STORAGE

Producing food for home use may help the family income a lot on a part-time farm. The retail price of many products is enough higher than what the farmer gets to encourage production for home use. Of the average dollar spent for fresh fruits and vegetables at a retail store, about 40 cents goes to the producer, 8 cents to the shipper, 15 cents for transportation, 9 cents to the wholesaler, and 28 cents to the retailer. The producer receives less than half the retail price of bottled milk, 65 cents of the dollar spent for beef, and between 70 and 75 cents of the consumer's dollar spent for eggs.

On the part-time farms surveyed, value of produce used in the home averaged \$210 per farm; it ranged from nothing to more than \$700 per family for some of the larger families. The average value of garden vegetables and fruit was \$72, and livestock products averaged \$138 per farm.

Canning and freezing were common methods of preserving food used in the home. Ninety percent of the wives canned fruit and vegetables. Home freezers were found on 43 percent of the farms surveyed. Ninety-two percent of those with freezers also did some canning. Vegetables on the farms surveyed were stored in basements, pitted, or held in moist sand. In a few instances, washed carrots with tops (not crowns) removed were stored in a large crock or old earthen churn covered with glass.

Slaughtering cattle, hogs, or sheep and dressing and processing the meat is quite an undertaking for the amateur. Many part-time farmers do not have suitable facilities for slaughtering and processing meat. It is a common practice to have a local butcher or locker-plant operator slaughter and prepare meat for curing or freezing in a locker or home freezer. The professional slaughterer is equipped to do the job and is in a better position to get rid of the waste.

The following bulletins may help those interested in processing, preserving, and storing farm products for home use. You can get these bulletins by writing the Bulletin Office, Michigan State University, P. O. Box 231, East Lansing; or contact your county Cooperative Extension Service office.

Mich. Circular Bul. C216 *Freezing Foods for Michigan Homes*

Mich. Extension Bul. E151 *The Home Meat Supply*

Mich. Extension Bul. E232 *Home Vegetable Storage*

Mich. Extension Bul. E306 *Planning Everyday Meals*

Mich. Extension Folder F62 *Drying Fruits and Vegetables*

USDA Home and Garden Bul. No. 8 *Home Canning of Fruits
and Vegetables*

USDA Home and Garden Bul. No. 6 *Home Canning of Meat*

HOW WELL DOES PART-TIME FARMING PAY?

The energy a part-time farmer and his family are willing to devote to farming greatly influences earnings from the farm. Earnings from part-time farm operations are likely to be proportionately less than from full-time farming. A family expecting to earn a substantial part of its living from a part-time farm should be prepared to put in many hours of hard work. At best, a part-time op-

erator is limited to a fairly high income per acre on a very limited acreage or to a rather small income per acre on a somewhat larger acreage.

In 1949, part-time and residential farmers in Michigan averaged only \$357 in sales per reporting farm. Their farms averaged 55 acres, with 33 acres of cropland.

Expenditures for labor hired, feed, seeds and plants, tractor fuel and oil, machine repair, and machine hire amounted to \$335 per farm. This left very little, if any, income to cover the cost of fertilizer, sprays, and other supplies, depreciation on equipment and buildings, and insurance on buildings, stock, and equipment. And the farmer should receive interest on his investment in farm land, buildings, livestock, and equipment, and wages for his and his family's labor.

On part-time farms surveyed in the Delta-Windsor area, the average total value of production was \$835 per farm in 1952. This was from an average of 21 acres with 17 acres of tillable land per farm. Of this amount, \$210 per farm was for the value of products for home use; only a small part of the total farm income of these operators was from retail sales. Current operating expenses averaged \$427 per farm, or more than half the value of total production.

The 60 part-time farms were not too profitable, from a cash standpoint. However, if you consider the many benefits of healthful, enjoyable outdoor life associated with the operation of a part-time farm, the returns to the family for their contribution appear to be highly justifiable. Bringing the resources of the part-time farm businesses into better balance will not only result in greater cash income, but may also add to the benefits of rural living by releasing labor for other work or leisure time.

Some important findings on these survey farms that can help you are:

1. A return of less than \$9 per acre for the last acre of land in these places is not enough to cover the cost of owning land valued at \$200 or more per acre. More land was owned than could be operated with the labor and equipment on these places. Either the acreage in these places should be reduced to fit the labor supply or increased to justify the use of more equipment.

2. More hours of labor were expended on these places than appeared to be profitable. The last hour of labor returned only 11 cents. Labor requirements are high per unit of output on small enterprises.

Hand operations are labor consuming. Part-time farmers may not be physically fit to attain high labor efficiency. Workers cannot attain high labor efficiency on jobs that do not last long enough for the operator to develop necessary skills.

3. There were more farm buildings on these places than could be justified. The last dollar invested in buildings returned only about 3 cents, or less than half enough to cover the cost of such an investment. Buildings were built for other purposes or for larger enterprises and were not being used to capacity. Use of buildings to capacity, or eliminating them entirely if they cannot be used, will help bring building investments into proper relationship.

4. The last dollar invested in equipment on the farms surveyed returned less than 3 cents a year. This is far below the 18- to 20-cent cost of owning the equipment. Generally, equipment that is large enough to effectively perform the machine work on small places is built to do more work than is required on the small farm. The extra capacity is wasted, and it results in high unit costs on the small place. The part-time farmer must guard against over-investment in equipment. Custom hiring and ownership of used equipment will help keep costs in line.

5. Investments in livestock and forage on these farms were profitable. More livestock and forage would have added to the cash income. However, in the judgment of many of the part-time farmers interviewed, the added income would not have been enough to repay them for being tied down to their farm as a result of keeping livestock.

6. Investment in berries and small fruit was very profitable. These enterprises were well cared for and yielded well. Products not used in the home found a ready market at favorable prices.

Investment in tree fruits was less profitable. Most orchards were not kept pruned and sprayed; as a result, the fruit was of poor quality. Returns from investments in such enterprises were not enough to cover the cost of the investment.

7. It was good business on these farms to spend money for seed, fertilizer, spray materials, tractor fuel, repairs, etc. The last dollar spent for current operating expense returned \$1.27 in income. This indicates that an increase in current expenditures would result in more efficient use of such other resources as land, buildings, equipment, and labor.

APPENDIX

*APPENDIX TABLE 1—Approximate land and annual labor requirements for specified crop and livestock enterprises**

Enterprise	Land (acres)†	Labor (hours)
Fruit and vegetables:		
Home garden	0.5	200
Asparagus	1.0	200
Raspberries	1.0	200
Strawberries	1.0	300
Livestock:‡		
Hens (25) .....	...	50
Chicks (50)	0.3	25
Broilers (50) .....	...	15
Rabbits (2-4) .....	...	50
Milk goat	0.3	75
Dairy cow	2.0	200
Sow (spring litter)	0.2	40
Feeder pig (30-200 lbs.)	0.1	10
Beef cow	2.0	30
Feeder steer .....	...	20
Ewe and lamb	0.3	6
Field crops:§		
Hay	1.0	10
Corn	1.0	16
Oats	1.0	10
Wheat	1.0	10

*Labor requirements vary greatly with size of enterprise, methods used, yield, etc. Data given is for small enterprises under conditions which often exist on part-time farms.

†One acre equals 43,560 sq. ft.

‡Land includes pasture acreage only.

§Labor obtained by hiring a custom operator for harvesting crops may amount to as much as 10 percent of total labor requirements. Hand harvesting methods add greatly to total labor required.

APPENDIX TABLE 2—Approximate feed requirements per unit of different classes of livestock adaptable to the small part-time farm

Kind of livestock	Grain equivalent* (bushels)	Protein supplement (pounds)	Roughage equivalent† (tons)	Tillable pasture (acres)
Dairy cattle:‡				
Cow (250 lb. B.F., 7,000 lb. milk).....	18	...	6	1-2
Cow (300 lb. B.F., 8,500 lb. milk).....	32	100	5.5	1-2
Cow (350 lb. B.F., 10,000 lb. milk).....	46	200	5	1-2
Heifer, 2nd year.....	4	...	2.5	1
Heifer, 1st year.....	4	200	1.2	.5
Beef cattle:				
Cow.....	2	...	2	1-2
Heifer, 2nd year.....	2	...	1.5	1
Heifer, 1st year.....	6	...	...	.5
Feeder calves (per 100 lbs. gain)				
Full grain on pasture.....	9.5	45	.22	.17
Grain on pasture, 60 days dry-lot....	11.0	54	.21	.11
Pasture only, 120 days dry-lot.....	10.5	60	.23	.15
Hogs:§				
Sow (1 litter, 7 pigs to 220).....	115	400	...	.3
Sow (2 litters, 13 pigs to 220).....	225	1,000	...	.3
Feeder pigs (100 lbs. gain).....	7	50	...	...
Sheep:				
Ewe and lamb.....	1	20	.3	.3
Poultry:				
Hens (per 100 birds).....	66	4,800	...	...
Pullets (100 birds to 6 mos.).....	33	1,000	...	.5
Rabbits:				
Doe and litter to weaning.....	80	40	...	...
Buck.....	30	10	...	...

*One bushel of grain=1 bushel corn, wheat, or rye; 1½ bushel of barley; or 2 bushel of oats or spelt.

†One ton of roughage=1 ton legume hay, or 3 tons of hay or corn silage. When corn silage is fed, assume 1 pound of corn grain in each 10 pounds of silage fed, and reduce grain fed a proportionate amount.

‡For small breeds, roughage requirements may be reduced by 20 percent.

§Based on the production of 1 pound of pork for each 4.4 pounds of feed. Under favorable conditions, 1 pound of pork may be produced from as little as 3.5 pounds of feed.

APPENDIX TABLE 3—Dairy cost account summary*

Items	Total for herd		Average per cow	
	Quantity	Value	Quantity	Value
CHARGES				
Feed used:				
Farm grains (lbs.).....		\$.....		\$.....
Mill feeds (lbs.).....	
Hay (lbs.).....	
Silage (lbs.).....	
Other roughage (lbs.).....	
Pasture (days).....	
Labor used (hours).....	
Building use.....	
Equipment use.....	
Depreciation on herd.....	
Interest on herd value.....	
Breeding fees.....	
Other expenses:				
Veterinary, bedding, Dairy Herd Improvement Assoc. dues.....	
Overhead (5% of above charges).....	
Total charges.....		\$.....		\$.....
CREDITS				
Dairy products sold.....		\$.....		\$.....
Dairy products used.....	
Calves born.....	
Appreciation on herd.....	
Manure produced.....	
Total credits.....	
PROFIT OR LOSS....		\$.....		\$.....

Unit production costs and returns

Item	Herd total	Per cow	Per cwt. milk
Average number of cows.....		XXXXXXXX	XXXXXXXXXX
Milk produced.....			XXXXXXXXXX
Total charges.....	\$.....	\$.....	\$.....
Total credits.....	\$.....	\$.....	\$.....
Net profit or loss (1).....	\$.....	\$.....	\$.....
Labor charge (2).....	\$.....	\$.....	\$.....
Return to labor (1 and 2).....	\$.....	\$.....	\$.....
Hours of labor used.....			
Return per hour of labor used....	\$.....	XXXXXXXX	XXXXXXXXXX

*Cost account records for dairy, chicks, laying flock, and crops may be obtained at the County Cooperative Extension Service office.

Answers for your questions . . .

If you live in town and are thinking about getting a house in the country with a little land, or if you already own such a place and wonder whether you are using the land right, this bulletin will help you. Here are a few of the questions that may be running through your mind. The page numbers tell you where to look for some of the answers.

- ▶ **Why buy a place in the country?** (Pages 10 and 11)
- ▶ **How much land should I buy?** (Pages 15 to 21)
- ▶ **What should I do with the land?** (Page 12)
- ▶ **Crops?** (Pages 21 to 25)
- ▶ **Livestock?** (Pages 25 to 31)
- ▶ **What about farm equipment?** (Pages 31 to 35)
- ▶ **Will I need farm buildings on my place?** (Pages 36 to 39)
- ▶ **How well will a country place pay?** (Pages 40 to 43)
- ▶ **How are present part-time farmers making out?**
(Pages 16 to 21)

If you still want more help with these questions, there's a man in your county who can advise you—your country agricultural agent. You can phone or visit him for advice and for free bulletins dealing with many subjects on farming and town and city living. He works for the Michigan State University Cooperative Extension Service, and, in most counties of Michigan, his office is in the county building. (There's a county home demonstration agent in the same office to give free help with homemakers' problems.)

Would you like a list of extension publications and a list of all county extension offices in Michigan? Write to the Michigan State University Bulletin Office, P. O. Box 231, East Lansing, Michigan, for a free "List of Available Bulletins."