

FARM MANAGEMENT



FRED. W. CARD

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FARM MANAGEMENT

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A COMMERCIAL APPLE ORCHARD IN NEBRASKA

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FARM MANAGEMENT

Including business accounts, suggestions for watching markets, time to market various products, adaptation to local conditions, etc.

By FRED W. CARD

Professor of Agriculture

22325



GARDEN CITY NEW YORK
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1911

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PREFACE

THE production of good crops and animals constitutes one phase of successful agriculture. It is the phase upon which most emphasis has been laid in the movements for agricultural betterment which have been so prominent in recent times. But higher crop and animal production does not represent all there is to good farming. An article which has been produced at too great cost or marketed unwisely may bring no financial gain. Executive ability and the proper adjustment of cog to cog in the business venture count for more than soil fertility or intelligent crop management. To market a product advantageously is as essential as to produce it economically. In short, business methods are as important as production methods, and far more likely to be neglected.

To bring to the attention of students some of these problems of the farm has been the object of the course of lectures of which the present writing is the outgrowth. They are problems which should appeal to the farmer with even greater force than to the student. The aim has been to awaken interest and suggest methods of studying these problems rather than to present

PREFACE

solutions of them, for the solution will differ with nearly every individual case. In the system of records and accounts outlined, simplicity has been kept uppermost, for to prove useful a system must be adopted, and to be adopted it must be simple.

Agricultural teaching and agricultural practice will both give greater heed to the business management of the farm in the years to come than in those gone by. Farm Administration, rather than farm production, is likely to receive special emphasis in the next forward movement for agriculture. It is the hope of the author that this book may help to stimulate that movement.

FRED W. CARD.

Rhode Island College of Agriculture and Mechanic Arts,

Kingston, R. I., February 23, 1907.

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FARM MANAGEMENT

CHAPTER I

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THE EVOLUTION OF FARMING

WITHIN a half-century business methods have undergone vast changes. The village blacksmith is no longer the mechanic *in toto* for the whole countryside. It is not so long ago that he was expected to stand ready to furnish anything needed, from a pound of nails to a hammer or a harrow. Gradually the making of nails, of hammers, and of harrows passed into the hands of some one blacksmith who learned to make them better or cheaper than others. He then found more people in want of them. In time he could not make them fast enough himself and hired another smith to help. This, in its simplest terms, is the history of modern manufacturing.

Along with this specialisation in business has gone specialisation among the workmen. The old-time shoemaker cut his pegs from the birch log, made his own "waxed-end," and fashioned the shoe throughout. Sometimes he tanned the leather from which it was made. The modern shoemaker stands by a machine which cuts one of the pieces that go to make up a present-day shoe, with swift machine-like movement puts

one of these pieces in place, or builds a factory in which to make the eyelets, or the hooks, or the laces. This specialisation has brought both gain and loss to the workman. It has brought gain, in that he must no longer serve a long apprenticeship in order to take an accredited place among his fellows. It has brought loss in that it has reduced his chances of becoming a skilled workman whose services are at a premium. His place can be quickly filled and he is of less consequence to his employer than formerly. He is not such a well-trained, all-round man as he used to be. If he leaves his place he is less able to adapt himself to new conditions than formerly. Whether his condition is on the whole better or worse is useless to ask. The change has come and no power can turn back the tide. The workman, like the manufacturer, must abide by the result.

The merchant, too, has been carried on by the same current. His customers demand a better assortment than they did. His capital is insufficient to meet this increased demand in all lines. One line is strengthened and another dropped. Unless he organises a company to develop a department store, he no longer carries hardware, groceries, drygoods, confectionery, and drugs. As the line of goods contracts the circle of customers must widen. Special efforts are made to bring sales, the windows dazzle with



1. THE OLD-TIME LOOM AND SPINNING WHEELS



2. THE MODERN LOOM



3. OLD-TIME DAIRY METHODS
Compare with Fig. 5

the display, the columns of the daily enlarge upon the value of the wares, and salesmen are trained in every art of exchanging goods for money.

The farm has in part, but only in part, escaped this trend of the times. The pioneer farm which supported a half-dozen sheep, a cow, and a calf must needs furnish all they ate. If the hay ran short they must take to the woods and "browse." Buying grain to supplement the farm supply was unknown. The wool from the back of the sheep, if taken to a carding mill, was soon returned, to pass over the spinning wheel and through the loom or over the knitting needle to the wearer. The shiftless or unfortunate farmer who failed to grow wheat enough to supply bread for the family, ate rye or corn. Sugar came from the maple tree and spice from the herb garden.

The farm of those days was a self-centred community. The members of the family furnished the labour employed and in emergencies "changed works" with a neighbour. The farm supplied, directly, most of the needs of its occupants. The test of good farming lay largely in the ability to satisfy these needs to the fullest extent. There was little business dealing with the outside world, and that largely by way of exchange. The tailor, the shoemaker, the doctor, and the minister each used some surplus product in return for services rendered. The leading

business transactions of the year were the cash sales needed to secure enough actual money to meet the demands of the tax-gatherer.

The progressive modern farm has entered into the commercial life of the day. It recognises the law of advantage in production. It discerns the futility of attempting to compete with all the world in the production of every commodity. Every farm cannot grow celery, peaches, corn, and cauliflower equally well. Some farms can produce one of them better. Every farm ought to be able to produce some one thing better than most other farms can produce it. If this advantage more than offsets the expenses of exchange, it is the part of good business policy to find out what that one thing is and to produce it.

This change means that farming becomes a business rather than an employment. It means the adoption of business methods in every phase of activity. It means the proper adjustment of the capital involved. There should be no more land than the money, tools, and equipment will handle to its full capacity. There must be no more money invested in implements than can be used with profit upon the land available. It means that the line of crops chosen must be adjusted to the demands of the market, to a rotation consistent with the demands of good farming, and to a system of labour which will permit full employment and business-like

manipulation of the labour available. Team-work must be adjusted so as to secure the maximum number of hours of service from the number of animals kept. The farmer must endeavour to cheapen production and to increase quality of product at every possible point. He must try to discover the point at which increased labour and fertility applied fails to yield a more than corresponding increase in crop return; then must endeavour to reach it but not to pass it. He must know the market in which he is to compete, what it demands and how it demands it. He must know how to advertise his goods and in what shape they will be most attractive to customers. He should know something of the regions against which he has to compete and of what his competitors are doing.

ECONOMIC CHANGES

In 1850 there was one farm for each sixteen persons within the limits of the United States. In 1900 there was one farm for each 13.3 persons. To put it in another and better way, there were 4.87+ acres of improved land in cultivation in the United States in 1850 for each individual of population. In 1900 there were 5.44-acres in cultivation for each member of the population. The average size of farms decreased from 1850 to 1880 but has increased since that time. From

1890 to 1900 the increase in acreage of improved land was 16 per cent.; the increase in population was 21 per cent. During the greater part of the last half-century the acreage of improved land in cultivation has therefore been increasing faster than the population. This has meant keener competition for the farmer, competition which has been only in part averted by lessening yields due to wasteful and careless methods of farming. Indeed export statistics show that the production per acre has increased rather than decreased, owing to the occupation of more fertile land. Combined with this increase in production, as compared with home consumption, has gone a marvellous development in transportation facilities, which has brought the American farmer face to face with the farmers of every country on the globe. The farmer who is to succeed to-day needs to know something of the progress of the world.

During the period since 1850 the proportionate production between agriculture and manufactures in the United States has greatly changed. At that time the value of manufactures was about one billion dollars, while the value of agricultural products was something like one and one-quarter billions. In 1900 the value of manufactures had reached the sum of thirteen billions, while agriculture aggregated less than five billions.

In 1820, of the total number of persons engaged in the three great industries, agriculture, commerce, and manufactures, about five-sixths were found in agriculture. In 1900 agriculture claimed less than one-half of those engaged in these industries.

In 1870, for each 1000 persons over ten years old engaged in agriculture there were 1,112 persons engaged in other gainful pursuits. In 1900, there were 1,806 persons in other pursuits for each 1,000 in agriculture.

Taken together these economic changes afford much encouragement to the American farmer. While the increase in area of improved land under cultivation outran population during the greater proportion of the last century, that condition has now passed. From henceforth the number of persons to be supplied with food from each acre of land must increase, not decrease, at least so far as the United States itself is concerned. The statistics concerning the number of persons engaged in the different occupations of life show that the proportionate number of customers for the farmer's products in the home market has constantly increased and will doubtless continue to increase in the future.

CHAPTER II

CAPITAL

THE three primary or economic agencies which agriculture demands are land, labour, and capital. The adjustment of these agencies in the right proportion is an important phase of successful farm management. Capital in its turn demands the proper adjustment between the various forms of "fixed" and "circulating" capital. Fixed capital, as the term is used by economists, properly includes all forms of permanent equipment which are used in the conduct of the business, whether land, buildings, implements, teams, or other things which are used continuously or at different times. Circulating capital is a term limited to those forms which are used up in the process of production, the same portion never being used but once, but being continually replaced by other material of the same kind.* The accompanying table will serve to illustrate the classification of farm capital under these two heads.

*Some economists restrict the meaning of the word capital to the money value of the commodities included and use the term "capital goods" to designate the objects themselves, such as buildings, live-stock, and implements.

CLASSIFICATION OF FARM CAPITAL

A.—“FIXED,” OR INVESTED CAPITAL

1. LAND

Natural value

Land improvement

Wells, drains, roads, fences, orchards, etc.

2. BUILDINGS

Dwelling

Farm buildings

Building equipment

Silos, stalls, shafting, etc.

Windmills

3. EQUIPMENT

Teams

Implements

Live stock used in production

B.—“CIRCULATING,” OR WORKING CAPITAL

Seed, feed, fertiliser, and supplies

Market crops and market live stock growing or unsold

Money required to pay labour and carry on the business

Land represents a special form of capital in that it is a natural agent limited in amount. But the natural value of land is often far exceeded by the improvements which have been put upon it in its development. Few of our Eastern farms would to-day sell for enough to pay for the labour which has been expended upon them in clearing the land, removing the rocks and stones, and in other work of improvement which has been expended upon the mere land itself.

The dwelling does not properly represent a

part of the farm capital, except in so far as some portion of it may be devoted to strictly farming operations, such as a dairyroom connected with the dwelling. The dwelling represents the home element and is a personal expense, as much as is the home of the merchant or manufacturer which is entirely apart from his business. Its cost may be much or little without in any way affecting the financial status of the farm business. Yet since the farm and the home are generally combined in a single investment it is not always easy to separate the two in making a study of farm capital.

While the success of a farming venture is greatly dependent upon the proportionate adjustment between land, labour, and other forms of capital, no rule can be laid down as to what the proportions should be. This will vary greatly with the type of business, the character of the market available, the tastes and ability of the farmer, and other factors of the individual problem. One fact, however, should be kept clearly in mind, which is that production is limited by the minimum amount of the one factor which is deficient, whichever that may be. With too little land, production cannot be large, no matter how much labour and capital may be available. With a deficient labour supply, land and equipment avail little. Land and labour together, with insufficient equipment, are likewise ineffective.



4. WHERE THE COST OF LAND IMPROVEMENT IS HEAVY



5. THE DAIRY ROOM
Where building equipment becomes important

One law appears to hold in this matter of adjustment. As the business grows more successful, or as competition forces a more careful study of the problem, there is a general increase of the proportionate investment toward the circulating end, a general movement, so to speak, of capital down the line from the more stable forms of fixed capital toward the most flexible forms of circulating capital. Land improvements increase; better buildings appear, and especially the equipment connected with these buildings, such as silos, improved fixtures, and conveniences increase. The equipment represented in teams, implements, and live stock is brought up to the full needs of the business. More labour is employed and more money is expended in the conduct of the business.

Census statistics do not show the proportionate adjustment between these different elements of production as they actually exist on the farms of the United States, although they do throw some light upon the problem. The following figures are taken from the census of 1900:

AVERAGE FARM VALUES

	United States	Northeastern Section
Total value	\$3,574.00	\$4,355.00
Land and improvements other than buildings	2,285.00	2,219.00
Buildings, including dwelling	620.00	1,437.00
Implements and machinery .	133.00	226.00
Live stock	536.00	473.00

The amount expended for labour per farm is given as \$64 for the United States and \$105 for the northeastern section. This is merely the amount employed in addition to that of the farmer and his family.

Arranged on the basis of each \$1,000 invested these figures show the following ratios:

	United States	Northeastern Section
Land and improvements other than buildings	\$ 640.00	\$ 510.00
Buildings, including dwelling	173.00	330.00
Implements and machinery	37.00	52.00
Live stock.	150.00	108.00
	<u>\$1,000.00</u>	<u>\$1,000.00</u>

Compared in another way the figures show that for each \$1,000 invested in land and its improvements other than buildings the following amounts are invested in other ways:

	United States	Northeastern Section
Buildings, including dwelling	\$271.33	\$647.58
Implements and machinery	58.20	101.94
Live stock.	234.57	213.16
	<u>\$564.10</u>	<u>\$962.68</u>

The figures for buildings here include the value of the dwelling as well as that of other farm buildings. They show the investment in buildings to be much larger in the northeastern section, which includes New England, New York, New Jersey, Pennsylvania and Delaware, than

in the United States as a whole. The investment in implements and machinery and the amount paid for labour are also noticeably larger in this region, though the amount invested in live stock is smaller. This is the region in which intensive methods prevail to a greater extent than in other parts of the country.

Let it not be forgotten that the above figures represent the average investment found on the farms of the country, including those of the poor farmers as well as the good ones. It should be further remembered that the common mistake is to place too large a proportion of the total investment in land, to become "land poor," and the rare mistake is to invest too much in equipment. It is safe to assume, therefore, that one who is to embark in farming in any region where fairly intensive methods prevail should, for every dollar invested in bare land, withhold at least another dollar for buildings and equipment. Or for each \$1,000 invested in improved land with buildings he should reserve at least \$250 for implements and other equipment.

Figures obtained from successful farmers in different parts of the country in answer to inquiries sent out asking for information in regard to investments, operating expenses, etc., may be cited as bearing upon this question. The average figures for mixed farms are based upon twenty-three replies, those for stock and dairy farms

upon fourteen replies. The figures show that for each \$1,000 invested in land and improvements other than buildings, there are invested in other ways the following amounts:

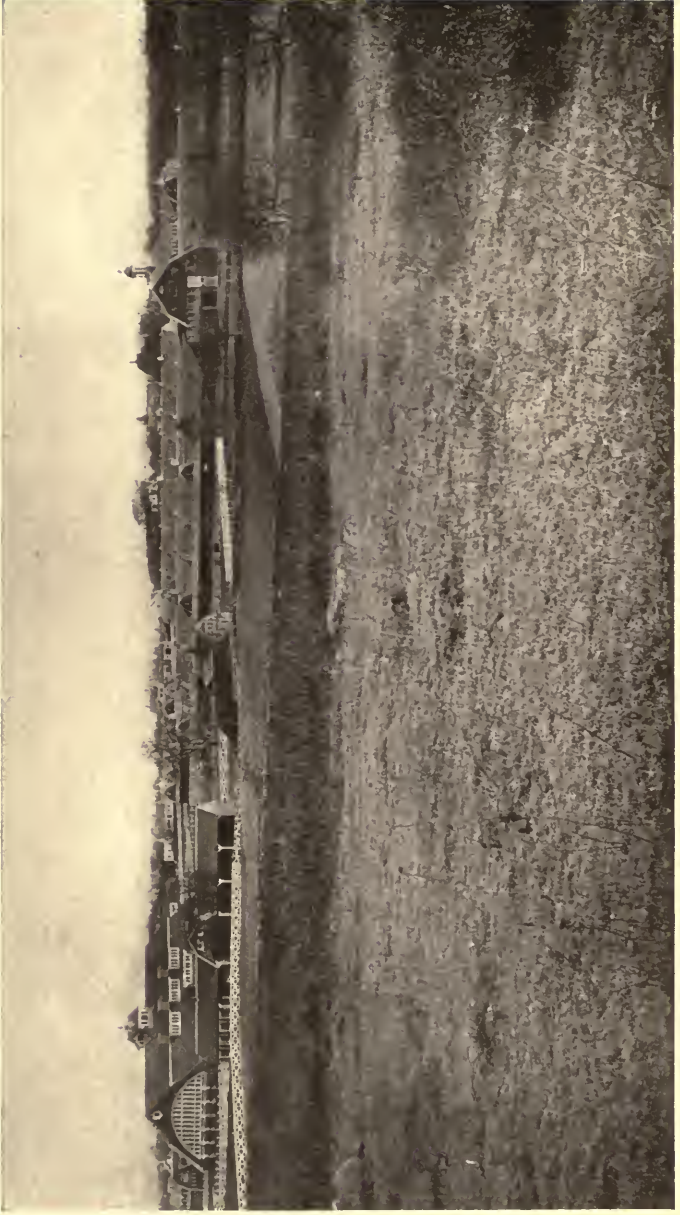
	Mixed Farms	Stock and Dairy Farms
Dwelling	\$221.00	\$139.00
Farm buildings	263.00	192.00
Live stock, other than teams	169.00	342.00
Teams and tools	128.00	71.00
	<hr/>	<hr/>
	\$781.00	\$744.00
Operating expenses	\$217.00	\$144.00

On these farms, therefore, which are managed by successful, wide-awake men for the most part, for each \$1,000 invested in land there is an investment of over \$500 in equipment and farm buildings, exclusive of the dwelling. For each \$1,000 invested in land and buildings as a whole, including the dwelling, about \$200 is invested in equipment on the mixed farms and about \$300 on the stock and dairy farms. The annual operating expenses amount to about \$140 for each \$1,000 of the total investment on the mixed farms and about \$100 on the stock and dairy farms.

Among these mixed farms were a few which did not show a profit after adding to the operating expenses a charge of 5 per cent. for interest on the capital invested, 5 per cent. for depreciation, repairs and insurance on buildings and 10 per cent. for depreciation on teams and tools.



6. INSUFFICIENT LABOUR AND EQUIPMENT
A farmer seventy-five years old harvesting thirty acres of hay alone



7. OVER-CAPITALISATION IN BUILDINGS
Buildings too extensive for average business farming

These farms showed a relatively smaller investment in farm buildings and live stock, with a relatively higher one in teams and tools, and relatively lower operating expenses. The most profitable farms did not vary greatly from the average, but showed a slightly higher relative investment in farm buildings, with a slightly lower one in live stock and teams and tools, and slightly higher operating expenses.

While the relative investment in buildings and equipment on the stock and dairy farms is less than on the mixed farms the actual amount is larger. The total investment on the stock and dairy farms averages \$23,903.43, as against \$12,393.92 on the mixed farms. The above figures simply mean that on the stock and dairy farms a relatively larger amount is invested in land than on the mixed farms.

Perhaps no phase of agriculture has received less careful study than this one of the proper adjustment and manipulation of the capital involved, yet none demands it more. One advantage of agriculture as a business is that it may be begun with limited capital, as compared with many other lines, even with limited capital as compared with the needs of the business itself. Yet the man who so begins is seriously hampered, more so oftentimes than he himself may think. On the other hand the man with unlimited wealth often makes the mistake of

investing more in improvements and equipment than the business will warrant. The poor young man is at least saved from this error. A study of figures such as the preceding should serve a useful purpose to those who are contemplating agricultural investments. Some of the more common mistakes, at least, might thereby be avoided.

A farmer once said to me that he believed no other line of business requires so much capital in proportion to the returns received as farming. He doubtless voiced the view of many farmers in this remark. While it is doubtful if statistics would prove this statement true on well-managed farms, it is true that many a farm yields a much smaller return on the invested capital than it should, because that capital is not well apportioned and well utilised.



8. UNDER-CAPITALISATION IN BUILDINGS
Buildings poor and inadequate



9. A GOOD FARM WOODLOT
Offers an easy solution of the winter labour problem

CHAPTER III

LABOUR

THE proper adjustment of the labour involved is one of the most difficult problems in farm management. Experience and careful study alone can tell how much labour can be profitably expended with a given amount of capital invested. In facing this problem it is well to bear in mind that certain expenses must first be met regardless of the amount of labour involved. It then follows that so long as an increase in labour can bring an approximate increase in return, so long should it be profitable to increase the expenditure in this line.

To illustrate, let us assume a farm and equipment worth \$6,000, with \$1,000 of this in buildings and \$1,000 in team and tools. Allowing interest at 5% the following fixed charges are to be met: Interest on total investment, \$300; depreciation, repairs and insurance on buildings, at 5%, \$50; depreciation on team and tools, at 10%, \$100. To be added to these may be estimated the following: Taxes and insurance, \$50; help \$200; supplies and incidentals \$200, or an aggregate expense of \$900. Supposing the

total sales to amount to \$1,000 there would be a net profit of \$100, or $1\frac{2}{3}\%$ on the invested capital. If now by the addition of \$300 more in labour the total sales can be increased to \$1,500, there is a net profit of \$300, or 5% on the original invested capital. In other words the extra \$300 has paid a return of $66\frac{2}{3}\%$ on this particular part of the investment.

While these are only imaginary figures I venture the belief that they are figures which could be closely duplicated on many a farm. Let no one assume, however, that because his own operations resemble the first case, the expenditure of \$300 more for labour will make them like the second case. That depends upon himself and the conditions which he must meet. Labour poorly employed is a worse investment than too little labour.

WINTER LABOUR

Another problem, both important and difficult, is the adjustment of the system of operations in such a way as to employ as nearly as possible a uniform amount of labour throughout the season or throughout the year. Rarely are conditions such that labour can be taken on and dropped at the convenience of the person hiring. Even when possible to do this it will usually be at the expense of quality. The man who can

assure the workman a steady place throughout the year is sure to attract the better class of men, other things being equal.

In this lies one of the chief advantages of a well-chosen rotation or combination of specialties. Few single lines can be made to furnish a uniform, continuous demand for labour. If a system can be devised which will call for increased labour from one line when another ceases to demand it the gain will be great. The hardest problem in ordinary lines of farming is to provide for work during winter. There is little trouble to arrange matters during eight months, or two-thirds of the year; the difficulty comes with the other third, during the dead of winter.

No one plan will fit all cases. On many farms, especially in New England and other parts of the East where much rough land exists, the farm woodlot, properly managed, offers one of the simplest but best solutions of the winter labour problem. If much of the land which now yields scant return with heavy expense for tillage were turned over to systematic forest management the gain would be great both to the owners and to the community. Let the woodland be treated as any other part of the farm is treated, as a crop which should yield an average annual return; then let the management be such as to increase this return. So managed

many a piece of forest land will make good use of the surplus winter labour and easily foot all bills.

Firewood need not be the only product of such management. Few forests will fail to yield more valuable forms of timber if properly aided. Even if the quality of lumber obtained be not of the best it may be made available for many farm uses, including fencing, repairs for implements, homemade devices, potato crates, egg cases, etc. If of fair quality, apple boxes may form one of the products. I yet expect to meet the ingenious man who has developed from the farm woodlot a winter factory for some toy, article of wooden ware, rustic furniture, or similar product which will yield as profitable a return as the summer's operations in the field. Where sugar maple trees form a part of the forest the making of sugar and syrup affords a profitable employment for a time at the close of winter.

Upon the basis of data gathered by the study of different tracts the Forest Service of the United States Department of Agriculture estimates that white pine in New England should yield a net annual return of \$1.15 per acre, paid at the expiration of forty years, in addition to 4% compound interest on the money invested.* This estimate contemplates planting the seed,

* Bureau of Forestry, Bulletin No. 45, p. 40.

growing the young trees in the nursery and transplanting them to the tract to be used. One experiment on wornout pasture land, reported from Smithfield, R. I., seemed to show a gain of over 6% on the original investment, during a period of fifty-seven years.*

The winter dairy does much to solve the winter-work problem. Stock always demands more attention in winter than in summer. If this variation is augmented by producing most of the milk in winter, the care and manufacture of it, particularly if butter is made on the farm, will utilise much of the time. The care of the manure adds another not inconsiderable item to the work demanded, for in general agricultural practice there is no better way to store the manure than by spreading it on the field where it is to be wanted. None should accumulate about the barns.

Added to the regular work of the dairy it may be possible to carry on the feeding of calves, cows, or steers for beef. This will sometimes employ labour, yield some profit, and add greatly to the fertility of the farm.

Winter lambs offer another field of endeavour for those properly situated. All such lines of work which require extra labour in winter are of value in solving this problem, not all in any one place but each in the place best suited to it.

*Rhode Island State Board of Agriculture Report 1899, p. 159.

If to the winter dairy can be added the production of winter eggs, perhaps utilising in part the skim-milk to stimulate the egg production, this will prove in many cases the most feasible and a most satisfactory solution of the problem. These are lines which require little change from the general operations of the farm. The products, both of the dairy and of the hennery, bring much better prices at this season of the year, and while they must be produced at an increased cost, the returns and the advantages in other ways fully repay the increase. If made a specialty in winter there is less to interfere and they are less likely to be neglected than in summer when many kinds of work are crowding for attention at the same time.

To some the forcing of rhubarb in the cellar may afford a line of work demanding a fraction of the time and yielding a modest return. If cellar room is available and a market is at hand the roots may be easily grown in the open field during summer, turned out at the approach of freezing weather and allowed to freeze, then transferred to the cellar for winter growth. I know of no more attractive product within the possibilities of farm production than this.

A few may find it advisable to go still further in this line and attempt the forcing of vegetables or the growing of flowers under glass. On one such farm which I know, the work is confined

largely to the growing of vegetable plants, such as tomato and cabbage, to be sold for transplanting in spring, and common flowering plants, like geranium, to be sold for bedding-out. These are sold through grocers at moderate prices but the aggregate income from the business is far larger than many farms yield from their entire output. Not all have the taste, the capital or the market for this line of work, but the capital and the market are oftentimes forthcoming if there exists the inclination, followed by the attempt to find them. The business just referred to was established at a point some fifteen miles from the principal market, with no means of communication other than by team. The young man who started it was told that he could find no sale for his products if he should grow them. Yet at the present time the sales from these simple things amount to some three thousand dollars each year. The business is run as a department of the larger farming operations and is in charge of one son, while others have charge of other departments. During the winter it requires the work of himself and one other man.

In a few localities the growing of violets has become a prominent industry. This however, is a more difficult undertaking and is not to be generally recommended.

Aside from these main lines of business which demand a greater amount of labour in winter

than in summer there are many things connected with the ordinary management of the farm which can or must be attended to in winter. Where ice forms a prominent part of the yearly supplies the harvesting of this crop calls for busy work during a short portion of the time. In localities where fall plowing is advisable this calls for steady work of men and teams up to the very day when Nature locks her workshop and carries away the key. Although not a practice to be everywhere recommended, where the ground is likely to remain frozen throughout the winter and to be protected by a covering of snow, fall plowing will greatly forward the work of spring, while at the same time leaving the soil in excellent tilth for the early seeding.

Often there is needed work upon farm roads, bridges, and fences, which can be done wholly or in part during winter. Whatever must be done at some time and can be done in winter is doubly important because of the saving at a time when every hour is of the utmost value. When the corn crop is husked in part, the work of husking often runs well into the winter, though modern methods are more and more doing away with this long and tedious process. Where fruits form any considerable part of the business of the farm, much of the pruning can be done during mild weather in winter. While some pruning is best delayed until hard freezing

weather is past much of it can be done as well at one time as at another.

Whatever the line of farming, there are always tools to be put in repair and painted; winter affords the best time for doing this. A coat of paint or oil at intervals will do much to prolong the life of many farm implements. Buildings may also be painted during mild weather. At that season there are no flies and little dust.

But the final word regarding winter work has not been said. I deem it an advantage, at least to the farmer himself, that work is less pressing in winter. Summer days are long and summer work is fatiguing. There is then little time or inclination for recreation or study. A business resting upon such intricate foundations as this surely needs careful thought and study for its successful prosecution. Winter should be a time of study. Well improved hours so spent yield the greatest profit of any. Above all it should ever be remembered that the farm is for the family, not the family for the farm, a condition too often true. The farm should be made to contribute to the higher life of its occupants as well as to their material needs. It can best do that during the leisure hours of winter.

MANUAL LABOUR

From a business standpoint labour separates itself into manual and team labour. Manual

labour may be again divided into monthly and day labour, each of which possesses certain advantages. The chief advantages of monthly labour are (1) The less cost per hour. (2) Availability when needed. (3) A better class of workmen.

The chief advantage of day labour is that it need be employed only when wanted, against which should be sharply contrasted the disadvantage that it cannot always be had when wanted. Mixing the two types is likely to cause dissatisfaction. The man working at monthly wages receives a lower wage per hour, and when doing the same work as his fellow workman he is inclined to feel himself aggrieved at receiving this smaller stipend. It is hard for him to properly weigh the advantage of continuous employment, which the other does not have. He may lose sight of the fact that much of his time may scarcely return cost to his employer. In general, the best workmen go where they can be assured of steady work. It is, therefore, good business policy to plan the farm operations in such a way as to furnish steady work to the main force required. Emergency help will always be needed, but if employed only in emergencies will seldom cause dissatisfaction.

Another factor which enters into the employment of labour is the comparative advantage of employing married men or single men. As

a rule married men are more faithful, contented and regular; perhaps also more persevering. They cannot move so easily, hence are less likely to leave unexpectedly, or at a time when their services can least be spared. As a disadvantage they commonly demand more wages, if not in actual money wage, then in perquisites of one kind or another. In many cases the employment of married men will necessitate the providing of tenement houses in which they may live. These are usually furnished rent-free to men employed. If children are in the families these may at times be a source of profit by furnishing the opportunity to employ less expensive labour where it can be used to advantage. On the other hand, they often cause annoyance about the premises.

Perquisites will cause dissatisfaction, especially if many men are employed. It seldom happens in that case that all will want the same things, or at least the same amount of different things. It is then but human nature for each to feel that the other is receiving more than his share. Furthermore, in all cases, unless perquisites are definitely limited in amount, they tend to cause waste. It is often the part of good business management to do away with perquisites of all sorts, unless perhaps in the matter of house-rent. It is just as easy to make the labourer's wages sufficient to pay for

these things, then sell them to him, at a reduced price if preferred, as to give them in part payment of wages. He will then use only what he needs.

THE LABOUR PROBLEM

A word should be said about the labour problem itself, which is one of the most serious difficulties confronting farmers at the present time. The development of manufacturing and other business industries has offered employment at wages which seemed to be better, even though in the net results to the laborour they may not have been better. The factory has offered definite hours, with steady employment and regular weekly pay. The chance for an independent home has appealed to many; the fascination of the city or village has attracted others. How to meet the competition induced by these conditions is the problem which faces the farmer. Regular employment, reasonable hours, and a comfortable, independent home will accomplish much. The wages paid must yield an equivalent return to those offered by city industries. To make the labourer understand the difference in the ultimate value of the dollar in the city and the dollar in the country is the hardest problem of all.

An encouraging indication is the fact that large farming enterprises, which demand most



10. THE SUGAR-BUSH

A farm adjunct which provides profitable work in the spring



11. POULTRY HELPS TO SOLVE THE WINTER LABOUR PROBLEM

labour, but which provide the above conditions, have the least trouble in securing it, even though farmers in the neighbourhood are crying for help.

TIME CARDS

Time cards are discussed under the heading of Records and Accounts, and the manner of keeping them fully explained. It is here only necessary to emphasise their importance as a record for showing where the time has been employed, thereby making it possible to determine the cost of each crop or line of effort and the consequent profit or loss attendant upon it. If a separate sheet is kept for each man employed it will also serve as a record of lost time and avoid possible disputes.

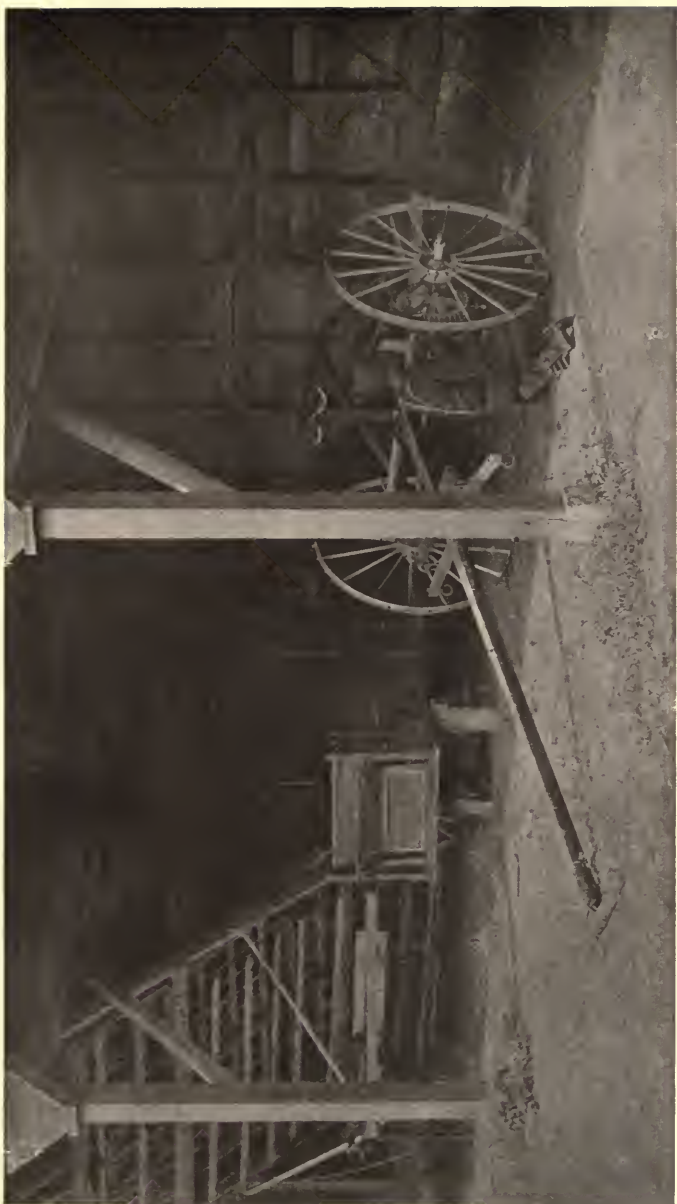
THE AVERAGE COST OF LABOUR

To determine the average cost per hour of labour employed it is necessary to divide the whole sum paid by the number of hours worked. To this sum should also be added the cost of oversight if a manager or superintendent is employed, or the value of the labour of the farmer if he is his own manager. This latter case at once presents a puzzling question. Shall the farmer fix the value of his own labour at an arbitrary price or shall he let that be determined by the profit received? If he decides upon a certain

figure as right for his own labour it will be the part of good business management for him never to do work which he can hire done for a less sum. He may find, however, if he attempts to put this rule into effect, that he has placed too high a value upon his own services. In determining the profit or loss from a given line of work it is but fair that his own time should be considered worth at least as much as that of the regular men employed, but in summing up the year's business he may prefer to let the net returns of the year determine the value of his own services.

CONTRACT LABOUR

Contract labour is a type comparatively little in vogue in farming operations, yet it possesses manifest advantages where applicable. It is advantageous wherever it is possible to say just how work should be done and know that it is so done. The cost of oversight is then thrown upon the one who undertakes the labour. It also tends to increase his efficiency, because it is to his interest to complete the work as soon as possible. The plan is frequently employed in reaping grain, in harvesting and husking corn, in plowing, in digging potatoes, etc. It is also employed at times by gardeners in weeding and similar work. Wherever applicable the method is worthy of consideration and might be considerably extended with advantage.



12. WINTER IS THE TIME FOR PUTTING ALL IMPLEMENTS IN REPAIR



13. A NEAT FARM TENEMENT HOUSE
Aids in solving the farm labour problem

PROFIT SHARING

The advantages of profit sharing may be summarised as follows:

1. The labourer is working for his own interest as well as for that of his employer.

2. It makes labourers more careful in their work.

3. It is a good thing for the labourer to have some inside knowledge of the business.

4. Strikes are less likely to occur.

This latter point, while not a question of imminent concern in farming lines as yet, may be in time to come. The chief disadvantage of the plan is that it may lead to criticism of the owner's estimate of profits or manner of doing business. When introduced the system should carry an obligation of the same percentage of loss if loss occurs, as the percentage of profit to be received in case there are profits to be distributed. The percentage should be large enough to be an object to the workman but not large enough to embarrass the owner in conducting the business. If the percentage is so great as to take on something of the character of a partnership the labourer may feel like dictating the policy of the management. The system is satisfactorily employed in many manufacturing establishments and there is apparently no reason why it should not be employed with equal

satisfaction in farming operations. A limited personal experience with the method has thus far developed no serious objection.*

TEAM LABOUR

The total cost of team labour is made up of the following items:

- | | |
|-------------|-------------------|
| 1. Feed. | 5. Interest. |
| 2. Bedding. | 6. Depreciation. |
| 3. Shoeing. | 7. Stable rental. |
| 4. Care. | |

The last three of these items are likely to be overlooked. Care is an important item. It will average about one hour per day for a pair of horses, and should be charged at the actual cost per hour of the man employed. Depreciation cannot be escaped. The greater the value of the team, the greater the charge for depreciation must be. The sixth item will seem to many an unwarranted charge, but if a barn costing \$500 is given up to the use of the teams the interest and depreciation on this building can be charged to no other source than this. Money must be tied up in this building and money must

*An interesting system of profit sharing is in use in one extensive farming enterprise near Harrisburg, Pa. On the dairy farms a dairyman is employed who has nothing to do with the farming operations, other than to cut what green food may be needed for feeding from day to day in summer. He furnishes all labour needed in caring for the dairy and receives one cent a quart from all milk sold. This plan has been found to give better satisfaction than hiring the dairyman on salary, although all other farm operations are carried on by hiring outright.

be expended to keep it in repair. This is a legitimate charge against the cost of team service. Prices vary so much in different places that it is impossible to estimate fairly the first four items, but in general they will approximate \$220 per year. Adding to these, interest on the investment at 5% and depreciation, which will generally amount to 10%, on the team itself, will emphasise the added cost of owning a high-priced team. If a span of horses is valued at \$400 the yearly charge for depreciation alone is \$40, while if the team is worth but \$100 the depreciation charge is only \$10. The same rule holds true with regard to the barn and other fixtures. Offsetting this greater depreciation charge should be considered the question of whether the four-hundred-dollar team is more efficient than the two-hundred-dollar one. If so that may more than counterbalance the added cost, though upon general business principles it is seldom wise to invest in high-priced horseflesh.

REDUCING COST OF MAINTENANCE

Horsemen generally agree that no ration is better for horses than timothy hay and oats. Yet comparisons with this have generally been made with some ration differing entirely in composition. As a general rule nutrients in oats cost more than in other forms of feed. It may

well be asked, therefore, whether it is not possible to substitute other feeds which will furnish the same amount of nutrients with satisfactory results and at a saving of expense. The following rations, some of which have been tried with good results, are suggested:

RATIONS FOR A 1000-POUND HORSE

1. STANDARD RATION		
	Protein	Carbohydrates
10 lbs. hay (timothy) . . . . .	.290	4.690
12 lbs. oats	1.100	6.384
	<u>1.390</u>	<u>11.074</u>
2. RATION WITHOUT OATS		
8 lbs. hay . . . . .	.232	3.752
4 lbs. oat straw . . . . .	.056	1.836
5 lbs. wheat bran . . . . .	.600	2.270
4 lbs. corn meal . . . . .	.220	2.844
1 lb. gluten meal (28%) . . . . .	.280	.569
	<u>1.388</u>	<u>11.271</u>
3. RATION ONE-THIRD OATS		
8 lbs. hay . . . . .	.232	3.752
4 lbs. oat straw . . . . .	.056	1.836
4 lbs. oats . . . . .	.368	2.128
3 lbs. bran . . . . .	.360	1.400
2 lbs. corn meal . . . . .	.110	1.422
1 lb. gluten . . . . .	.280	.569
	<u>1.406</u>	<u>11.107</u>
4. RATION WITHOUT GLUTEN		
10 lbs. hay . . . . .	.290	4.690
4 lbs. oats . . . . .	.368	2.128
3 lbs. bran . . . . .	.360	1.400
2 lbs. wheat middlings . . . . .	.256	1.218
2 lbs. corn meal . . . . .	.110	1.422
	<u>1.384</u>	<u>10.858</u>

The amount saved by these rations will depend much upon the prices prevailing at the time. If hay were worth \$10 per ton, oat straw \$5 and all the grains \$20, rations Nos. 2 and 3 would effect a saving of two cents per day and ration No. 4 one cent. With oats above thirty-two cents per bushel and the other grains at \$20 per ton the saving would be proportionately greater. If thought desirable to feed some silage, five pounds of silage can replace one pound of corn meal or two pounds of hay in any of these rations. They are suggested rather than recommended, but they serve to show that it is possible to combine other grains in such a way as to secure approximately the same proportion of nutrients as are found in the horseman's favourite ration of timothy hay and oats.

REDUCING COST PER UNIT OF WORK

While something can be done to reduce the cost of maintenance this will affect only a minor saving. The vital point is to reduce the cost per hour of work done. To determine this it is necessary to divide the cost of maintenance, which includes all the items above mentioned, by the number of hours worked. If it costs \$20 a month to own a team and that team works 250 hours during the month, the cost per hour is eight cents. If, on the other hand, the team works but 125 hours, the cost is sixteen cents per

hour; yet there are many teams upon the farms of the United States which doubtless fail to average 100 hours per month for the entire year. It is never possible to obtain 100 per cent. of efficiency. Various causes will prevent a team being kept constantly at work, but it is possible to reach 75 per cent. or even 85 per cent. Before me is the time worked by three teams during the month of May 1901, a month when farm teams are likely to be employed at their best. One of these teams worked 189 hours, another 230 and the third 163. During August two of these teams worked 149 and 137 hours respectively. Here the best record shows a little more than 88 per cent. of efficiency, the poorest one slightly more than 52 per cent. If the farmer is so located that it is possible for him to hire extra team work when needed it may pay him to hire a considerable amount during the busy season, even at a liberal price, rather than maintain an extra team for the year to provide for this needed work. This, like many of the other problems in farm management, demands careful study and planning in order to insure a satisfactory solution.

THREE- AND FOUR-HORSE TEAMS

In many kinds of work an extra horse will greatly cheapen the cost of doing the work. Under ordinary conditions an average team will



14. THE WAY THE CITY BUSINESS MAN ECONOMISES TEAM LABOUR



15. HARVESTING CORN BY HAND
Often the cheaper method

haul a ton and a half or 3,000 pounds of load. To this must be added at least 1,000 pounds to cover the weight of wagon and driver, making the actual weight pulled by each horse 2,000 pounds. If now a third horse can be added, with the same rig, another ton may be added to the load without increasing the work to be done by each horse, for the strength of the extra horse can all be expended in drawing the load. Where a two-horse team draws 3,000 pounds a three-horse team would then draw 5,000 pounds. Reckoning the cost per hour at thirty cents, fifteen cents for the man and fifteen cents for the team, the cost per ton with two horses is twenty cents per hour, but the third horse works without additional cost for driver so that this extra ton is hauled at a cost of seven and a half cents per hour. The same principle will apply in plowing or harrowing, where the addition of an extra horse will often add at least 50 per cent. to the work done without increased cost for driver. Under some conditions four horses may be used in the same manner with proportionately still greater advantage.

CHAPTER IV

IMPLEMENTS AND EQUIPMENT

NO EXPENSIVE implement or costly equipment should be introduced without first carefully putting the probabilities to a test to determine whether or not the investment will pay. To do this, first determine how much labour will be saved by the improvement. If the implement will do better or poorer work than can be done without it, that must be taken into consideration. Then against the cost of doing the work without the equipment set the cost of work with it, to which must be added interest on the investment, depreciation, care, and sometimes storage and risk or insurance. With this should be considered also the needs of capital elsewhere. Will it yield a better return in some other place?

Another most important item may sometimes be the determining factor, namely, the possibility of securing hand labour to do the work without the implement. Even though ordinary labour may be cheaper it cannot always be had. This is particularly true with operations requiring an unusual amount of labour at some particular time. The time element alone is sufficient to

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decide the matter in many cases. When frost is imminent or has already occurred the silage corn must be harvested with the least possible delay. A slight delay at seeding time may lead into a rain-storm and thereby call for the added expense of refitting the ground, with possible reduction in yield due to a belated crop. An implement which will hasten the work at such times may prove highly profitable, even though the cost of the work itself be increased.

The charges for interest, depreciation, repairs, etc., are to be apportioned to the amount of work done, so that this is really most often the determining factor. The following tabular statements will illustrate the manner of solving the problem. The particular figures, especially those with reference to cost of work, will vary with the locality. Emphasis should not be placed upon them in studying the illustrations but upon the business method of determining whether or not an implement will prove profitable.

ELEMENTS OF COST IN THE FARM IMPLEMENT PROBLEM

With the Machine	Without the Machine
Labour-cost	Labour-cost
Fixed annual charges: Interest on capital, depreciation, repairs, care, storage and risk	
Efficiency	Efficiency

(Applied to a particular implement, the problem may work out somewhat as follows)

Corn Harvester—Price, \$125.00

With the Machine	Without the Machine
Labour, per acre, \$.50 to \$.75 (Man and team \$3 per day)	Labour per acre, \$1.50 to \$2.00
Twine, per acre, \$.50 Total \$1. to \$1.25	
Fixed annual charges	
Interest at 5% \$ 6.25	
Depreciation, 10% 12.50	
Repairs 2.00	
Storage and risk 1.00	
<u>\$21.75</u>	

These figures represent approximately the problem as applied to a corn harvester under present conditions of price and efficiency. Six acres per day is a liberal estimate for the amount of work done, though it may be exceeded under very favourable conditions. One recent writer claims that the most that a machine can do is to equal the work of four men cutting by hand and that to do this requires two or three horses and two men. This, however, is probably less than average working results. The cost of twine will vary with price and the yield of corn.

I have added one dollar to the fixed annual charges for storage and risk. This may seem to many a needless charge, but the corn harvester is a somewhat bulky implement and requires a certain portion of a building in which it shall be housed. That proportion of the



16. THE CORN HARVESTER AT WORK



17. WHERE EFFICIENCY IS THE DETERMINING FACTOR
For each quart of cream left in the milk by a good separator, shallow
setting leaves ten

interest on the investment and the depreciation on the building must be borne unless the implement is allowed to stand out of doors, when the charge would be much greater for depreciation. The amount of these fixed charges, which here aggregate \$21.75, must be apportioned to the number of acres of corn harvested. If only ten acres are cut there must be \$2.17 per acre added to the one dollar or more of actual cost in doing the work. If twenty acres are harvested but half of this amount is charged to each acre.

The problem will differ from this point on, owing to whether the corn is to be shocked and husked, or put into the silo. If to be taken to the silo the cost of cutting by hand will fall to perhaps one dollar per acre but the cost of handling the unbound stalks will be much greater than handling it in bundles as left by the harvester. It is generally believed that the charge for twine may be recouped in the cost of handling. This question can be easily put to a test under the conditions prevailing, by simply allowing the harvester to work for a time without binding. If the corn is to be shocked there must be added to the one dollar charge with the machine the cost of shocking, which will bring the first cost of work very near if not equal to that by hand, leaving all fixed charges as an additional expense. These figures indicate that the young farmer who still lacks capital need not feel himself greatly

handicapped from inability to purchase a corn harvester, provided he can obtain the labour when wanted to do the work by hand.

It is sometimes possible to hire a machine, or the owner and the machine, to do such work. This is often the cheapest and wisest thing to do. It relieves the party who hires from all fixed charges and may not greatly increase the labour cost. It may also benefit the owner of the machine, reducing the apportionment of his own fixed charges by increasing the amount of work done. This practice is most common in threshing grain and filling silos but is applicable to many other kinds of work.

A somewhat different problem is presented in figuring upon a cream separator. Here the cost of creaming with a separator probably differs little from that under improved systems of deep setting. In this case it is wholly a problem of efficiency. This difference in efficiency cannot be reduced to an absolutely accurate basis but estimates generally place it at 10 to 20% greater with the separator than with other methods, manufacturers claiming five to ten dollars per cow increase in cream products. If then a separator cost \$125 the fixed charges would amount to \$6.25 for interest and \$12.50 for depreciation, at the same rates allowed on the corn harvester. Repairs will probably be slight if well handled, while the matter of care comes

in connection with the labour-cost of doing the work. Owing to the small size of the implement the question of storage may practically be neglected. We have then an annual charge of less than twenty dollars as the cost of owning a machine. Perhaps the actual depreciation would be less than 10 per cent but thus far prices have been falling so rapidly that the market depreciation on machines, regardless of wear, has been nearly or quite equal to this amount. If inquiry now shows that the lowest estimate of the manufacturer, \$5 per cow increase, is likely to be realised, the additional return from four cows will pay the cost of owning the machine and the return from any greater number will be clear profit.

SIZE OF MACHINERY

Another problem in connection with the purchase of machinery has often to be met. This is determining upon the size of machine to be bought. Here it is only necessary to place against the extra cost of doing work with the smaller size, the interest and depreciation on the added cost of a larger size. Take the problem of a cream separator on a farm carrying ten cows. Assuming that the cows will average 5,000 pounds of milk per year there will be 10 times 5,000 or 50,000 pounds of milk to separate during that time. If upon inquiry one is satis-

fied that the machines can be expected, under average conditions, to do the work which they are rated to do and if it should be found that a machine separating 450 pounds of milk per hour will cost \$100, and one separating 600 pounds per hour will cost \$125, the problem will work out like this. 50,000 pounds divided by 450 equals 111, the number of hours of work demanded by the smaller machine. If this work costs ten cents per hour the labour charge for actually running the milk through will be \$11.10. 50,000 divided by 600 gives 83 hours of work or \$8.30 for the larger machine. The cost of care and cleaning will be practically the same in either case, so that the additional cost of doing the work with the smaller machine will be \$2.80. Against this should be set the interest and depreciation on \$25, the additional cost of the larger machine. These items at 10% and 5% respectively, would amount to \$3.75, thus showing the advantage to be with the smaller machine. If the problem considers twenty cows, the result would lead to the opposite conclusion. In a similar way it is possible to test the question of size on different classes of machines.

DEPRECIATION

In this connection a word of emphasis should be placed upon the matter of depreciation. It is

a charge from which none can escape, but it can be very greatly lessened by judicious management. In the problems here considered 10% is taken as an average estimate, but this will vary greatly with the tool and the care. A crowbar or a post-maul may be as good at the end of twenty-five years as when bought, while a harness may be worse than useless in less than ten years. Care in use, in cleaning, and in housing, will do much to extend the life of an implement, which means less reduction in the inventory value, therefore an increase in profits, just as surely as does an added sale of products. As an illustration, I know a farm upon which there was a good farm wagon, rather light but adequate for the work of the farm. It was a good wagon when I first remember; it was a good wagon many years after, when burned with the barn in which it stood. Yet that wagon was bought second-hand. It was in the hands of a man who knew how to care for things and it was still in good condition when his life-work was done.

CHAPTER V

OWNERSHIP OR RENTAL

A PROBLEM which must often be met by the young man who wishes to start in farming is that of ownership or rental. Shall he run in debt for a farm or shall he rent one? If the latter, shall he take a farm on shares or shall he pay money rent? The question admits of a logical answer, on a business basis, if he will carefully ascertain the probabilities and figure out the elements involved. To illustrate the problem let us suppose the case to be that of an ordinary dairy farm of 100 acres, capable of carrying twenty cows. The capital invested is likely to be found somewhat as follows:

Land, 100 acres @ \$35	\$3,500.00
Buildings	1,500.00
20 cows @ \$35	700.00
Young stock, swine and poultry.	300.00
Team and tools	500.00
	<hr/>
	\$6,500.00

The expenses of ownership and operation may be estimated as follows:

Interest on capital \$6,500 @ 5%	\$325.00
Depreciation, repairs and insurance on buildings, 5%	75.00



18. THE POTATO DIGGER
An expensive implement entailing heavy fixed charges for interest and depreciation



19. WAITING FOR A TENANT
Such a home as this is often available to the tenant farmer

Depreciation on team and tools, 10%*	50.00
Taxes	40.00
Seed.	60.00
Feed purchased	200.00
Labour, including that of farmer himself	600.00
Supplies and incidentals	150.00
	<u>1,500.00</u>

If then the young man buys the place these are the expenses which he must bear. With this compare the other two methods. If he hires the place without stock for a cash rental he shifts to the shoulders of the owner the following expenses:

Interest on capital in land and buildings	\$250.00
Depreciation, repairs and insurance on build- ings	75.00
Taxes	40.00
	<u>\$365.00</u>

With these figures should be compared the rental which must be paid. The problem will differ slightly with varying practice and conditions. In some cases a farm already stocked with cows may be rented, in which case a still greater portion of the interest shifts. Sometimes the owner furnishes fencing material or even keeps fences in repair.

By the third plan, working the place on shares, different conditions may apply. The problem is simply to adapt the figures to the proposed

*Depreciation in the dairy may be provided for and offset by growth of young stock.

terms of the contract. The common condition is for the owner to furnish the dairy and perhaps some young stock, the tenant to leave as much and as good stock as he found. The tenant usually furnishes team and tools, though in some cases, particularly where the owner has previously occupied the place himself, many tools are left. The expenses of taxes, seed, feed and supplies are shared equally. In some places where the practice of working out the road tax still prevails the tenant does this and the owner pays the money tax. All help is furnished by the tenant.

Under common conditions the running expenses adjust themselves as follows:

BORNE BY THE OWNER

Interest on land, buildings and stock . . .	\$300.00
Depreciation, repairs and insurance on building	75.00
Taxes, one half	20.00
Seed.	30.00
Feed purchased	100.00
Supplies	50.00
	<u>\$575.00</u>

BORNE BY THE TENANT

Interest on team and tools	\$ 25.00
Depreciation on team and tools	50.00
Taxes, one-half	20.00
Seed.	30.00
Feed	100.00
Incidentals, one-half of supplies.	100.00
Labour	600.00
	<u>\$925.00</u>

To answer the question intelligently it is still necessary to make a careful estimate of probable returns. These will vary with almost every farm. Suppose we apply them to an ordinary farm remote from markets, with ordinary cows which can be trusted to average only 200 pounds of butter per year. The conditions assumed above suppose enough young stock coming on so that a number of the poorer or older cows can be each year replaced with younger ones. We may estimate returns as follows:

4,000 lbs. butter, @ 20 cents	\$800.00
Calves and cows sold	250.00
4,000 lbs. pork, @ 5 cents	200.00
500 dozen eggs, @ 20 cents	100.00
500 bushels potatoes, @ 40 cents	200.00
Incidentals	100.00
	<hr/>
	\$1,650.00

In making this estimate the young man should carefully discount all probabilities. It is easy to say that cows ought to average 250 pounds of butter instead of 200, or that five acres of potatoes ought to yield 1,000 bushels instead of 500, but will they? Untoward conditions are sure to appear. It is better to make the estimates safe.

Now see how the account stands for the three different propositions. In the first case there is a return of \$1,650 against an outlay of \$1,500, provided he can get the necessary capital at 5%.

In the system of money rental there is the same return against an outlay of \$1,135, plus the rental to be paid. By working on shares there is a return of \$825 against an outlay of \$925. If the cash rental is less than \$365 the advantage lies with that system; if more, with ownership.

THE ELEMENT OF RISK

The chief argument which appeals to the young man for working a place on shares is that he runs less risk. This factor also admits of a business analysis. By the system of money rental he transfers to the owner the risk from loss of buildings by fire or the elements, but nothing else, except that he assumes the burden of interest on capital, in the rental paid, only for the time of his contract. The greater part of this risk by fire, and sometimes by wind, will be assumed by an insurance company at a cost which has been provided for in the above estimates and which is of small importance in the problem.

In the case of share rental the tenant transfers to the owner, in addition to the above risks, one-half of possible increased cost of seed, feed and supplies and of decreased return from unfavourable crops, also one-half the risk from accident or death to farm animals other than teams.

Let us see how the problem works out in case of diminished returns or increased expenses. Suppose that, owing to drought cutting down the

milk flow and price of stock, or other unfavourable conditions, the returns fall to \$1,200, instead of \$1,650. In case of ownership the loss is \$300. In case of money rental here and in all other cases it is approximately the same, depending upon whether the rental is more or less than the interest, depreciation, taxes, etc., as outlined above. In case of share rental the tenant receives a return of \$600 against an outlay of \$925, leaving a loss of \$325, even greater than in the case of ownership or money rental.

If the returns advance to \$2,000, the gain in case of ownership is \$500, in case of share rental \$75.

Now suppose the returns remain at \$1,650, but the expenses increase to \$1,800. These may occur in increased cost of feed, seed, supplies, incidentals, or labour. In the first three items they are shared by the owner, in the others they are borne by the tenant alone. Assuming that \$200 of this increase comes in the first class and \$100 in the second, there is to be added to the tenant's share of the expenses \$200, making the total amount \$1,125. Under these conditions, therefore, the loss in case of ownership would be \$150, in case of share rental \$300.

If expenses are reduced to \$1,200 the gain in case of ownership would be \$450. Assuming that it were possible to reduce the items of seed, feed and supplies \$200 and the items of labour and incidentals \$100, the tenant's share of

expense would fall to \$725 and his gain would therefore be \$100.

From this analysis it appears that the item of risk is commonly overestimated.

No special importance is to be placed upon the particular estimates upon the different items here given, though it is believed that they fairly represent average conditions in the middle states for the type of farm in mind. The point of emphasis is the fact that these various items can and should be ascertained for the conditions at hand and should be worked out in the manner indicated, subject to variation which may result from differing terms of proposed contract. In many cases the item of fertilisers would be an important one. It does not appear here because on dairy farms its use is not common and with well-managed rotations may not be necessary.

In the matter of reaping benefit from improved conditions and increased fertility the advantage lies clearly with ownership. As against this it may be said that it is not easy to make a wise selection of a farm. A young man may well therefore forego some little advantage for a time until he learns conditions and factors influencing the choice. It is easy to rectify a mistake in choosing a rented farm; it may be difficult to rectify a mistake in purchasing. There are manifest advantages in a lease which permits purchase at a fixed price within a given time.



20. A TYPE OF COUNTRY SCHOOL TO BE AVOIDED
A consolidated school with an attractive and well-appointed building has happily replaced this one



21. NEIGHBOURS SIGNIFY MUCH MORE IN FARM LIFE THAN IN CITY OR VILLAGE LIFE

Despite the fact of the apparent disadvantage under which the tenant works who takes a place on shares, this plan has afforded a means by which many a man has secured the benefits of a good home, supported his family in comfort, and paved the way for owning a farm of his own. He is sure of some return for his labour and that of his family, with the chance of considerable additional profit on the farming operations. It is customary for him to be allowed a generous use of the products of the farm in supplying his own table, and oftentimes the dwelling which the farm provides is far superior to any which his labour would enable him to provide under other conditions. His expenses are far less than those of the labouring man in city or village. The amount of capital which he is called upon to invest is small, and the plan affords an easy road for the man of small means to follow in becoming an independent operator. A definite instance comes to mind where a man within a comparatively few years saved enough by working one farm on shares to pay for one of his own. Careful study and analysis of his business may show such a man, however, that the plan is one better adapted to use as a means to some other end than to long adherence.

CHAPTER VI

THE CHOICE OF A FARM

UPON the wise choice of a farm much depends. The young man who is deciding upon the purchase of one can scarcely give the matter too much thought. One great advantage of farming as a business is that it enables the farmer to develop a home more completely than most other men can. As the years go by, and improvements and embellishments are added, the associations which cluster about the farm home should be among its most highly prized features. Particularly is this true if the owner takes pains to provide an abundance of fruit and flowers and ornamental plants. These are things which take time to produce. They cannot be commanded at will.

The two primary questions to be considered in making the choice are—location and the character of the farm itself.

LOCATION

Surroundings.—Under the general head of location, several items are to be considered, first of which may be mentioned the surroundings. Among these, mail facilities may well rank first.

The advent of rural free delivery is rendering this a question of much less importance than formerly, but there are still many farms without free delivery, or unfavourably located for the best service. At times this is of the utmost importance, the advantage of which may not be appreciated until experience has shown its need.

Railway or trolley facilities are of almost equal importance. While the farmer and his family are home-staying people, yet they, like others, make frequent use, directly or indirectly, of means of transportation. This is of even greater importance in the matter of freight than of passenger service. When trolley roads are permitted to handle freight in all states, as they should be—an end toward which every farmer should insist upon making his vote count—trolley service may be of equal or greater value than railway service. The farm which can deliver to a common carrier, at its door, the products which it has to offer, and can in turn receive those which it needs to purchase, possesses a decided economic advantage.

Church facilities are also to be considered in making a choice. Unfortunately the rural church has, in many localities, a hard struggle. Too often it is decadent or dead. Whether the farmer be a church member or not, he cannot afford to spend his days and bring up his children in a

community which does not feel the influence of church life.

School facilities are of the greatest importance to every family with children. Even the farmer without children should not disregard them. An educated community affords many inducements which opposite conditions do not. The consolidation of rural schools is doing much to better rural facilities, but the farm so located that its children must, each day, endure a long ride to and from school in all kinds of weather, is at a manifest disadvantage when compared with one in close proximity to good schools.

The rural telephone is rapidly extending its lines throughout farming communities. Perhaps no community will long be without it, but many farms are so isolated that the expense of a 'phone would be much greater than the average. The character of the line which connects the farm is of decided importance. Many of the mutual companies furnish admirable local service at very small cost. Most of these companies extend their lines rapidly, join with neighbouring lines, and so furnish ready connection over a wide range of territory.

The availability of medical attendance ought also to be thought of. Many farms are so situated that it is impossible to bring a physician to them quickly, even with the aid of the telephone to call him. While under average conditions



22. A FARMERS' GATHERING
Instruction and social intercourse are often combined at the farmers' institute



23, A HIGHWAY LINED WITH MAPLE TREES
Which adds much to the attractiveness of the neighbouring farms

this is not a serious drawback, the time may come when a quick response would be worth the farm itself. The added expense of medical attendance in a remote location is often a serious item.

The personality of one's prospective neighbours ought to be weighed in making the choice. Are most of the farms in the vicinity inhabited by Americans or foreigners? If by the latter, what is their nationality? What are their habits and customs? Would they be pleasant people with whom to be thrown in contact? Are the majority of farms occupied by owners or by tenants? In the latter case it is unsafe to predict much for the future; not only will the associations be changeable, but the character and appearance of the places will feel the influence of the continual shifting. Improvements will be fewer, and the attractiveness of the locality less. Neighbours signify much more in farm life than in city or village life. This fact should be remembered.

Social opportunities should also be considered. A farmer cares little for society, as he conceives it to be under that name, but he can not afford to neglect intercourse with others. In this neglect lies one of the chief disadvantages of farm life as it is often lived. No man can separate himself from his fellows without becoming provincial, and growing narrow. What opportunity does the proposed location afford for hearing lectures, for taking part in things which

have to do with general progress and up-building? Are there library facilities within reach? While the farmer may find time for but little use of a public library, it may often serve him a good turn, when in need of information, if well managed. It may serve him a better one in affording his children an opportunity for growth and development. Proximity to a live grange may add much to the advantages of a given location.

The mere friendly intercourse of the farmer and his family with those about him ought to be remembered. He needs this relief and recreation. He ought, if possible, to choose his farm where the community standards are such as he would like. The presence of a good institution of learning has a wonderful effect upon the standards of the community, when that institution has existed for a period of years. Such a community has many advantages over one which is isolated from educational influences.

Market Facilities.—In dealing with surroundings, we have considered the farm chiefly as a home. From the business standpoint, location is of equal importance. First to be considered is the question of market facilities. Under this head various items are to be remembered. The character of the market itself will vary greatly, according to the character of the consumers. The man in search of a farm should endeavour to determine whether the market will be good

for the kind of product which he wishes to grow. A manufacturing community may afford an excellent market for large quantities of produce, but it may be more particular about price than about quality. If he wishes to grow ordinary produce in large quantities, such a community will offer him a good field. A community in which wealth exists may offer a more limited market and be much more exacting in its demands, but may be willing to pay a better price. Let the farmer consider which community harmonises best with his tastes, provided there be a choice of farms subject to the two conditions.

Distance from market must always be regarded. Near proximity may be over-balanced by disadvantages, but in itself is of great value. The cost of marketing produce five miles away, as compared with marketing when one mile away, will add a decided percentage to the expense account of the farm. Whether a retail home market or a wholesale market is preferred may in itself be sufficient to determine the choice in many cases. If the former is desired, proximity to the consumer is absolutely essential; if the latter, much more freedom of choice is permissible. In this case, distance from the shipping point becomes of greater importance than does the actual distance from the market itself.

Transportation facilities should be carefully considered, if a distant market is to be reached. With the modern fashion of mergers and combines at its height, it seems useless to hope for competition to aid in this problem, but in exceptional cases it may. Length of haul and facilities for handling, may, however, vary greatly. Refrigerator car service is of great importance in many lines of production.

The character of the highways should receive careful consideration. This is not only of importance with reference to marketing facilities, but with reference to the social advantages of the farm as well. Good roads may add to the tax which the farm must bear, but they will far more than repay that tax in lessened expense of marketing, and hauling supplies. The influence of these factors will be discussed more in detail under the head of "Marketing Problems."

CHARACTER OF THE FARM

Nature of the Land.—The nature of the land itself is the all important factor so far as the productive value of the farm is concerned. Favourable location cannot compensate for poor soil. The two should go together if possible to find them. The kind of soil may vary with the character of farming which the purchaser has in mind. To go into the merits of different types

of soil is outside the scope of the present discussion. Suffice it to say, that while a heavy, wet clay may yield admirable returns on a hay farm, it would be next to valueless for market-gardening purposes. One should weigh carefully the adaptability of different soils to different ends, then choose the one best adapted to the line of production which he wishes to follow, unless he is willing to adapt his production to the soil which he gets.

Fertility should receive more weight than it commonly does. Building up a run-down farm is a slow process, and adds much to the ultimate cost of the place. Other things being equal, it will generally prove a better investment to buy fertile land at a high price rather than depleted soil at a less figure, though in some lines of production, so called worn-out soils will give comparatively better returns than in others. Under most circumstances it is safe to assume that it will cost more to put poor land into condition, than it will to pay the extra price demanded for good land.

The surface contour should also be carefully considered, with reference to the line of farming it is proposed to undertake. For fruit farming, high lands, with good soil- and air-drainage are to be preferred, while they are likely to be quite unsuited to market-gardening purposes. Hillsides are decidedly

objectionable in the production of some crops, while in others, if not too steep, they offer but little disadvantage. It will aid the purchaser greatly if he can have a definite idea of what he wants to do before he begins to look for a farm.

Drainage should also receive attention. While good crops of grass may be grown upon heavy, undrained soil, such land is wholly unsuited to most lines of production. If land must be drained to bring it into profitable condition, the cost of drainage should be added to the purchase price, for comparison with that of the farm which is already drained.

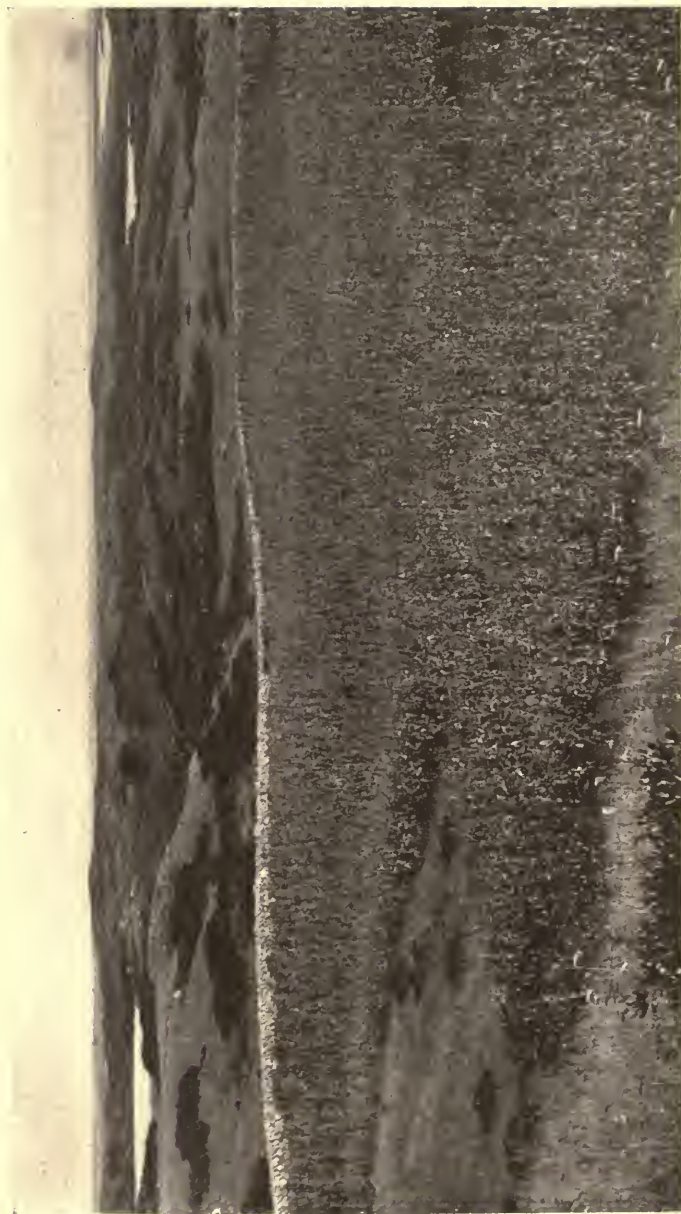
Proportion of Waste Land.—The proportion of waste land which a farm contains seldom receives due consideration in making a choice. One should remember that waste land does more than to discount the price paid. It is always a dead weight upon the undertaking. There is not only the interest charge upon its cost, but yearly items for taxes and fencing. Unless it can be turned to some use which will yield a small return, such as pasturage or forest growth, it will remain a steady burden upon the success of the business. The purchaser ought not to be deceived by the mere number of acres. A farm of eighty acres all tillable is much better than one of 100 acres, with 80 acres tillable, provided the other twenty



24. A FARM WHERE THE SURFACE CONTOUR IS BAD



25. WHERE SURFACE CONTOUR IS GOOD



26. TOO LARGE A PROPORTION OF WASTE LAND

acres can be turned to no profitable use. Under such conditions, the first farm at \$50 per acre is a better investment than the second one at \$40 per acre, for while the first cost is the same, and the number of tillable acres the same, there is this added burden in the maintenance of twenty useless acres which the second farm must bear without rendering an equivalent.

Buildings.—It seems to be a common rule in the sale of farm property, that improved buildings do not increase the selling price in proportion to their cost. This apparent loss in buildings might be less noticeable, if fair allowance were made for depreciation, but even then, if suitable buildings can be purchased with the farm, they can nearly always be obtained at less cost than if built by the purchaser. This fact should be carefully considered, for it must be remembered that in buying a farm without good buildings it may be but half paid for when the purchasing price is satisfied. This fact must not be allowed to blind one to the careful consideration of the adaptability of the buildings which exist, to the purpose in mind. The first cost may have been too great; they may have been poorly planned, or too much expense may have been devoted to mere ornamental features. Or again, they may have been planned for a different line of farming than the purchaser anticipates. In

either case, while he may be obtaining them at a low price, they may yet prove to be a poor investment. Too much study can scarcely be given to the planning of buildings for economy of labour and maximum efficiency.

Water Supply.—An adequate water supply is of paramount importance. Some farms are always handicapped in this matter. An occasional location is found where it is impossible to get water at any reasonable depth. If then there is no spring so situated that it can be brought to the buildings with reasonable expense the difficulty becomes very serious. An abundance of pure fresh water, both for the household and for stock, is absolutely essential. The cost of taking stock even a few rods to water amounts to a great deal in the course of years.

Woodland.—Good woodland should never be considered as synonymous with waste land, for while the annual yield from woodland can never be high, it is sure, and the expense is little. Oftentimes the yield from the farm woodland means more than its actual market value. Many a time it will serve to quickly replace a broken part, or afford material for some special need, the expense of obtaining which, elsewhere, might be greater than the cost of the material itself. A supply of fuel for home use, and of lumber for repairs and building purposes, is an item of

decided moment in the business enterprise. If the woodland is at all extensive, it also affords one of the best means of equalising the labour employed throughout the year. The return obtained from labour thus used may not be large, but it should at least be sufficient to continue the labour without loss, and afford a better opportunity for employing it at a profit during other seasons of the year.

Orchards.—Bearing orchards seldom bring their real value when sold. To produce a good orchard takes time, and the farm which carries one of good size carries with it a possibility of immediate money returns, which is worthy of careful consideration. Instances have often occurred where a good orchard has yielded sufficient return to pay for the farm upon which it stood. If the purchaser means to include fruit in his line of production, he will do well to consider carefully whatever orchards have reached bearing age. Even trees which have passed their best stage may be given a new lease of life and yield good returns by thoroughgoing methods.

Fences.—The cost of fencing is a serious burden upon almost any farm, but it differs greatly with conditions. While poor fences would seldom be sufficient in themselves to cause one to refuse a farm, it should be remembered that they will add materially to the cost of it. Then too,

the amount of fencing which the farm demands may make a decided difference in the annual expense account of the place. A farm so situated that a large amount of road fence must be maintained, or with pasture land inconvenient to enclose, may demand many rods, or even miles, more fencing than one more favourably situated. If in addition to this the farm itself will afford no material, the disadvantage is still greater.

Attractiveness of Location.—While placed last in the list, the attractiveness of the place itself should not receive less attention. As before stated, the farmer should remember that he is purchasing a home as well as a business. In this, the occupation differs from that of most other men. The manufacturer can afford to spend his days in an unsightly location if it is better adapted to business purposes, because he leaves it when the hours of rest and recreation come. The farmer may well afford to incur some possible business disadvantage if thereby he may obtain a more delightful home. Life should mean more than digging for dollars. That too often it does not, is witnessed by the number of farm homes which stand amid unattractive surroundings. Often there is no outlook from the dwelling, when on the same farm, with equal convenience to the business in hand, by a different location, it might command a charming view. I recall one such instance in which by changing the location of the



27. A MODEST BUT ATTRACTIVE FARM HOME



28. AN UNATTRACTIVE FARM HOME

house only a few rods, a view of one of the most beautiful valleys in the region, covering a distance of ten miles or more, might have been had. In its present location this view is wholly shut off.*

*Professor Thomas F. Hunt's book, "How to Choose a Farm," which appeared after the foregoing chapter was written, discusses this problem with great thoroughness.

CHAPTER VII

SYSTEMS OF FARMING

AT THIS point it may be well to consider what may be called the rotation balance of the farm. The term is used to include the problems relating to the proper adjustment of crops to the area under cultivation. Several considerations need to be borne in mind in determining upon this adjustment.

First and most important is that of the type of farming chosen. The comparative merits of extensive and intensive farming, and of different types of production are discussed elsewhere, and need not be considered here. The farmer should consult himself, most of all, in deciding these primary and fundamental questions. Having settled them, he may then begin to carefully study the farm to determine what the proportionate division for each line shall be.

The next essential is to provide for a well-planned rotation, which will admit of the production of the kind of crops desired and which will at the same time maintain the humus supply and fertility of the land. For general farming a judicious rotation is a paramount necessity. Special types of intensive farming

may hope to maintain fertility without it, but general farming cannot.

A plan of farming may provide a good rotation and yet fail in other essentials. One of these is that it shall adequately provide for the farm consumption. It should provide sufficient hay, silage and corn to supply the stock of the farm without an undue excess of any one of them, unless it be hay for market, if it should be desired to make that one of the direct money crops. It must also provide for a proportionate supply of summer and winter feed. If the amount of pasture is too small, soiling crops must be provided to supplement it. If the pasture range is large from necessity, every effort should be made to make the supply of winter feed balance it so that all the pasture may be utilized. If it seems the best policy to depend upon farm-grown grains, care is demanded to make the production of these correspond. On a dairy farm with skim milk as a by-product, proper provision should be made for its consumption by pigs, calves or poultry. In short a careful adjustment of cog to cog so that the whole farm machinery may run smoothly and without waste or friction is of as much importance in a farm business as in any other.

A third essential is such a farm balance as will distribute the labour of the season so that it can be performed as nearly as possible with a uniform force. The chief disadvantage of a

pure hay farm is that it calls for a large amount of labour at certain times of short duration, with little at other times. It is always more difficult, and proportionately more expensive, to secure an excess of labour for short periods than to secure regular labour throughout the year.

A fourth essential is that the balance be so adjusted that it shall provide for an approximately uniform money return each year. Certain money crops or products should form a regular part of the plan and should occur in approximately the same proportion each year. If potatoes enter the rotation there should be provision for approximately the same number of acres year by year, the same being true of corn, clover, or other crops for home consumption. It is desirable that these returns should come in at different periods throughout the year. A money crop which can be marketed at a season when other things may be returning but little is always a welcome addition. So, too, the money value per acre may be an important consideration. Even though one crop may yield as good a percentage of profit over cost as another, it may not be well adapted to the particular conditions because the profit per acre is too small for the number of acres available. A crop may need to be chosen which will utilise more labour and yield more return upon a given area.

SPECIAL VS. MIXED FARMING

One of the most important questions for the farmer to settle is that of the type of farming in which he is to engage. Many things must be considered if the choice is to be a wise one. Among these are, first of all, his own tastes, then such things as adaptability of soil and climate, market facilities, availability of help, amount of capital to be invested, etc.

In discussing special vs. mixed farming it is necessary at the outset to define the terms. In their extreme forms special farming would mean the growing of one crop and mixed farming the production of a very large number of products. In the better types of each they approach each other and there is no sharp line of division. The best special farming does not limit itself to one crop and the best mixed farming does not attempt to grow everything. In comparing the two, therefore, it is really a consideration of the advantages of a few well-chosen lines as compared with a larger number of products.*

Mixed Farming.—As in nearly all such questions, not all the advantages lie on one side. Among the points in which mixed farming has the advantage may be named the following.

1. Fertility is more easily maintained in mixed

*For an admirable discussion of this problem the reader is referred to chapters 4, 5, and 6 of Terry's "Our Farming."

farming than in most types of special farming. This is not true if the specialty is dairying. It is emphatically true if the specialty is hay. If the specialty is chosen with a view to a well-managed rotation this disadvantage is in part offset.

2. Mixed farming affords many sources of income. The chances for return are distributed throughout the year and there is always something coming in with which to meet expenses.

3. Failure of one source of income, or low prices for the product, are less important. Some crop is likely to be unsatisfactory in yield or in price nearly every year. What is more important, some are likely to succeed every year, and there is little chance of an entire failure.

4. Mixed farming may demand less skill. Even a novice is likely to succeed with something, and since failure of part is less important than failure of all, he may do better on the whole than with specialties. For the same reason, it may be added that mixed farming offers the best chance for the shiftless farmer. Something may succeed even if allowed to care for itself.

5. It is easier to employ a uniform amount of labour throughout the year. At the present time, if not always, the labour problem is one of the most difficult of solution. The man who

can furnish steady employment is most likely to get and to keep good workmen; upon doing this much of his success will depend.

6. There is an economic advantage in the correlation of different lines. Swine afford an opportunity to utilise the by-products of the dairy; fruit affords shade for the poultry, and live stock offers a home market for the forage.

The Budlong farm at Auburn, R. I., affords an interesting illustration of the working out of this principle. The business was originally established as a market garden. In connection with that cucumbers became a prominent feature. To better utilise them the manufacture of pickles followed. This created a large demand for vinegar, which resulted in the building of a vinegar factory. To utilise the refuse grain used in the manufacture of vinegar, steers were fed.* Hogs are also kept, which consume refuse garden products. Large greenhouses formerly used for lettuce and cucumbers under glass, now more largely for roses and carnations, find a place in the circle of business interests.

It is interesting to consider the development of modern commercial lines in this connection. As villages grew to towns and towns grew to cities, the typical country store, where could be found anything from candy to hardware,

*More recently molasses has offered a cheaper material for vinegar than grain so that the steers have disappeared.

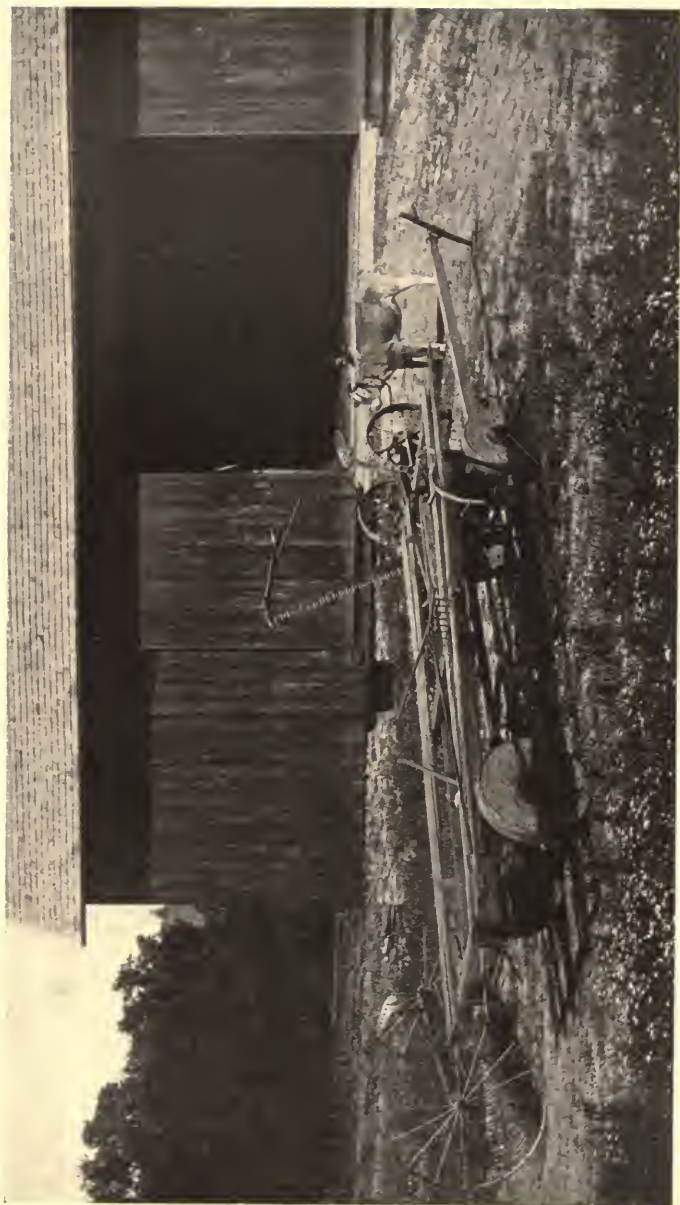
gradually gave place to special stores which carried a single line. Latterly, however, the old-time country store has reappeared in the form of the great department store, which, like its predecessor, carries under one roof anything from a silk collar to an automobile. It is significant, too, that this type of store often forces the special store to the wall.

Special Farming.—Among the points in which special farming has the advantage are the following:

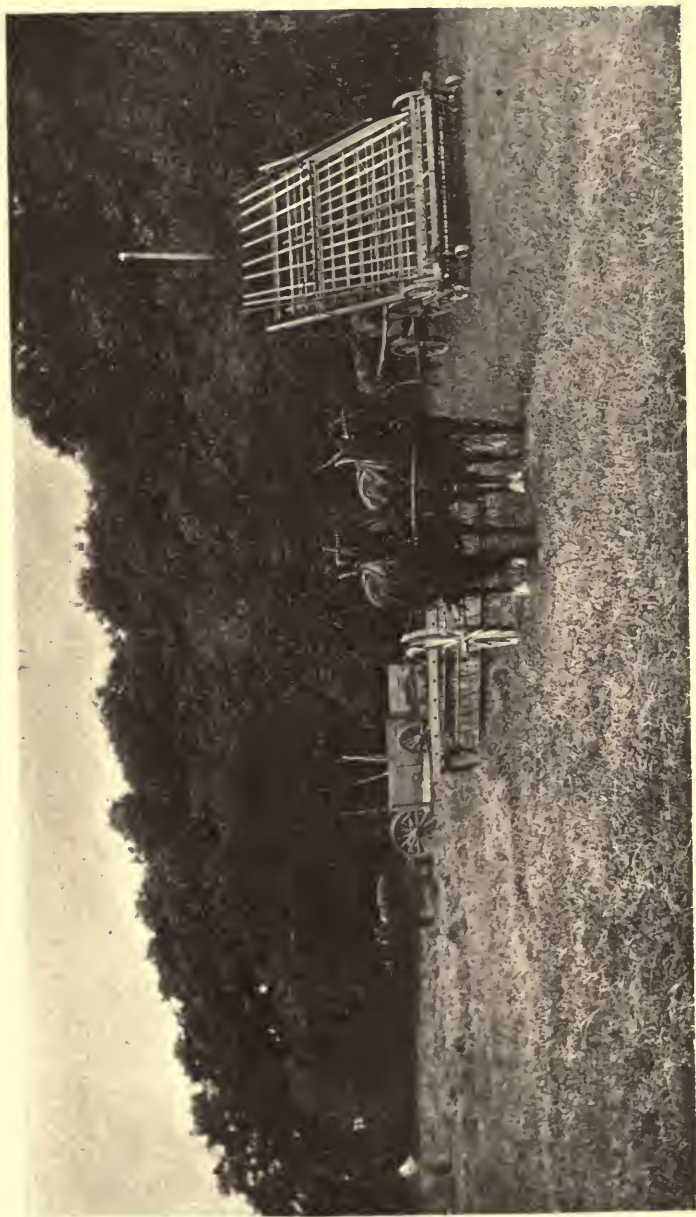
1. Economy of capital. The man who attempts to carry on many lines of work must equip himself for each one. This means an increased outlay for implements and perhaps for buildings, types of property in which the expenses of depreciation and cost of usage are likely to be heavy.

2. Economy of labour. Since each line demands equipment the general farmer will find that he cannot afford the best for every line. He cannot afford to own a potato planter and digger for two acres of potatoes, nor a corn harvester for five acres of corn. His work must therefore be done at a disadvantage. The man who makes a specialty of potatoes or corn and grows enough to warrant the outlay for a complete equipment can produce the crop more cheaply as a result.

3. Special farming affords better opportu-



29. THE HAYING EQUIPMENT ON AN ORDINARY MIXED FARM



80. ADDITIONAL HAYING EQUIPMENT WHICH SPECIAL FARMING WILL WARRANT

ities for marketing, Modern business is done on a large scale. The man with a few bushels of potatoes or a few pounds of butter receives little attention. He must take what he can get for an odd lot or hunt for chance customers in private trade. If he has a carload to offer, railroads are ready to make him a rate and buyers are ready to make him a price. Furthermore, it is only the man who adheres to some specialty year after year whose product becomes known and who is therefore able to command a special market.

4. Specialties lead to greater skill in their production. The man whose income depends on two or three things only cannot afford to let these fail. He studies them; he learns their needs, and is ready to give prompt battle to any enemy which threatens. He becomes skilful in their care and he reaps better harvests.

5. Things are less likely to be neglected. With many crops, different ones are sure to demand attention at the same time; some are neglected and suffer. With special crops this is less likely to occur, both from having fewer irons in the fire, and from greater skill in knowing when to bring them to the anvil.

6. The labour may be less confining. The farmer ought to have some time for recreation and study, some opportunity to get away from home. If specialties offer some difficulty in the regular employment of labour, which is not

true in all cases, they may offer the counter advantage of more freedom to the farmer and his family.

All in all, the arguments for a well chosen line of specialities far outweigh those for a miscellaneous line of mixed farming. Yet farming cannot be done by ironclad rules. Circumstances may often arise under which a crop out of the ordinary may well be used to meet the peculiar needs of the case. The specialties chosen should be such as to admit of a rotation which will maintain a good physical condition of the soil and distribute the labour to the best advantage. In succeeding pages different types will be considered more in detail.

Specialties often appeal to the inexperienced with undue force. The belief that money is to be had from ginseng or goats may blind the novice to the fact that as good or better returns may be obtained from cabbage or cows.

EXTENSIVE VS. INTENSIVE FARMING

The choice between extensive and intensive farming, aside from the question of personal tastes, is largely a problem of the adjustment of capital and of the relation between capital and labour. Extensive farming demands relatively more capital, intensive farming relatively more labour. Extensive operations therefore involve a

heavier interest charge for fixed capital. One thousand acres of grazing land at ten dollars per acre calls for an investment of \$10,000; fifty acres of fertile farming land at one hundred dollars per acre demands but \$5,000. Within reasonable bounds returns will follow more nearly the line of labour investments than those of capital. This may be illustrated by the comparison of cost and returns from a few typical crops.

Estimating the yield of wheat per acre at twenty bushels, and the price at seventy-five cents per bushel, there is a gross return of \$15. To secure \$1,000, gross, it is necessary to grow $66\frac{2}{3}$ acres. If this land is worth \$40 per acre, there is a fixed capital investment of \$2,666.67, the interest charge upon which at 5% is \$133.33. The labour involved in growing, harvesting and threshing, under average farm conditions in the Eastern states, will be about \$6 per acre, or \$400 on the $66\frac{2}{3}$ acres needed to secure the \$1,000 gross return. There will be forty tons of product to deliver to market, the cost of which will vary with conditions.

Compare this with potatoes, as representing a fairly intensive farm crop. When grown by successful men who make it a business the yield will average at least 200 bushels per acre. If the price should average forty cents per bushel the gross return per acre would be \$80. A return of \$1,000 can therefore be obtained from $12\frac{1}{2}$

acres. Supposing the value of the land to be \$50 per acre there is a fixed capital investment of \$625, the interest charge upon which at 5% is \$31.25. The labour cost of growing will amount to about \$20 per acre, or \$250 for the 12½ acres needed to yield \$1,000 gross return. In this case there will be seventy-five tons of product to market, a serious item if the distances are long.

Onions will represent a still more intensive gardeners' crop. With land in a high state of fertility, as gardeners expect to keep it, the yield should reach 500 bushels per acre. Prices vary greatly with location; but taking an average farm price of fifty cents per bushel the returns will be \$250 per acre, or \$1,000 from four acres, the interest charge on land at \$100 an acre being \$20. The labour cost in this case will be high, approximating \$100 per acre, or \$400 for the four acres involved. There will be 50 tons of product to market.

None of these estimates include other expenses than those of labour and fixed capital, the purpose being to emphasise chiefly the point of capital involved.

The element of fertility is an important consideration. Extensive farming has too often been a system of soil mining, with little regard to the maintenance of fertility. The estimates for wheat above are made partially on that basis. With liberal fertilising the yield per

acre there given can be much increased. When it comes to this problem, it will readily be seen that intensive farming has a manifest advantage. The cost of fertilising $12\frac{1}{2}$ acres for potatoes or 4 acres for onions sufficiently to produce a maximum yield will be much less than the cost of fertilising 50 or 60 acres for wheat, even moderately.

Under average conditions intensive methods will be found to possess important economic advantages, but they demand closer attention and more intelligent oversight. For the man who can better afford to invest capital than to give such attention, extensive methods may prove best. Certain types of farming are, from the very nature of the case, bound to be extensive, at least for many years to come. The details of the problem will appear more fully in the comparison of different types in later pages.

In many cases the value of land will prove to be the determining factor. It is manifestly impossible to grow wheat at a profit on land valued at \$500 per acre, for the interest charge and higher rate of taxation likely to prevail will more than offset any possible profit, even by the best of methods.

At this point it may be well to emphasise the difference between intensive and extensive methods with the same crops and under the same

system of farming. Intensive farming does not lie wholly in the number of acres tilled. Let figures from the hay crop serve as an illustration. The average yield per acre of hay in the state of New York for the last ten years is a fraction less than $1\frac{1}{2}$ tons. By better methods and a liberal outlay for fertilisers it is easily possible to bring this yield up to three or even four tons per acre. The average farm price for hay in the same state for the same time is \$10.63. The account per acre by the two methods would stand about as follows:

HAY		
	Extensive Method	Intensive Method
Interest and taxes	\$ 3.00	\$ 3.00
Seed . . . 2 { proportionate } Preparation 2 { share per year }	2.00	3 } 4.00 5 }
Fertilisers		15.00
Mowing and raking . . . . .	.50	.50
Hauling	1.00	4.00
Total cost per year	\$ 6.50	\$26.50
Value of product		
@ \$10.63 per ton	$1\frac{1}{2}$ tons 11.96	4 tons 42.52
Profit	\$ 5.46	\$16.02

Lest some one may think an estimate of four tons per acre too large it may be said that the average yield per acre on the grounds of the Rhode Island Experiment Station considerably exceeds this amount wherever good rotations and liberal fertilising are employed. This is on land from which on either side the yields

scarcely reach half a ton, and on which corn will not grow over five inches high during the whole season, where the land has been continuously cropped without the addition of fertiliser.

If applied to Rhode Island conditions, where the average farm price of hay during the same ten years has been \$17.08 instead of \$10.63 as in New York, the contrast between the two methods is even more striking, for the difference in profit between the two methods then becomes \$29.11 instead of \$10.56, as here figured. It should be said that in the Rhode Island experiments the cost of fertilisers has somewhat exceeded \$15 per acre, but it has been learned that even here some of the items can be reduced and farmers who have tried the formulas in other parts of the state report that a smaller amount would probably prove more profitable. Outside of New England the amount may not need to reach \$15. The general impression prevails that such liberal fertilising will only prove profitable for the hay crop where prices range high, as near the city markets, but an analysis of the problem shows that the method will apply much farther than might be supposed.

Similar comparisons with the potato crop may be of interest. The average yield per acre in the state of New York for the ten years from 1893 to 1902 inclusive was 80.6 bushels, and

the average farm price, December 1, was forty-eight cents.

In the following table the ordinary methods in vogue, which produce this average yield, are compared with condensed figures which follow very closely those given by T. B. Terry and J. S. Woodward, men who expect and get an average of at least 200 bushels per acre. The cost of seed is placed higher than they place it in order to permit the purchase of seed from seed-growing sections, a practice which, while often desirable, is not always necessary, as these men prove, provided the grower knows how to handle and care for his own seed properly.

POTATOES

	Extensive Method	Intensive Method
Interest and taxes	\$3.00	\$ 3.00
Seed, 8 bu. @ 50 c. or \$1	4.00	8.00
Plowing	1.50	1.50
Fitting . . . . .	.50	1.50
Fertiliser, $\frac{1}{2}$ ton . . . . .	....	15.00
Cutting and planting	3.00	3.00
Tillage	2.00	5.00
Applying Paris green . . . . .	.50	....
Spraying for bugs and blight . . . . .	....	2.00
Digging and picking up	5.00	6.00
Total,	\$19.50	\$45.00
Value of product @ 48 cents (80.6 bu.)	\$38.65	(200 bu.) 96.00
Profit	\$19.15	\$51.00

Rhode Island farmers in the potato growing sections commonly apply at least one ton of

fertiliser per acre, but their average farm price for the same time has been seventy cents per bushel, so that their profits from intensive methods are still greater. One successful Rhode Island grower reports the cost at \$50 per acre when grown and in the cellar, and that their average yield is more than 200 bushels.

It should be observed that a large proportion of the charges are practically fixed, whether the method be good or poor, and that aside from the item of fertilisers the additional cost of intensive methods is comparatively small. The fertiliser question itself is one demanding much study. In many cases it can be much reduced by careful attention to other methods of maintaining fertility.

SYNDICATE FARMING

Many believe that syndicate farming is to be one of the features of the future. Will agriculture tend toward concentration, as all other industries seem to be doing? It is probably wiser not to attempt to answer this question, but to content ourselves with considering some of the factors which are likely to work for and against this tendency.

FAVOURABLE FACTORS

1. *Full Equipment Warranted.*—Many farmers work at a great disadvantage from lack of equipment. Indeed this is such a common occurrence

that at times it seems a well-nigh universal rule. A young man starts out with limited capital. He may rent a farm for a time, then perhaps buy one of his own, running in debt for the greater part of the purchase price. All the returns are needed to meet payments and keep up interest. Every tool which it is possible to do without is dispensed with. Under these conditions products are grown and handled at a marked disadvantage, and cost too much. Syndicate farming overcomes all this. Enough capital can be put in to properly equip the enterprise at the start and capital can be added as the business progresses. In so far, the syndicate farm can produce more cheaply, hence at a greater profit, than the individual farm under these conditions.

2. *Full Use of Equipment Possible.*—When the individual farmer is able to have all the equipment needed in carrying on his work the extent of his business oftentimes does not permit of a full use of the equipment. For this reason he may be working at as great an economic disadvantage as does the poor man who must do without the equipment. The proportion of fixed charges which he pays is too great. The farmer who owns a one-hundred-dollar corn harvester for harvesting five acres of corn annually, may do the actual work as cheaply as his neighbour who harvests more, but when he has added the



31. EXTENSIVE AND INTENSIVE METHODS WITH THE HAY CROP



32. MAKING THE POTATO CROP A SPECIALTY

charges for interest, depreciation and storage, from which he cannot escape, he will find the cost greater than that of the man who must harvest his corn by hand. In many cases the latter may be able to hire the services of the machine from his more prosperous neighbour, with manifest advantage to both parties. Syndicate farming should do away with this difficulty. The syndicate farm should not only be able to have equipment enough to do the work but also to have work enough to properly employ the equipment. The cost of production, so far as regards this item, should therefore be brought to the minimum.

3. *Opportunity for Skilled Oversight.*—A small farm will not warrant the payment of an adequate salary to a superior manager. The owner does not escape this fact even though he manage the farm himself. If he is a man capable of successfully conducting a larger enterprise he is not receiving what his services are worth in conducting a smaller one. If managed as a business investment, without employing his own services, the owner cannot afford to employ an expensive man for a small undertaking. With the larger undertaking there is abundant opportunity for the well-trained man to make his training count, to earn his own salary, and to return a margin to his employer.

4. *Advantages in Marketing.*—Much has been

said about the advantages to be gained from marketing products in large quantities. The syndicate farm has manifestly the superior opportunity in this respect, particularly if the undertaking is centred upon a few specialties.

UNFAVOURABLE FACTORS

1. *Loss of Time in Working Large Areas.*—The first and perhaps the most important difficulty in syndicate farming lies in the inherent difference in nature between agriculture and other industries. In manufacturing enterprises it is possible to concentrate an immense business within a small area. Every operation can be quickly inspected by the superintendent and no time need be lost in the passage of material or workmen from one operation to another. In agriculture the limit of concentration is quickly reached. Increased production means increased areas. This, except in a few special lines, means loss of time in movement from place to place. Each mile that a workman must travel upon his employer's time in getting to and from his actual place of work means a reduction of approximately 3 per cent. in the efficiency of his day's work. This soon places a limit upon the spreading out of operations from a single plant. Increase must be by means of separate centres from which operations proceed, and which introduce

many of the same factors which appear with small individual farms.

2. *Difficulty of Close Oversight by Manager.*—The same reasons which render it difficult to carry on large farming operations successfully from a single plant prevent close oversight on the part of the manager. He may provide himself with means of transportation which will consume less time than does the workman in going from place to place, but it is important that he do much more moving about than the latter. Not only will he lose a great deal of time between points, but while he is directing operations at one place something may be suffering at another.

3. *Lack of Personal Oversight on the Part of the Investor.*—Experience shows that farms not managed by their owners seldom pay. Exceptions occur, to be sure. A particularly conscientious manager of ability may present good returns to his employer but very many fail to do so. A financial interest in the undertaking on the part of the manager will aid, but even this is not always effective in producing good results. Careful attention to many details is needed to make farming a success. Such attention can best be secured when the owner himself is managing the business.

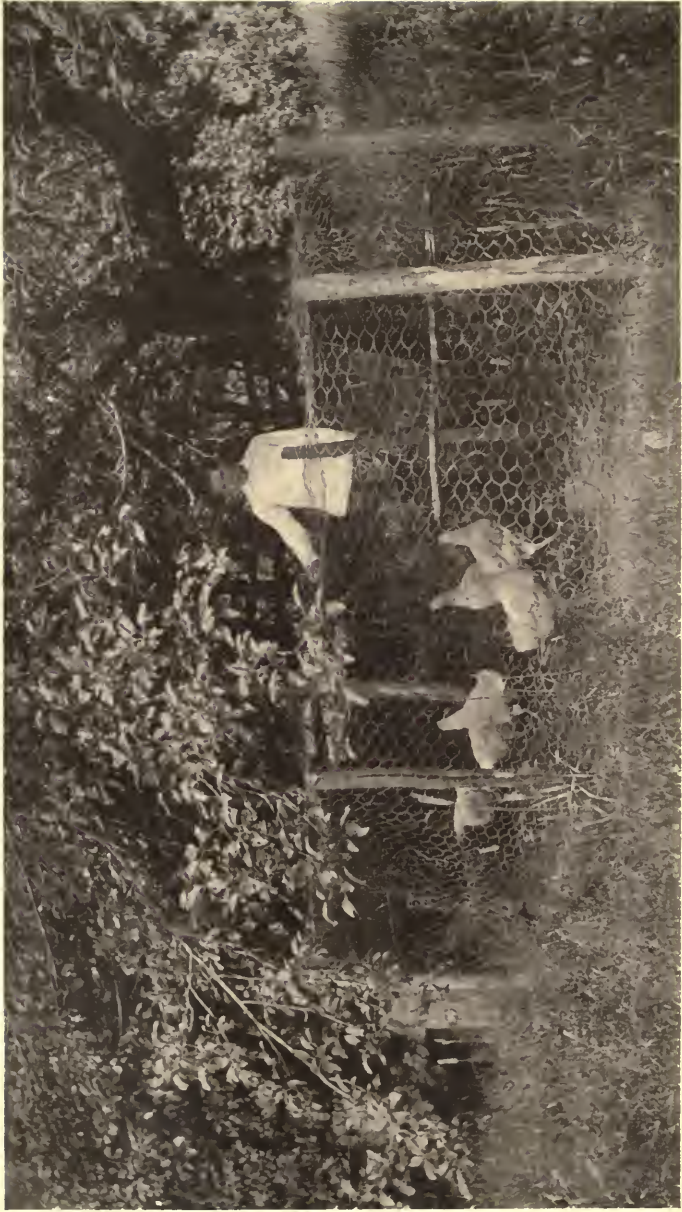
To generalise upon these factors for and against syndicate farming would be to prophesy,

which is always unsafe. Yet it may be safely predicted that the ease with which new ventures in farming may be begun, upon small capital, will long prevent any such centralisation in agriculture as occurs in other lines of business. The most promising lines of concentration appear to be those in which the elements of coöperation or profit-sharing enter to a considerable extent. It is probable that the syndicate farm can be more successfully obtained by coördinating the operations of a number of individual farms than by combining them into one; if upon each of these farms there is a foreman who is financially interested in its outcome the chance for success should be good.

The Boyd farms near Harrisburg, Pa., offer a good illustration of a successful business enterprise in farming. A number of individual farms, aggregating 1,800 acres, are grouped together under one management. A farmer and helpers, are employed on each farm, with a manager to direct the whole.



33. A FULL EQUIPMENT IS WARRANTED
Feed mill on the Boyd farms near Harrisburg, Pa.



34. A SMALL INVESTMENT

A poultry business begun by borrowing two hens and buying two sittings of eggs. The house was made from a packing-box, which cost five cents; the wire and posts were picked up without cost

CHAPTER VIII

FARMING COMPARED WITH OTHER LINES OF BUSINESS

TIS AN illusive fancy to which men are heir, that the vale of delight lies always beyond the next hilltop. A more delightful time is coming, when we shall have more leisure, more enjoyment, more happiness. In like manner we are prone to think other callings better than our own. No one is more ready to decry the business of farming than the farmer himself. He believes that men in other callings do less work and receive more pay than he. He instils into the mind of his son the teaching that the son must prepare himself for some calling in which he can get his living easier than on the farm. The son, as a result, is found in the literary, the classical, or the engineering course, when he reaches college, instead of the agricultural course, only to learn, oftentimes, after college days are over, that the farm after all offers him better opportunities than his chosen field, and to go back to it trained for some other work instead of that.

It is not easy to make comparisons which will be just and which will throw light on the

comparative advantages of one calling with another. A few points may be considered.

THE INVESTMENT DEMANDED

The constantly increasing scale on which business is done renders it each year more difficult for the man with limited capital to build up a business for himself, a business in which he shall be the master and not the servant. The small retail stores, or those which we used to think the large ones, have more and more frequently been absorbed by the big department store. What was an independent business in stationery, in wall-paper, in boots and shoes, becomes a department in one of the big concerns, and the one-time independent owner becomes the department manager and an employee. The chance to again become an independent dealer has passed, not to return again. The man with a capital of \$5,000 knows well that he cannot establish an independent business and hope to compete with the large concern, even in a single line.

Farming too, calls for capital. The want of it is one of the most frequent causes of poor returns. Yet it is far easier for the man with a limited amount to establish an independent business than in mercantile or manufacturing lines. While he cannot reach the best market

or place his products on the market to the best advantage, if he has only a limited amount to offer, he can reach some market and nearly always one which will yield a profit above cost of production if the production has been well managed. This market, too, will generally take all he can produce, very different from the market of the merchant, whose great problem is to know how much he can sell.

The man with \$5,000 can become at once an independent business man, an employer instead of an employee, if he decides to put that money into agriculture. True it is that he will wish for more capital and will see many ways in which the man who has it will possess an advantage over him, but he can enter the contest with perfect assurance of winning reasonable success, provided he possess the other requisites of success. The young man with no one dependent upon him may even become an independent operator in some lines with one-tenth this amount of capital. In either case, with every dollar of increase in the capital will come the opportunity to place it where the effectiveness of the business will be increased.

Coupled with this opportunity to begin with small capital goes the opposite advantage, that it is possible to advantageously invest a very considerable amount in a single business. Indeed by dividing the investment and

establishing different centres of operation it is possible to invest almost any amount. Lack of opportunity to place his capital to advantage is not one of the farmer's troubles.

SAFETY OF THE INVESTMENT

The safety of the principal is of prime importance in the investment of capital. The president of a large banking firm, when asked what percentage of ventures in mercantile and manufacturing lines fail in so far that the capital put in is lost to the investor, replied that he had no figures, but judging from his observation it would be about 90 per cent. in mercantile lines, but much less in manufacturing, perhaps not over 15 per cent, though his first estimate was higher. Compared with this, agriculture makes a very favourable showing. I have no statistics to offer but I am sure that universal experience will bear me out in the statement that very few men lose the capital invested in farming, as a result of legitimate business effort in that line. Farm mortgages are foreclosed, to be sure, sometimes as a result of ill health or other unusual misfortune, but oftener as a result of bad management, expensive habits, outside ventures, or to secure capital which the investor never really possessed, he having assumed a debt nearly or quite equal to the capital involved.

Capital invested in a farm and its equipment is likely to be less readily available than in many other lines, but there are few ways in which it can be invested with less danger of ultimate loss.

PROSPECT OF A CONTINUED LIVELIHOOD

In answer to the question—What percentage of ventures yield a comfortable livelihood during the lifetime of the investor? this same bank president placed the figures for mercantile lines at 50 per cent. and for manufacturing lines at 80 per cent. He qualified these by saying that the business was often absorbed by a larger firm, or failed, and the former proprietor finished as a clerk. Under those conditions the business fails to yield a livelihood in the sense in which it should, for his livelihood is dependent upon the will of others and he must face the dead line which all employees must face, and which is very likely to come early in life.

In the absence of this dead line lies one of the chief advantages of farming as a business. The intelligent, industrious farmer need look upon the future with no apprehension. Except as the result of some unusual misfortune his support is secured to the end of his days. Even when he is no longer able to work himself his farm will continue to yield him the comforts of life. His wants are simple and natural and are supplied

at minimum cost, because obtained at the source instead of at the mouth of the stream of distribution.

A. P. Grinnell, M.D., Dean of the Medical Department of The University of Vermont, is authority for the statement that 80 per cent. of all men living at the age of forty-five are prosperous, contented, and more or less successful in business, well established in whatever pursuit they are following; are receiving an income in excess of their expenditures and are, therefore, laying up money and are independent. He then calls attention to a well-established fact that of all men living at the age of forty-five 50 per cent live to be sixty-five. At that age he finds that only 3 per cent. of these persons are independent or self-sustaining. In other words about ninety-seven out of every 100 at the age of sixty-five are dependent upon relatives, friends, the town, or some charitable institution or society for a part, at least, of their daily subsistence.

Let the farmer who is inclined to bemoan his lot ponder these figures. Let him sit down and compute the percentage of his farmer acquaintances who, at the age of sixty-five, are dependent upon others for sustenance. In doing so he should be careful not to count among the number those who have left the farm and embarked in some other business.

FINANCIAL RETURNS

Perhaps in no other business will returns vary more widely. Many farms do not even pay reasonable wages for the labour expended upon them. It must be granted at once that agriculture offers little opportunity to amass immense wealth. It is not the calling for the man who makes that his goal in life, although present tendencies toward large aggregations of capital in agriculture, as in other lines, offer better opportunities in this field than is generally believed. The great advantage of agriculture lies in the certainty which it offers of reasonable returns, sufficient for the needs and comforts of a simple life. Few men of average ability and health fail to secure this much. Many are able to provide themselves comfortable and attractive homes and to possess about all the good things of life which it is possible for any man to enjoy.

Not long ago lists were secured of typical, representative farmers engaged in different lines of work and located in various parts of the United States. Questions were sent to these men, asking them for a business statement regarding the management and returns from their farms. Figures were tabulated from forty-seven farms. Among these were some managed by firms, including brothers, or father and son. Taking these into consideration made fifty-six persons

to share in the returns which these farms yielded. The average salary received by these fifty-six persons, after deducting all running expenses, 5 per cent. interest on the capital invested, 5 per cent. for depreciation and insurance on buildings, and 10 per cent. for depreciation on teams and tools, was \$1,800.40. These, it must be granted, were picked farmers, men known to be successful men. The returns are therefore doubtless considerably above average returns, yet they are by no means exceptional. It was not always the largest enterprises which showed the greatest profits.

With these farms it may be fair to compare the exceptional man in other lines. The man who has had the advantage of a thorough college training which has fitted him for a definite line of work must certainly rank above the average man in his earning ability, and may be fairly compared with these successful farmers. President Prichett of the Massachusetts Institute of Technology is authority for the statement, made about the same time these figures were gathered, that the average salary of the graduates of that institution is about \$650. The average salary of teachers in Massachusetts is given as about \$600.

These comparisons have to do with the exceptional man. In the report of the Pennsylvania Department of Agriculture for 1899,

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John Hamilton, then Secretary of Agriculture for Pennsylvania, makes a careful comparison between the returns secured by the average farmer's family in that state and those secured by the average worker in other lines. He first refers to a substantial agreement among statisticians that 93% of the people in this country live upon incomes of less than \$400 per year, which income must support a family of three persons. He finds this to agree very closely with the average returns of the wage-earners in the manufacturing industries in Pennsylvania. He then compares these figures with the average returns from Pennsylvania farms, as shown by census statistics. His figures lead him to the conclusion that while each person in the average family in 93% of our homes has \$133.33 per year upon which to live, each member of the average Pennsylvania farmer's family receives \$198.26. Deducting similar living expenses in each case leaves a surplus of \$73.50 for each member of the farmer's family and a surplus of \$38.94 for each member of the family engaged in other pursuits. These figures assume the same cost of living in each case, while as a matter of fact the cost is always much less upon the farm than in the city or village. These results show that the condition of the average worker in agriculture compares as favourably with that of the average worker in other lines as does that

of the exceptional farmer, referred to before, with that of the exceptional man in other lines.

OPPORTUNITIES FOR THE ACTIVE INVESTOR

For the man with small capital, who wishes to manage it himself, agriculture offers a promising field. He may begin small and add to his investment as rapidly as his capital will permit. Upon this point I wish to quote the words of Hon. Charles A. Garfield, a Michigan banker, well known in agricultural as well as business lines. He says:

“My personal view with regard to comparative successes and failures in the various vocations of life is that there are fewer failures in connection with soil culture than in almost any other line of business activity. I think the promises to-day for the young man who has some taste for agriculture are better in that realm than in any other. In our own state I am impressed with the strong advantages of agriculture over mercantile or manufacturing enterprises. . . . In the various fields of agriculture, it seems to me there is not the necessity for increased capitalisation to cope with modern factors which are involved. For instance, in glass farming, a man can start out with a little greenhouse, and can gradually grow, if he puts the right ability into the enterprise, into a tremendous establishment in the course of a quarter of a century. In



35. THE FARMER'S OLD AGE

He is free to visit with his friends when they come and to enjoy most of the good things of life



36. FARMING AS A BUSINESS INVESTMENT DIRECTLY FINANCED BY THE OWNER
Scene on the Boyd farms near Harrisburg, Pa.

the same way in out-of-door market gardening, I know of men who have started with five acres of land, and by manuring heavily with brains, have within twelve or fifteen years developed a great agricultural enterprise. I think along the various lines of agriculture the opportunities have increased with the years, while in many other avenues of activity it seems to me the reverse has been true. In our own state, for instance, with the advent of the great department stores, the man of small means does not know where to dip in, even if he has a taste for trade, and the same is true in manufacturing enterprises. But I know of so many successful men who have started in a small way with only a small branch of agriculture or horticulture and made a success of it, that I feel quite safe in advising young men to enter this kind of career, providing first and always they have a natural taste for dealing with the soil. Young men have made a pronounced success within my range of vision in growing rhubarb or cauliflower or celery, or feeding lambs or raising poultry or growing roses or violets, and I am inclined more and more to think there is no limit to endeavour along these lines."

OPPORTUNITIES FOR THE PASSIVE INVESTOR

While agriculture offers an excellent field for the man who wishes to manage his capital him-

self, the case is different with the man who wishes to invest capital without giving it his personal attention. Agriculture is not the place for him. So few farms succeed without the owner's close attention and oversight that one is almost warranted in saying that they cannot be made to succeed in this way. To buy and equip a farm and expect to secure profit from it by means of hired labour and management will almost surely bring disappointment.

Yet for the man with sufficient knowledge of agriculture to know how farming operations should be carried on, and with sufficient knowledge of men to secure good tenants, investment in land for rent may yield satisfactory returns. Instances can be cited of men who choose this line of investment in preference to any other. In some cases the system of share rental is followed, in other cases the system of money rental. Without good tenants, carefully drawn leases, and close attention on the part of the owner, however, farms will rapidly deteriorate under this system of management with a losing investment as the result.*

OPPORTUNITIES FOR THE MAN WITHOUT CAPITAL

Agriculture offers a good field for the young man who has tastes in that direction, even though

*The farms owned by the McCormick estate of Harrisburg, Pa., afford a good illustration of a passive business investment in agriculture. These are primarily grain farms and are worked on a system of share rental somewhat peculiar to the region but with liberal terms to the tenant. The valley farms yield a very satisfactory return upon the investment, the mountain farms a somewhat lower rate.



37. FARMING AS A BUSINESS INVESTMENT ON THE SHARE-RENTAL SYSTEM

View on one of the farms of the McCormick estate, Harrisburg, Pa.



38. THE FARMER'S PLACE OF WORK

he may have no capital to invest. There is a growing demand for men in all lines of agricultural work. Not only do the United States Department of Agriculture, the agricultural colleges and experiment stations call for large numbers of educated young men, but the creameries and cheese factories, the farms and the private estates call for many more.

Every wealthy man who buys a farm for a summer home must have a manager for it. He will usually pay well for the services of a man of ability.

Any young man who can prove his ability to make an investment in farm lands pay, will soon find capital ready to provide the investment and employ his services. In few other ways can a young man of limited means secure a better home than by becoming the manager of a private estate or a successful commercial farm. In many cases the home is furnished throughout by the employer.

OPPORTUNITIES FOR WOMEN

The success of many women who have engaged in agriculture either from choice or necessity, proves that the business offers opportunities for women as well as for men. The lighter branches of agriculture afford a good field for women who have a taste in this direction.

Many a woman has found profit, health and independence in poultry, bees, or fruit, with no greater demands upon her physical strength than are made by the factory, the counter or the office. Floriculture offers excellent inducements for the woman with some capital to invest. There have been notable successes also in dairying and stock-breeding. The outcome of the venture depends far more upon the management than upon the physical strength employed. A good brain at the head will bring success, whether in man or woman. Many a farm has yielded better returns when its control has fallen into the hands of the wife or daughter than it did before.

ATTRACTIVENESS OF SURROUNDINGS

The attractiveness of one calling as compared with another depends much upon personal tastes, yet few lines afford the opportunity for work among so attractive surroundings as are offered to the farmer. The man who works in the open fields, 'neath the bright blue skies, with the summer clouds at play above his head, has nothing to covet from the man who must spend his days in the dust and din of a factory, within the narrow confines of a store, or the stuffy walls of an office. Not all his days can be spent 'neath sunny skies, to be sure; he must meet winter's cold and summer's heat, Nature's frown as well as her

smile; but in every mood she offers something worthy of his interest, admiration or courage. Furthermore his immediate surroundings are much more within his own control than are those of men in most other callings. He has more room to express his individuality. Even the disagreeable tasks, and they are many, are laden with a personal interest, for their performance gives promise of some direct gain or betterment as a result of their doing. Let the farmer who belittles his commonplace tasks and his surroundings spend a single week within the dingy walls of an office or factory and he will come back to his fields a happier and a wiser man.

HOME MAKING

The farmer's location is generally permanent. Every beauty or convenience which he adds to his home are for him and his. Home comes to mean something to him and to his children. Each improvement in buildings or equipment means far more than the possible profit which the change may afford. He may plant a tree and hope to gather the fruit, a shrub and expect to enjoy its bloom, adorn his home with plantings and watch the development of the picture. All these things, and they mean much, many a man never knows. His home is his only so long as the monthly payment for rent is

forthcoming. Improvements are rare and only as a result of persuasive interviews with the landlord. If he plants so much as a strawberry plant another may eat the fruit. His children know no home; they know only the house where they live. They never know the joy of gathering fruit and flowers from their own plants, the freedom of their own fields, the sense of ownership in the realities of life.

FAMILY EMPLOYMENT

The farm offers something for each member of the family to do. It is the ideal home for children. Not only can the child coöperate in the affairs of the home but he can be given opportunity for enterprises of his own. A swarm of bees, a setting of eggs, a pig, or a patch of ground in strawberries or potatoes, with a little judicious advice from the parent, will afford the opportunity for self-earned money, which every child so much covets, and a beginning in business training as well. With the coming of years and experience such a beginning may readily develop into an important branch of the farm economy. With its development has come, too, an interest in the home and the business and a freedom from temptation which few other callings can offer.



39. THE BUSINESS MAN'S PLACE OF WORK



40. A NEAT FARM HOME BUILT FROM MATERIALS FURNISHED BY THE FARM

INDEPENDENCE AND SERVICE

Interdependence, not independence, is the rule of life. No man is wholly independent, nor should he care to be. Yet no man enjoys more of the independence which is worth enjoying than the farmer. He is tied to no whistle string; he runs at the beck and call of no man; he yields his views and his vote to none. The fact that it is easier to become an independent business man in farming than in other lines of business renders the opportunity for independence greater in this calling than in others.

No calling can claim a monopoly of the opportunities for service. Men need help and encouragement in every walk of life and in every corner of the globe. He who will may lend help wherever he goes. Let no one feel that his opportunities for usefulness will be diminished by answering the call of the farm. Farmers are often better informed, more thoughtful, and possessed of better judgment than men of similar advantages in other lines. The farmer has more time for thought than many other men have. The obstacles which he meets develop resourcefulness and judgment. His isolation may develop a trace of suspicion in his nature and his habit of solving his own problems may make it difficult for him readily to cooperate with others in an undertaking, but his opinions, if he be an

educated and intelligent man, are worthy of attention and generally carry weight. The problems which confront American agriculture to-day are weighty ones; they demand the best intelligence available for their solution. The educated man possessed of the quality of leadership will find ample scope for his activities in the farm community which he may chance to make his home.



41. EACH CHILD CAN BE GIVEN OPPORTUNITY FOR SOME ENTERPRISE OF HIS OWN
The first swarm of bees in winter quarters, the hive being enclosed in a packing-box



42. A LONG HILL, BUT EASY GRADES AND A GOOD MACADAM ROAD MAKE IT EASILY CLIMBED

CHAPTER IX

MARKETING PROBLEMS—THE IMPORTANCE OF PRICE

THE importance of marketing can scarcely be overestimated. It is easy to overlook the significance of apparently slight variations in the price of products. The chief reason for this is the fact that the item of cost is so obscured that it never stands out as it should in the comparison. The addition of 10% to the price of an article sold means an increase of 10% in the cost to the buyer; it means a very different thing to the farmer. Let us illustrate the problem with an acre of potatoes. Under skilful methods, with good potato soil, an acre can be made to produce 200 bushels and the product be marketed near at hand for \$50. This means twenty-five cents per bushel. If now the product is sold at thirty cents per bushel there is a profit of five cents, or 20% on the investment, the profit on the acre being \$10. If the price is thirty-five cents the profit is ten cents per bushel or 40% on the investment. The profit on the acre in one case is \$10, in the other it is \$20. One acre under the latter condition therefore yields just as much return as two acres

under the former, with a much smaller investment, but the farmer may be blinded to the fact because in the one case he receives \$120, while in the other he receives only \$70. Unless he is accustomed to carefully count the cost it will be difficult for him to realise that the smaller amount yields him as large a return as the larger. One may well afford to spend time, thought and expense, if thereby the selling price of products can be legitimately increased. I am not in sympathy with any movement to extort unjust prices from the consumer, particularly upon staple articles of necessity, but it is most important to secure full value for products sold.

TRANSPORTATION

Population is unevenly distributed, likewise production, but the distribution of production bears little or no relation to that of population. Price is determined by the demand at those centres where consumption most exceeds production. The price to a given producer is therefore scaled down in proportion to the cost of bringing his product to this centre of demand. It matters not that so far as personal needs are concerned the product may be worth as much in the one place as in the other. The price is determined by what the surplus over and above home consumption will bring. In so far as it

costs the distant producer more to freight his product to market than it does the nearby producer in just so far is location a bar to the one and a protection to the other. This difference, it should be noted, is never proportionate to the distance.

The long haul always costs proportionately less than the short haul, for reasons which apply to the farmer in hauling his product to the station as well as to the railroad in hauling it from the station to the market. The heaviest items of expense to the railroad are not in paying the engineer, the conductor and the brakemen, and furnishing the coal needed to carry the farmer's load to market, but in supplying the road, the engine and the cars, in keeping them in order and in paying the interest on the money invested. The farmer must be allowed time to load his product and the merchant must be allowed time to unload it. When the car is started the additional cost of running it another hundred miles is very little compared to the cost of the first hundred. Further than this, there may be good reasons of business policy, which we need not stop to determine, but which make it advisable for the railroad to give the long shipper an advantage.

The average difference in the farm price of corn in Nebraska and New York on December 1st for ten years previous to and including 1902

was 22.8 cents. While this may not be the exact cost of shipping a bushel of corn from one state to the other it represents the practical result of this cost. It means that the Nebraska grower must be able to produce corn that much cheaper in order to compete with the New York grower. Thus far he has been able to do it by mining out the fertility stored in the soil during long periods of growth and decay of vegetable matter. When that process begins to fail, as it surely will, and indeed is already doing, he must seek other advantages, or depend upon the chance that his eastern competitor may find other lines still more profitable than corn growing and so leave the field in part free to him. So long as the cost of transportation remains unchanged the New York grower can rest assured of approximately that difference in price and the Nebraska grower must accept the handicap. If each decides to transform his corn into beef or pork before shipping, the problem becomes a different one.

Transportation is an important factor in determining the type of farming to be followed, or in determining the choice of a location if the kind of farming has already been decided. If distant markets must be depended upon, products must be chosen upon which the cost of transportation is not excessive and which will bear transportation well and reach the market in good condition.

Wheat and small fruits are good examples of products well and ill adapted to reaching distant markets. It should be said however that modern methods have made great strides in doing away with these difficulties in marketing, wherever the product of an individual or a community is sufficiently large to warrant special effort in caring for it.

Where public transportation must be depended upon there is great advantage in choosing a location which gives access to competing lines. This is particularly true if there is competition between rail and water service. Water service has distinct advantages in the matter of injury in transit for some perishable products. The trolley freight should offer the best means of transportation in many cases.

More important than all else in the matter of public transportation is the size of the shipments, secured by large production or by coöperative marketing and shipment. With carload shipments and a business which is worth the consideration of the transportation companies, refrigerator service, concessions in freight rates or other privileges may be had which are entirely out of the question with the small shipper. This is well illustrated by the coöperative fruit shipping associations of the far West. For this reason there is a decided advantage in locating where others are engaged in the same line

of business or in inducing others to adopt the line which one is following. Not only does this secure advantages in transportation but likewise attracts the attention of buyers so that oftentimes it may be possible to sell the product on track, thereby avoiding the uncertainties of shipment and commission.

The greatest deficiency in American methods of transportation, a deficiency which bears with particular force upon the farmer, is the lack of a parcels post which will enable him to send or receive small parcels at reasonable cost. Should he wish to furnish to a customer in the city a ten pound package of butter the least possible charge for the service in twenty-five cents. Two and one-half cents per pound standing between him and his customer is very likely prohibitive. Were he so fortunate as to live in a free country like Germany, instead of one governed by monopoly, like the United States, he could take his package to the post office and send it anywhere within a distance of forty-six English miles for six cents, or a greater distance for twelve cents. Should he chance to live in Switzerland he could send his ten-pound package (not exceeding eleven pounds in gross weight, as in Germany) anywhere within the republic for eight cents. This price in Switzerland also includes an indemnity of \$3 in case there should be a delay of over twenty-four hours beyond the proper time of delivery

and a further insurance against loss or damage. A like advantage exists in ordering small supplies from the city. Rather strangely the postal service in those countries is conducted in a way to benefit the people rather than to benefit the express companies. Ex-Postmaster-General Wanamaker has well said that the only reasons why we should not have a similar service in the United States are the great express companies. If the American farmer feels that those reasons are adequate to overbalance the advantages to himself and other members of the community he should take care to see that they prevail; if he feels that they are not he should make his voice and his vote felt with a force and a meaning which shall not be misunderstood.

The question of private transportation in reaching the market or the shipping point is one of no less importance than the one of public transportation. Assuming hay to be worth \$15 per ton, wheat seventy-five cents per bushel, pork five cents per pound and butter twenty cents per pound, a ton of hay is worth \$15, a ton of wheat \$25, a ton of pork \$100 and a ton of butter \$400. If it costs a farmer, fifteen miles from market, \$2.50 per ton to haul his products that distance this amount from each of the above sums must be chargeable to marketing. In the case of hay the amount is $16\frac{2}{3}$ per cent. of the selling price, with wheat it is 10 per cent, pork $2\frac{1}{2}$ per cent. and

butter $\frac{5}{8}$ of one per cent. It will be readily seen, therefore, that the farmer so located is at a decided disadvantage in competing with one a mile from market in the growing of hay, or even wheat, but that the disadvantage is largely removed when it comes to pork and butter, assuming that it is possible to market a large amount of the latter at once. Under present conditions this is seldom done from the farms, though it used to be the common custom, and by means of cold storage is still possible. The cost is not in direct proportion to the distance, to be sure, for loading and unloading are the same in either case. Granting that a team and driver capable of handling a ton and a half on ordinary roads can average two and one-half miles per hour, that the team must travel one way unloaded, and that the cost is thirty cents per hour, the cost of the hauling itself will be sixteen cents per ton for each mile, an important item for consideration in the marketing of products which have a low value per ton.

Certain products, particularly berries, are injured by long distances over rough country roads. This too should be considered in determining upon the type of farming to be followed or the location to be chosen.

In wagon transportation, as in railway transportation, the quantity of product is an important consideration. Many a man doing a small

business spends nearly the value of his product in the time consumed in getting it to market. If our farmer located fifteen miles from market makes a trip costing \$2.50 in time to deliver fifty pounds of butter at twenty cents per pound, 25 per cent. of what he receives has been consumed in the marketing. If he delivers 200 pounds instead, the cost of marketing has been $6\frac{1}{4}$ per cent., while if he can make it possible to deliver a ton at once the cost is but $\frac{5}{8}$ of one per cent., as before noted. If the small fruit grower five miles from market makes a trip costing fifty cents in time to deliver a single crate of berries for which he receives \$3 he has consumed $16\frac{2}{3}$ per cent. of the value in delivering it. If he delivers five crates the cost has been but $3\frac{1}{3}$ per cent.

The reader may say that it does not cost him this amount. He goes himself, so there is no labour charge and he drives his own team for which he has nothing to pay. He receives the full amount of his sales and there is nothing to deduct for marketing. It were perhaps fortunate for him if there were. He is misled by this very fact. The cost is obscured and he therefore does not perceive it. But let him analyse the matter carefully and he will surely find it. A fair value for his own time, if he is such a farmer as he should be, plus the items of feed, depreciation and maintenance on team, harness and wagon, will aggregate a sum much

larger than he may think. His own time is most important; it should be made to count for the most possible. His mere presence and oversight where work is going on may often amount to more than the labour of any two other men. One of the chief disadvantages of growing a large number of miscellaneous crops lies in this fact of increased cost of marketing.

The condition of the roads and the size of the load are other very important factors in the cost of marketing many products. One phase of the problem is well illustrated in the following table based upon figures of draft taken from the Experiment Station Handbook. Assuming that an ordinary team will draw a load of 3,000 pounds on good earth roads on which the grade does not exceed three feet rise in one hundred, the same force will handle loads of the amounts indicated under the different conditions.

Size of load equivalent to 3,000 pounds and wagon on earth road with three feet grade in one hundred.

	GRADE			
	3 Feet Rise in 100		9 Feet Rise in 100	
	Load and Wagon	Net Weight of Load	Load and Wagon	Net Weight of Load
Earth road	4000	3000	2600	1600
Macadam road. . .	8000	7000	3900	2900

Let the reader make his own comparison as to the cost of marketing a heavy product like

potatoes under the two conditions of a hilly earth road and a macadam road of easy even grade. Suffice it to say that under the conditions illustrated above the same load means 26 $\frac{2}{3}$ bushels in the one case and 116 $\frac{2}{3}$ in the other. Much steeper grades than nine feet in 100 are often found. The above figures assume both to be in good condition. The influence of mud and ruts is no less important than that of grade, though less easily determined.

Although a team may put forth extra exertion in climbing a hill, the size of load is limited, in the main, by the steepest or poorest spot in the road to be travelled, not by the condition of the greater portion of it. If a single steep hill or swampy strip occurs in the ten miles of road between the farmer and the market each load during his lifetime must be reduced, perhaps one-half, by reason of that one place. Yet it may be that a comparatively small outlay would change the location of the road to avoid the hill in the one case or drain it to avoid the swamp in the other. No better argument for good roads need be advanced than a careful study of the cost of marketing farm products. In choosing a farm the condition of the roads should be carefully considered.

Another important factor is to be considered with reference to the size of load to be handled. The farmer as an individual cannot determine

what the nature of the roads shall be and he may not care to change his location for the purpose of securing better ones, but he can control the character of the outfit with which he handles his loads. The above table considers simply what load a given force will draw under different conditions. Grant, as before, that an ordinary team of two horses will handle without difficulty a load of 3,000 pounds on a wagon weighing 1,000 pounds under the prevailing conditions. Supposing the distance to be such that it takes a whole day to market a load of produce, and allowing \$1.50 per day for the man and \$1.50 for the team, the cost of marketing the load is \$3, or \$2 per ton. Now let the farmer provide a third horse able to do the same amount as the others. The comparative cost will then be as follows.

	Load and Wagon	Net Weight of Load	Cost per Load	Cost per Ton
Two horses	4000	3000	\$3.00	\$2.00
Three horses	6000	5000	3.75	1.50

It should be observed that while the third horse entails no additional cost for driver it makes a much more than corresponding increase of load possible. Each horse draws 2,000 pounds, but in the first case 500 pounds of this is represented by the wagon, while the addition of the third horse is equivalent to providing for 2,000

pounds more of load alone. With bulky products the question of wagon capacity may be the determining factor but the outcome may be equally important.

Another point which enters into the problem of transportation in many cases is that of the comparative cost of marketing by team or by rail. An extensive farmer whom I know markets nearly all his produce, including milk, potatoes and vegetables, in a city fifteen miles away. Three miles from the farm is a wharf from which a steamer plies to another city but none to the city where the marketing is done. When asked if he would use it if there were one running to this city he said no, that when the products were once loaded and carried that far it was cheaper to take them the remainder of the way and deliver them wherever wanted than to unload them at the wharf, pay freight, and provide for cartage at the other end.

The problem is one which admits of easy solution for a given case. If the actual cost of hauling is determined in the manner before suggested and reduced to the lowest limit by providing for large loads, this can be readily compared with the cost of delivering to the railway station plus freight charges and extra cartage, if any, at the other end. With three horses and a load of two and one-half tons the cost per mile aside from loading and unloading, may not exceed

twelve cents per ton, as against sixteen cents with two horses handling one and one-half tons. Much depends upon the speed at which the team moves. This again can often be further reduced by developing some side line which will provide for a load in the opposite direction. The farmer above mentioned makes a business of bringing back grain, and sometimes coal, which he sells to his neighbours at a price which affords good pay for the hauling. If he carts hay or other products to the city for others he expects to get about four dollars per ton, but for carting grain back he gets two and one-half to three dollars per ton. In this problem distance is the all-important factor up to the point where transportation by team begins to equal that by rail. Beyond that point it matters less, for cost of freight varies but little whether the distance be ten, twenty-five, or one hundred miles.

WHOLESALE VS. RETAIL MARKET

The choice between a wholesale and a retail trade is one which it is often hard to make. Retail trade has the advantage of better price, and sometimes the advance seems to be much more than the conditions warrant. The higher price lends a peculiar fascination to this phase of the business and the farmer who is selling at

wholesale is always tempted to try to secure the prices prevailing at retail. In general he must decide which he will choose, for the two do not work well together. The man who makes a business of selling at retail is at a decided disadvantage in the market if he comes to it with a surplus which he has been unable to dispose of to his retail trade. Even if he ships his surplus to another market than that in which he retails, he is but an occasional shipper, sending an irregular amount, and therefore receives less attention than the regular shipper.

Against the higher price obtainable at retail must be placed several disadvantages, first of which is the increased cost of marketing. If a man spends half a day with his team at a cost of \$1.50 in selling \$10 worth of produce he might have allowed the grocer to make nearly 18% on his purchase price and still be as well off himself. Furthermore, there is likely to be a much larger percentage of waste in a retail business. There will be irregularities of trade; one can never provide exactly for the wants of his customers. If he has too much there is waste, if too little someone is dissatisfied and may seek another source of supply. One family which uses a regular supply may have suddenly left town. Some customers may want string beans when he has only peas; others have a complaint to enter regarding what he has to

offer or what they bought before. There are many petty annoyances from which a wholesale trade is free. More important still, there is likely to be a demand for credit, either as a regular condition of trade, or on one pretext or another. This means additional trouble in keeping accounts and some percentage of inevitable loss.

Retail sales offer an advantage in working up a special trade which caters to customers able and willing to pay a fancy price for a fancy article. It is easier to make a name for one's products in dealing directly with the customer, but this can also be done through the regular channels of trade. As against this advantage of a special trade it should be remembered that it costs money to advertise and secure such a trade. This advertising may be equally costly if it takes the form of personal solicitation and exhibition or presentation of samples rather than printed matter in circulars or newspaper columns. It is further important that such a trade be managed by a good salesman, which not all farmers are. To be a successful salesman demands many things; very few men can fulfil all the requirements.

The most important difference between the two systems is that of influence upon the size of the business. A retail business is almost from necessity self-limiting. If the farmer depends

upon his own efforts and a single team to do the marketing his business can never become large. The only way to expand is to put on more teams in charge of different persons, when his business assumes in some degree the nature of a wholesale trade. If a large business is desired it will be found much easier to develop it along wholesale lines. A careful analysis of the problem under existing conditions will very often show that the time and expense bestowed upon the marketing in a retail business will yield larger returns if devoted to an increase in the amount of the business with a wholesale trade. Larger production generally means cheaper production. Larger production, cheaper production, less expense in marketing, with lower prices, may mean more profit than smaller and more expensive production with higher prices. One fact in connection with this problem is significant. It is a common occurrence to see men changing from a retail to a wholesale business as their experience and business develop. They are seldom seen changing from a wholesale to a retail business. As an instance of this I call to mind the case of a bright young farmer who had developed a good family trade for fine butter but who states that he has let that trade drift away without regret, finding it much more satisfactory to let the grocer stand between him and the customer.

GENERAL VS. A SPECIAL MARKET

Another problem of importance in connection with marketing is that of determining whether to cater to the general market or to a special market—in other words whether to produce as much as possible of ordinary grades, or to strive for a superior product in the hope of securing a higher price. The question is one not easily answered, and the answer may differ much with the problem in hand. Poor products seldom pay; this much may be accepted without debate. It further holds true that in general, the better the product the better the price. Within certain limits it also holds true that the better the product the greater the profit. Beyond these limits it does not hold true and the limits may be reached much sooner under some conditions than others. A market made up largely of wealthy people, with whom quality and appearance are paramount and price secondary, will pay well for extra care to produce a fancy product. A manufacturing town, made up of labouring people, with whom price is all important, will not return the extra outlay. It should not be forgotten that fancy products cost more than ordinary ones. No man, no matter how great his skill, can make every fruit grow perfect. A larger percentage must be thrown out to make it grade high. A case in point is that of a

producer of fancy milk who found that the price of ten cents per quart which he was getting did not pay expenses; he was therefore obliged to raise the price to twelve cents, a move which not every producer can make.

When circumstances permit, it may be found better to place the fancy article in one market and the ordinary one in another. The ordinary product may bring more in an ordinary market than in the fancy market, and even more in proportion than the fancy one does in the fancy market. An illustration known to the author is that of a farmer living within reach of both Fall River and Newport. While depending upon Fall River as his principal market he sometimes finds it advantageous to place a superior article in Newport. If we remonstrate with the Western apple grower for planting Ben Davis apple trees he answers with the cold logic that this apple yields him more money than would any apple of higher quality which he might grow. He is perfectly right in this, for the reason that most people are content with an apple; they do not insist that it shall be a good apple. The Western grower caters to the great general markets of the country. A New England grower, with a select family trade to supply, would be very unwise to grow Ben Davis.

Every writer considers it proper to advise the

farmer to grow a better product and put it upon the market in better shape. He may well heed this advice in so far that he shall always try to produce a product fully up to the average grade to which the market is accustomed. Whether he shall heed it beyond this point he should determine for himself, by a careful study of all the points which the problem involves. As a consumer of moderate means I do not insist that every peach in the basket shall be of maximum size and colour. I am more concerned that the basket shall be offered at a price which I can afford. I will be content with the proportion of the finest specimens which the tree produced if the rest are only good. My neighbour across the bay may want all selected fruits and be willing to pay the price. The farmer will do well to learn which basket to offer to each. He can learn by studying the men and the markets, not by asking advice of the Professor.

HOME VS. A DISTANT MARKET

The question of home markets as compared with markets at a distance is closely involved with those preceding. The common advice to first look well to the home market is particularly good for a retail trade. It often happens that even in a farming community there may be found ready sale for special products like fruit



43. A STEEP HILL ON THE TOP OF WHICH SEVERAL FINE FARMS ARE LOCATED
It is a mile and a quarter long, with a grade of 3 inches per foot in the steepest place, 20 feet rise in 100 being frequent



44. MARKETING AT RETAIL
Peas, potatoes, lettuce, rhubarb, eggs, etc.

or honey. Freight, commission and injury or loss in transportation are heavy items of expense in dealing with a distant market. If the home market will care for the output it is more than likely to be the best market available. Yet there are plenty of exceptions to the rule. If the farm is located where retail prices are low it may pay well to put the better products, at least, into a market which will pay higher prices. With a product like peaches, which admit of careful selection and grading, the general market may be at home, the special market at a distance, or vice versa. It is well to learn as much as possible of general market conditions in other localities. It may often be possible to place products which stand shipment well in a distant market with advantage.

In selling at retail in the home market the question arises whether it is better for the farmer himself to do the selling or delegate it to another. It is not so much a question of whether he can do the marketing as well or better than some one else as it is a question of whether his time is better spent there than on the farm. Among the large market gardeners about Boston it is the common custom for the farmer himself to remain on the farm, to superintend that end of the business, and to employ some one else to sell the produce when it reaches the city. These gardeners are good business men and their solution

of the problem is likely to be a good one. On one large farm I know, managed by a father and four sons, two of the sons remained in the city to attend to the marketing, while the father and the two other sons remained on the farm to push things there. In this case a retail milk route forms one of the lines. One of these men when asked about this problem gave it as his opinion that selling at retail can best be done by a boy, preferably the farmer's own son, if he has one, otherwise by a boy hired for the purpose. He believes that people generally prefer to trade with a boy and that they are less exacting with him than with a man.

DIRECT SALE VS. COMMISSION

Another important marketing problem with a wholesale trade is that of whether to attempt direct sales or to sell on commission. The first point to be recognised in this connection is that the commission man knows the markets better. He is not to be deceived by the customer as to the value of products. He may, therefore, get a better price for the same article than the shipper would be able to get himself unless the latter is constantly in the market. The commission man also knows his customers better. He is less likely to be caught with bad accounts, being responsible himself for the amount for

which the goods sell. On the other hand, he may be more interested in some other man's products. He is receiving things from a large number of people and must sell them all. He must take care of his regular customers first, unless, perchance, he may hope to win a good customer by special attention to a small shipment. All in all we must depend much upon his sense of honour and his reputation for fair dealing. If he is honest and energetic he will be able to sell our products at less cost than we can do it ourselves and make the transaction profitable both to us and to him. He may even be able to work up a special trade for us better than we could do it ourselves. If he does this and treats us fairly we should be careful not to cut off our shipments and give them to some other firm or city. He may not then care to build up another special trade if we wish to come back.

If production is large and it is possible to put the right man in the market and keep him there, so that he may become as familiar with the market as is the commission man himself, it may be more profitable for the producer to do his own selling. Particularly is this true if the market is near enough to be reached directly by team from the farm. The amount of business to be done is the all important factor. With small and irregular shipments from distant points

it is safer to let the commission man handle them.

Direct sales may possess an advantage in working off the lower grade products. Commission houses like to handle a uniform grade, so far as possible, and may not care to bother with that part of the product which falls into lower grades. With direct sales it is often possible to find customers who are willing to handle these at prices corresponding to their quality. I was recently impressed with this fact in seeing early potatoes dug for market. All the small ones went into boxes by themselves to go to the bakers. I was further surprised to learn that the price received reached well up toward that obtained for the larger size, being at that time eighty-five to ninety cents per bushel. The grower said that a commission firm would not want to bother with them.

DIVISION OF SHIPMENTS

Division of shipments to the same market is generally condemned, on the ground that it places one in competition with his own goods. It is better to select one commission firm and stand by that firm. Yet there may be exceptions even to this rule. Not only do different cities differ in their market demands, but likewise different localities in the same city and different

firms in the same locality. A study of the market may reveal the fact that one firm may handle the fancy grades with success but give little attention to poorer products. Another may have a trade which will consume ordinary grades at a fair price but will not pay proportionately for fancy products. In such a case division of shipments for products which naturally separate into different grades is as clearly indicated for different firms of the same city as for different cities under similar conditions.

A CITY SALESMAN

Many of the market gardeners about Boston employ a city salesman, a man who is paid a good salary and whose business it is to look out for the market end of the problem, to see that things go and that the money for them is forthcoming. As before suggested, where the production is large, and especially where the market can be quickly reached by team this method of selling has manifest advantages. The salesman keeps in close touch with the farm by wire and the products sent are varied as the condition of the market may indicate. Probably in no other way can a large wholesale business be made to return so much for the amount of products sold.

A CITY STORE

A fascinating idea in this connection is that of running a city store in which to market the products of the farm. It seems that one should be able to fit up an attractive store where it would be easy to work up a special trade for high-class products direct from the farm. The plan is in vogue but little and has several serious objections. To warrant the expense of maintaining such a store and attract an adequate trade it would be necessary to carry a large variety of products. If these were all produced on the farm it would entail the extreme disadvantages of mixed farming in the matter of production. One store cannot handle enough of most products to permit of economical production. The man who grows cabbages, potatoes, or strawberries extensively will readily supply a number of stores with all they can handle. To hold custom in such a store it would be necessary to maintain a complete assortment of the various products which are handled. This would necessitate more or less purchase of products, for production cannot be accurately adjusted to the demands of the market. When products come to be purchased there is less certainty of quality and the business begins to lose its character of furnishing products from a particular farm, which is its chief argument for existing and

seeking trade. It really develops into an attempt to manage two lines of business at the same time, and few men can do that with success. Conditions may exist where the undertaking would be warranted, but the problem should be carefully studied before such a venture is made. These objections do not apply with the same force to the rent of a stall in a public market where it is the custom for farmers to bring their products for sale.

A MAIL ORDER BUSINESS

For a farmer distant from market who wishes to develop a retail trade or even a grocery trade there would seem to be possibilities in a mail order business. Here and there a man has done this by letting his goods themselves find additional purchasers. By choosing a few things which will bear shipment well, and upon which the cost of transportation is not too great in proportion to their value, such a line of marketing might offer good inducements. The plan would demand judicious advertising, preferably in the form of neatly printed circulars, and thorough business methods of correspondence. Many people would be glad to purchase products directly from the farm if they knew where to do so. By getting names in various ways and using circulars judiciously it should be possible

to work up such a trade without great expense. It would not be free from the disadvantages of a retail trade of other sorts but would be possible in many cases where a direct trade would not be. For many products it is far less feasible than it should be owing to the want of a parcels post system.

COÖPERATIVE MARKETING

Coöperation has added greatly to the success of modern marketing. By this means it is possible for the small shipper to secure the advantage in rates, car service and marketing facilities which otherwise are only available to the large shipper. The coöperative fruit-shipping associations of the West, the co-operative creameries throughout the Eastern states and other organisations of similiar nature have proved the wisdom of this method of attacking the marketing problem for certain conditions. Time is likely to witness a great extension of the system. The method is particularly feasible where distant markets must be reached and is only practicable where numbers of men are engaged in the same line of production.

VARIETIES, PACKING AND GRADING

Much might be written upon grading and packing products for market, but a day in the

market itself will be worth more than a whole book upon the subject. Different markets are accustomed to different packages, different sizes and different methods. The farmer must familiarise himself with the one in which he expects to compete. This much can be said, that for the general market it is always best to put things up in the manner to which the market is accustomed. It is not a question of which is the best package, perhaps not even of what is strictly an honest package, in some cases. It is a question of what kind of package the buyers in that market are accustomed to expect. For the general trade that is the package to use. The man who seeks a special trade and has the ability to push it may find a special package admissible, or even advisable, but the general producer will not.

What has been said in regard to packages applies with equal force to varieties. For a wholesale market, and nearly always for a retail one, it is far better to grow well-known varieties. It matters little that another variety may be better, it will not go like the one which people are accustomed to buy. This is a lesson which each man has to learn for himself, but it is one which must be learned. This does not apply to varieties so similar that they may pass under the name of the old, a common practice in all large markets.

A word may be said as to grading. It is easy

to lose money by not properly grading the products to be sold. It takes but a small proportion of poor specimens in a package to materially reduce the selling price. When well-sorted apples are selling at \$2 per barrel it would take very few culls in each barrel to reduce the price to \$1.50 per barrel. The problem might work out something as follows: Ten barrels, unsorted, would bring \$15. If by sorting these would make eight barrels of standard grade worth \$2 per barrel and two barrels of culls worth \$1 per barrel the value would be increased to \$18. The differences will often be much greater than this. The problem is so variable that it is not easy to illustrate, but it is one which demands careful study by every one who has products to market.

CHAPTER X

ADVERTISING

BUSINESS men long ago learned that advertising pays if done in the right way and through the right channels. Farmers have scarcely come to realise that their business needs advertising; yet if judiciously done it may prove of as much advantage in farming operations as in commercial lines. A number of different methods may be employed with advantage, among which may be mentioned the following:

1. *The Appearance of the Farm and the Crops.*—People are constantly passing and seldom pass a place without forming some impression of the farmer who lives upon it. If the farm has a good word for the owner the impression will stay with the passer-by. No one can fail to carry away a better impression from a farm on which the buildings are kept in repair, the surroundings neat and the crops show good husbandry. When such a man has products to sell the farm itself will help to dispose of them wherever it is known to the purchaser.

2. *The Appearance of the Farmer and his Team.*—Farmers are too apt to take pride in

appearing slovenly, rather than in appearing well-dressed and businesslike; yet all that has been said with reference to the farm applies with equal or greater force to the farmer himself. A man who carries with him a businesslike air and appearance possesses a manifest advantage over his careless neighbour. He may not be able to measure this advantage in dollars and cents for he may never know just where and how it brings dollars and cents, but that it will bring them there can be no doubt, provided he endeavours to make his business what it is possible to make it. Like many other essential things this alone cannot insure success, but it may greatly contribute to success in combination with other things.

3. *The Farm Name*.—This in itself may not be an important factor. The name of the farmer will carry greater weight than the name of the farm, but the two together will carry more than either. A well-chosen, attractive name will help to intensify the favourable impression made by the appearance of a well-ordered farm itself. If this name is used constantly in business transactions it will come to serve as a trade-mark which will help to sell goods.

4. *Letterheads*.—Business men no longer carry on correspondence on plain paper. They make every letter carry an advertisement. The cost of printing a neat and attractive letterhead is only a trifle. If you have never inquired, go to

the local printer and he will surprise you at the small figure named for doing such a job. Give careful attention to what shall go on this head and to the type which is used. Do not attempt to put on too much nor to use too fancy figures or characters. A neat, tasty make-up is much to be preferred. It can be printed in coloured ink if you wish.

5. *Printed Envelopes.*—The letter carries an advertisement only to the person to whom it is written. The envelope may carry one through many hands. Therefore, by all means, use printed envelopes. These need cost nothing extra except the payment of some postage in advance. The post office department will print the name of the farm and post office address on the upper corner of stamped envelopes, without extra cost, whenever five hundred are ordered at once. These may be obtained either with one-cent or two-cent stamps, the former requiring less outlay at once, as a one-cent stamp can be added whenever letter postage is required and the envelopes be used if circulars or other matter requiring but one-cent postage are at any time to be sent out.

6. *Shipping Cards.*—The shipping card will do in business shipments what the envelope does in business correspondence, carry the farm advertisement wherever it goes. Its appearance on any commodity in itself tends to give character

to the article. Many uses for the cards will appear which will far more than repay the cost.

7. *The Farm Bulletin Board*.—The bulletin board is a method of advertising now coming into use. It offers an excellent means of telling the passers-by that you have certain products for sale or are in want of others. It alone may be the means of making many a sale or saving much time in seeking some article wanted. It should be neat and not too conspicuous, yet where all passing may see it. It is simply a blackboard upon which may be written whatever should appear at the time.

8. *Fair Exhibits*.—Exhibiting at neighbouring fairs offers another way of adding to the prestige of the business. The man who, year after year, shows a given line of products comes to be recognised as a producer of that product, whether it be cattle, swine, poultry or some farm product. People know that to him they should go for this particular article when they need it. If his products are good they rightly expect to obtain a good article from him and as rightly expect to pay a good price for it. This phase of advertising will emphasise the importance of holding to one line of effort. The man who exhibits Jersey cattle this year, Shorthorns next year and Ayrshires another year loses the prestige which a man who exhibits either one continuously is sure to gain.

9. *Printed Circulars.*—The man who develops fixed and definite lines of farming can afford to advertise those lines in other ways than those mentioned. One of the least expensive methods is to put before prospective customers a plain businesslike statement of the products offered for sale and the prices asked. The cost of a single page circular in sufficient quantities for the purpose is slight and a one-cent envelope will carry it anywhere. With this phase of advertising it is only a question of getting the names of the people whom it is desired to reach. If that can be done, no better nor cheaper method can be found. A farmer who makes a specialty of fine dairy butter could easily place such a circular in the hands of people who might want it. It need not be dated and should be as applicable at one time of the year as another. If it is desired to quote prices, blanks may be left for the date and price which it is allowable to add in writing and still send the circular with one-cent postage.

10. *Newspaper or Magazine Advertising.*—Last in the category of possible advertising I mention the columns of the agricultural and other papers. It is placed last because it is the most expensive method, and if the other plans suggested are well followed up this one may seldom be necessary. Yet those who have learned how to advertise in this way generally report a good profit from so

doing. The chief advantage of the method is that it reaches unknown customers and places the statement before many readers at once. Having used the advertising column to catch the buyer, the printed circular should follow to enforce and explain what is there said. Words in the advertising column are expensive but cost little in the circular. The other methods entail but little expense; this one requires more care and judgment in its use, but may be so handled as to well repay the outlay involved.



45. MARKETING AT WHOLESALE
A load of lettuce



46. AN APPLE TREE IN FRUIT
What shall be the inventory value?

CHAPTER XI

RECORDS AND ACCOUNTS—BUSINESS ACCOUNTS

IS IT worth while for the farmer to keep business accounts? By his failure to do so he generally answers in the negative. His work is often heavy and tiresome and its character does not contribute to facility with the pen. He dreads writing and frequently thinks it not worth the while. Yet there are reasons why business accounts are important, and why it is worth while for the farmer, like other men, to keep them.

REASONS FOR KEEPING ACCOUNTS

1. To avoid disputes, misunderstandings and loss. Mistakes will occur and men will forget. A clear-cut record of the transaction is the shortest, surest and simplest method of correcting those mistakes and supplying the deficiencies of memory. A well-kept set of business accounts would have saved bitter loss to many a farmer of our land.

2. To enable the farmer to know his business. Business men in other lines realise the importance of this. Why should it be less important to

the business farmer? In such a complex undertaking as farming some lines must pay better than others. The successful farmer is the one who studies his business and finds out these things. Much of this information may best be obtained by separate farm records, which are wholly distinct from the business accounts, but which form part of the general system.

3. For the satisfaction and value of having an available record and history of the business. Not only is there satisfaction in being able to examine receipts and expenditures of past years, but there may be profit as well. Carefully studied, such records may prove reliable guides in planning future undertakings or enlargements.

SYSTEMS OF ACCOUNTS

Bookkeeping permits of endless modifications. To be fully satisfactory there are five requisites which any system should supply.

1. It should be simple.
2. It should show the amount of gain or loss in the business.
3. It should show where the gain or loss occurs.
4. It should furnish a record of transactions.
5. It should guard against mistakes.

The reasons for these requisites are evident. The system must be simple because the farmer has neither time nor inclination for elaborate

methods. He should be able to complete his daily records with the minimum of effort, in a way which will at the same time make them of most value and most easily summarised for future use. The records should show the gain or loss at the end of the year, for one of the primary objects of bookkeeping is to enable the owner to know what his business is doing. That he should know in what part of the business the gains or losses occur is essential because it is the only way in which it is possible for him to correct errors and improve returns. The importance of a record of transactions has already been mentioned.

The first and last of these essentials are to some extent antagonistic. It is impossible to take many precautions against mistakes and at the same time preserve the greatest simplicity. A system is here outlined which will answer the first four of these requisites. An endeavour will then be made to point out ways of securing the fifth.

A SINGLE ENTRY SYSTEM

The greatest simplicity may be had with a single entry system. Single entry merely means that when we sell a load of hay to John Smith for \$10 we charge to his account on our books this amount if he does not pay for it at the time, or enter the amount received in our cash book

if he does pay for it. With double entry we should also, in either case credit some account with the amount. This might be a separate account with hay or it might be a general account for farm crops, depending upon how much we had decided to separate different lines of work in our bookkeeping. In other words, double entry bookkeeping requires an equal credit for every debit and vice versa.

THE INVENTORY

An inventory of all property on hand, taken every year, is of the greatest importance, though often overlooked. Without this, requirement No. 2 cannot be met. It is upon the inventory that the answer to this question depends. The receipts and expenditures of the year afford little evidence of the profit or loss of the year's business; they may often be altogether misleading. By reason of the purchase of implements or other improved equipment the difference between the receipts and expenditures of the year may be little with a substantial gain to the credit of the farm. Likewise a reduction in the amount of live stock or produce on hand may show a good balance in the cash account with no real profit from the farm.

Matters will be simplified if the farm inventory is made to include all property, of whatever description, which the farmer may possess.



47. WHERE APPRECIATION TAKES THE PLACE OF DEPRECIATION
Growing animals



48. STUDENTS CONSIDERING THE DEPRECIATION ON A SILAGE CUTTER EXPOSED TO THE WEATHER

This will embrace money, personal accounts and other assets which may not commonly appear in an inventory proper. Under this plan the following classes of property will be included.

ASSETS

1. Real estate
 - (a) Land
 - (b) Improvements
 - Wells, water facilities, (windmills)
 - Drains
 - Roads (?)
 - Fences (?)
 - Orchards (?)
 - Growing crops (?)
 - Humus and fertility (?)
 - (c) Buildings
 - Dwelling (?)
 - Tenant houses
 - Barns
 - Other farm buildings
 - Silos or other building equipment
2. Live stock
 - (a) Other than teams
 - (b) Teams
3. Implements
4. Farm Products
5. Notes, shares of stock, etc.
6. Personal accounts
7. Money in bank
8. Cash on hand

LIABILITIES

1. Mortgages
2. Notes
3. Store-bills and personal accounts

Some of these items call for comment. Reasons will appear later why a better record of the business situation can be obtained by keeping the inventory of the land itself separate from that of the buildings and other improvements. In considering these improvements the point is quickly reached where it becomes a question what to consider as investment and what to look upon as an operating expense. Farm roads are seldom of sufficient importance to be considered as an asset increasing the value of the farm, yet they may in some instances materially add to the effectiveness of the business by expediting and cheapening many of the farm operations. If conditions have warranted a heavy outlay for this purpose it is unfair to charge that outlay to the business of any single year.

Fencing is properly a farm expense, and under average running conditions may as well be so considered at once. Yet in taking hold of a run down farm where a heavy outlay for fencing may be needed all at once a portion of the cost may well appear in the inventory, to be charged off gradually, thereby giving a more just account of the operations of each year.

Orchards afford a puzzling problem. There can be no questioning the fact that a well-grown apple orchard adds materially to the value of a farm. The same applies to a peach orchard in much less degree, for the peach tree is

short-lived and uncertain. Carrying the consideration down through the line of bush fruits, strawberries, etc., to a growing crop like a field of grass or winter rye, it is hard to draw the line where assets shall leave off and mere expense begin. Then, too, it is difficult to know what value to place upon a young, growing orchard. Probably the wisest plan is to add the yearly cost of care to the original cost of trees and planting. It is doubtless safer to take the conservative ground of treating all growing crops as an expense. It may be preferred to carry this even to the orchard, aiming to utilise the land as it grows in such a way as to pay the expense of care and management. This is surely better than an over-valuation, though not entirely fair to the farm, for a good orchard will add materially to its income-producing power and hence to its value.

To place a value upon increased fertility and productiveness of soil is likewise a very difficult thing to do. A farmer may easily deceive himself by over-estimating this factor. Yet while seemingly too intangible to find a place in the inventory it is one of the most important factors in the income-producing power of the farm. With two farms of similar contour and equipment, one may be worth double the other as a business investment, owing to difference in fertility of the land, and this difference may exist on land

originally the same in character. The fertility factor is one which is more likely to be underestimated than overestimated in the consideration of land values, and especially in business transactions.

The farm dwelling offers a somewhat peculiar problem, since as noted in the discussion of capital, except in so far as portions of it may be used for some farm operation like dairy work, it is not a part of the farm business. Conditions bring the farmer's home and his business together under one investment. With other business men this is seldom true. The merchant or manufacturer does not think of including his home in his business inventory and asking the business to bear the interest and depreciation upon it. The maintenance of his home is a personal expense, which may be heavy or light as he chooses, and which has nothing whatever to do with the conduct of his business. The same holds true of the farmer's dwelling. If, therefore, the farmer is keeping a set of farm accounts, only, which do not include personal accounts, the dwelling itself should not appear in the inventory, neither should expenses connected therewith appear among the farm expenses. Whether he lives in a house worth one thousand dollars or one worth ten thousand dollars need have nothing to do with the outcome of the farm business itself but will materially

affect the showing if the expense of maintenance be charged to the farm improperly.

Few farmers will care to keep two sets of books, one for personal accounts and one for farm accounts; yet both are important. Most men will prefer to separate personal expenses from farm expenses in the same set of books. It may, therefore, be desirable to include the dwelling in the inventory as well as all other forms of property which the owner possesses, even though they may have no connection with the farm business. If repairs and other expenses connected with the dwelling are charged to the farm an allowance for rental is likewise due if a proper showing is to be made. What has been said regarding the farm dwelling does not apply to tenant houses provided for farm labourers, for they form a part of the regular farm equipment directly used in the conduct of the business.

The chief reason for a distinction between teams and other forms of live stock is that in a general estimate of the business outcome the latter, such as cattle, swine and poultry, may be expected to make good the decrease in value of older animals by the addition and increase in value of young and growing ones. With teams this is seldom true. In estimating probable expenses of management teams naturally fall into the same category with implements, upon

which both interest and depreciation must be borne.

In connection with the inventory of implements it should be remembered that pleasure carriages are not a farm investment, neither is a horse which may be kept merely for family driving. It should not be forgotten that the farm deserves credit for the charges connected therewith, in estimating the financial outcome.

The last four items mentioned include forms of property which, strictly speaking, may not belong to the inventory, since they are neither stock nor equipment, but for the sake of simplicity it is well to include all assets, of whatever description.

Deducting the total liabilities from the total assets gives the "net worth." This is the important item to secure. A comparison of this net worth from year to year shows the financial outcome of the business and satisfies the demand of requisite No. 2 heretofore suggested.

THE INVENTORY VALUATION

Fixing the inventory values is a matter of great importance, requiring good judgment and careful thought. Three general methods of estimating values present themselves. The implement may be inventoried at cost, at its selling value, or at its value for service. To value an article at

cost is misleading, As time goes on the business becomes bolstered up with fictitious values which make it appear to have paid much better than it really has.

To inventory at the selling value of an article may be equally unfair, particularly with implements. As soon as a tool is put to use its value for sale drops far out of proportion to its value for service. It is unfair to charge the farm with this large decrease, for the tool is not merchandise; it was not bought to be sold again. If it were worth the price paid it is still worth approximately the same amount, lessened by actual wear or injury, provided the cost of replacing it remains the same. If it were not worth the cost it should not have been bought.

Value for service is the chief factor in determining the inventory value, though neither the cost nor the selling value can be entirely disregarded. In determining this value several factors need to be considered. First among these is the probable length of service of the article. If it may be reasonably expected to last for ten years, under the conditions in which it is used, its value will decrease 10 per cent. each year. The efficiency of the tool toward the end of its term of service needs also to be considered. The service rendered in the tenth year of its use may be much less efficient than in the first year. If so, its value at the beginning

of that year is less than one-tenth of the original cost.

The cost of replacing the article at the time may be an important factor in determining value. With recently invented machines the decrease in selling price from year to year is often more than 10 per cent. of the cost. This in itself may entail a heavy depreciation. It is manifestly unfair to place a value upon an article greater than the cost of replacing it. It is equally unfair to inventory an article at less than its selling value. In the case of young and growing animals the selling value will often exceed the cost.

The invention of a better tool for doing the same work may greatly affect the value of one already in use. Manufacturers often find this a serious cause of loss. Machinery valued at thousands of dollars, still in excellent condition and doing perfect work, is often thrown out because some new improvement enables a competitor to produce a yard of cloth at a fraction of a cent less than is possible by the old method. A similar condition may at times, though less frequently, make a farm implement worthless.

RATES OF DEPRECIATION

Rates of depreciation vary greatly with the character and use of the article, as will be readily seen from the foregoing discussion. The rate



49. WHERE DEPRECIATION IS HEAVY
Implements exposed to the weather

upon buildings will be greater with those of cheap construction than with those which are well built of durable material. As a general guide in making estimates of the probable returns from a business, 5 per cent. may be allowed for the items of depreciation, repairs and insurance. This is a liberal allowance for well-constructed buildings, where repairs are made promptly when needed. With cheaper buildings, such as hen houses, built of cheap material and not well roofed, depreciation alone may amount to more than 5 per cent. I am told that investors in city property are accustomed to allow about $1\frac{1}{2}$ per cent. for depreciation, and an equal amount for repairs, while insurance under city conditions is a very small item.

Depreciation upon teams is a heavy item; the more valuable the team, the heavier is the charge. Considering a horse at his best at five years of age, he may reasonably be expected to render good service until fifteen. In that case the depreciation will be at least one-tenth of his value at the former age. It may be more, owing to the fact that at fifteen he may be less efficient than at five. He may render good service until twenty or he may be worthless at ten. Each animal must be inventoried upon its merits, but for general estimates 10 per cent. may be taken as a fair average.

With other forms of live stock, depreciation is

modified by the fact that the animal has a value for meat when no longer of service in other ways. With ordinary stock this is an important factor, while with high-priced animals it may be comparatively unimportant. The cost of extra feed demanded for fattening must be deducted from the ultimate beef value in estimating this factor.

Ten per cent. is a safe average to allow for depreciation upon tools and machinery, but the rate upon different implements will vary greatly. Factors which influence this are the character of the implement itself, the amount of use, the intelligence displayed in its handling, especially if at all complicated in its mechanism, the care it receives when idle, the attention given to repairs when needed, etc. A post maul may be worth as much at the end of twenty-five years as the day it was bought. A harness in constant use may be worn out at the end of five years. As already suggested, the decrease in selling price, or improvements in manufacture, may greatly affect the rate of depreciation. The man who stores his farm implements in a fence corner or under an apple tree, accepts a heavy charge for depreciation upon them instead of a lighter charge upon a building in which they might be housed.

These depreciation charges cannot be escaped. That the farmer may keep no accounts and make no estimate of them does not alter the fact that he must foot the bill. The charges may be

reduced by careful management but they cannot be avoided. Neglecting to take account of the items of interest and depreciation may lead many a man to think that he is doing a profitable business when he is not.

The inventory should be taken once each year. The time chosen for doing it may be the one most convenient under the circumstances, but should be the same each year. January 1st is a logical time to close up the business of the year and has the advantage that there is likely to be less rush of other work at that time, thus giving better opportunity for this. On tenant farms where a change of tenants is likely to occur on the first of March or April, that will naturally prove the most convenient time. Some prefer July 1st as the date of inventory, for the reason that at that time the farmer is poorest, so to speak, and the inventory represents his real property, while on January 1st there is much hay and grain on hand, which will be consumed before the winter is over without giving an adequate return. The chief difficulty with this season is that it is such a busy time that the farmer cannot then well afford the time for much bookkeeping.

INVENTORY RECORDS

The labour of recording the inventory may be lessened by giving some thought to the method

followed. One of the simplest plans is by the use of sheets, or better a blank book, having wide pages, permitting the use of several columns, using each column for a year. This obviates writing the name of the article each year. With five columns the record for five years is thus brought together for comparison. A sample page, illustrating this method is shown on the next page.

Another convenient method is by the use of cards or slips of stiff paper. These may be used plain but are better printed with lines, which may be arranged to allow for ten years' record on each card. The regular library or business card size of three by five inches will be found convenient for the purpose. A card is used for each article of the inventory, the date and the value being added from year to year. These cards are less convenient in making footings but they have the advantage that all articles of a given class, such as live stock, implements, etc., can be kept together and arranged in alphabetical order at all times. New cards are added whenever an article appears for the first time, and whenever an article disappears by sale or otherwise the card for it is simply dropped out. A summary card, showing the total amounts for different classes and the total footing for the year, is convenient for reference. Sample inventory cards are shown at Fig. 50.

Turning to the specimen sheet, herewith,

INVENTORY

December 31	1901	1902	1903	1904	1905
Land, 120 acres @ \$50	\$6,000.00	\$6,000.00	\$6,000.00	\$6,000.00	\$6,000.00
Water supply	500.00	490.00	480.00	470.00	460.00
Dairy barn	1,200.00	1,150.00	1,100.00	1,050.00	1,100.00
Hay	50 tons @ \$10 500.00	35 tons @ \$12 420.00	60 tons @ \$11 660.00	40 tons @ \$12 480.00	75 tons @ \$10 750.00
Cow, Rhoda, grade Guernsey, dropped 1900	25.00	40.00	50.00	60.00	50.00
Cow, Daisy 1895	40.00	35.00	30.00	Sold	
Colt, Democracy 1900	35.00	50.00	70.00	90.00	115.00
Mowing machine (Cost 1900, \$45)	40.00	35.00	25.00	22.50	20.00
Farm wagon (cost 1901, \$80)	75.00	67.50	60.75	54.75	49.25
Team Harness, 1 set (\$35)	30.00	24.00	19.00	15.00	12.00
Post maul (60c.) . . . . .	.60	.60	.60	.60	.60
Hay loader (cost 1904, \$65)				60.00	55.00

which for the sake of illustration is made to include different classes of items, a few comments may be made. The value placed upon the water system shows a gradual depreciation throughout the whole time represented. The dairy barn shows a depreciation until the year 1905, when repairs bring the value higher than the year before. The cow Rhoda appears as a young animal, increasing in value until 1904, then begins to decrease. Daisy drops out in 1904, having been sold. The mowing machine met with an accident in 1903 which reduced its value more than the regular depreciation. The farm wagon is given a regular 10 per cent. depreciation upon the previous year's inventory. A depreciation of about twenty per cent. is allowed upon the harness. Upon the post maul there is no depreciation. The hay loader appears for the first time in 1904, the year it was bought. Adding at the left the date of birth of an animal or the date of purchase of an implement, and its cost, affords a convenient reference for showing age or length of service and total depreciation.

THE CASH BOOK

Next to the inventory in importance comes the cash book. This will furnish a record of transactions. Modifications may be introduced which will make it fairly convenient for reference.

All cash transactions go into the cash book. Doing a cash business is one of the most important ways of simplifying the bookkeeping. The moment the time element is introduced the problem becomes complicated, for then there must be a different record made in another place.

The primary object of the cash book is to show the money paid out and the money taken in. It also helps to guard against mistakes.

The difference, or balance, between the cash received and the cash paid side should always agree with the actual cash on hand. By frequently finding this balance without entering it in the book, anything which has been forgotten is likely to be brought to mind. If there is more money than the book calls for, something which has been received has not been entered. If there is too little money something paid out has been forgotten.

In its simplest form the cash book consists of but two columns, one for cash received, or "Cash Dr.," as it is called, the other for cash paid, or "Cash Cr.," together with the items for which the cash was received or paid. These columns and entries may both be on one page or on opposite pages, as preferred. While these two primary columns serve the main purpose and are the important elements, future reference may be simplified and the record made more

complete by making the cash book a little more complex. It is desirable to be able to know quickly the amount paid out or taken in from different lines of the business. The cash book can be made to show this readily by the addition of other columns. These extra columns have no effect whatever on the main columns which show the whole amount of money taken in and paid out. They are merely extras, devoted to special parts of the business, and into them are dropped items belonging to the particular class, for convenience in footing or reference. The columns can be given any heading desired, according to the nature of the business or the lines which the owner wishes especially to watch. On a general farm it may be desirable to know how much money has been received for dairy products, for swine, poultry, fruit or potatoes. A column may therefore be devoted to any one or each of these. In the same way the farmer may wish to know how much he has paid out for labour, feed, or fertiliser, and so make a column on the cash paid side for these. These items can all be obtained from the two main columns, to be sure, by looking these columns through and singling them out. The special columns merely serve to throw all items of a given class together, where they may be quickly seen and their totals known. The specimen pages shown herewith will make clear the idea.

CASH RECEIVED

1905 October		Dairy	Poultry	Crops	Mis- cellaneous	Total
1	Balance					15 10
2	10 doz. Eggs @ 25c.		2 50			2 50
5	2 bu. Potatoes @ 50c.			1 00		1 00
6	50 lbs. Butter @ 25c.	12 50				12 50
10	50 bbls. Apples @ \$2			100 00		100 00
12	20 doz. Eggs @ 25c., 5 hens @ \$1	25 00	10 00			10 00
15	100 lbs. Butter @ 25c.	15 00				25 00
20	1 Grade Calf			180 00		15 00
24	400 bu. Potatoes @ 45c.				2 50	180 00
28	Hauling grain for Smith					2 50
30	12 doz. Eggs @ 28c.		3 36			3 36
	30 lbs. Butter @ 25c.	7 50				7 50
	150 lbs. Pork @ 5c.				7 50	7 50
		60 00	15 86	281 00	10 00	381 96

In this case it is assumed that the owner desires to know how much is received from the dairy, from poultry and from money crops which are sold directly from the farm. Columns are therefore allowed for these classes. A miscellaneous column is needed for the unclassified items which are sure to appear. Under cash paid it is decided to provide a column for living or family expenses and another for farm expenses. This latter column includes all out and out expenses. The column headed investment is merely for convenience in making up the inventory at the end of the year. Items which should be added to the inventory are thus where they will not be overlooked. On other farms a column devoted to fruit, potatoes, hay, or swine might be desirable. If swine are kept chiefly as an adjunct to the dairy, to consume the skim milk, the item for pork might appear in the dairy column rather than in the miscellaneous column.

The balance is obtained from the columns of totals, in the same way as though the other columns were not there. These main columns are exactly the same as in the ordinary cash book. They should be added up often to determine if the balance between them agrees with the money on hand, but the footings need only be entered at the end of the month. The sum of the footings of these incidental columns should then equal the footing of the main column of each page.

This serves as a check to show that everything which ought to appear in the different columns has gone into them.

On the cash paid side, columns for help, feed and fertiliser might be desired in many cases. In others it may be preferred to make these columns correspond to those on the cash received page, giving a column to the dairy, poultry, swine, etc. The miscellaneous column may be omitted in both cases, but in that event the sum of the footings of these incidental columns will not equal the footing of the last column and mistakes in entering are not so easily detected.

By inserting the name of the party of whom the article was bought, in connection with the entry, the record is made more complete, affording better evidence of payment in case a second bill should be presented. Following the entry of one ton of wheat bran, bought October 15th, by the name R. G. White, makes the record much more valuable in case of future dispute. A check is always preferable in paying such items for that serves as a receipt when cancelled and returned to the party who drew it. In that case, however, the record does not appear in the cash book, unless money in the bank is treated as cash, which is less convenient than to treat it as an account. The check book stub then furnishes the record as well as the cancelled check itself.

THE BANK ACCOUNT

Maintaining a bank account affords important advantages, among which are the following.

1. Convenience and lack of expense in making payments. With a check, payment at a distance is as easily made as in person, and usually without expense. In a few cities exchange is charged on checks from other places, particularly from local banks in small places, but usually any business firm will accept a check at its face value. In this respect an account with a bank in a city of some size is of advantage. There is nothing to prevent this, for banking can be easily done by mail. Another point of convenience in payment by check is that all trouble in making change is avoided, a difficulty which frequently occurs in personal money transactions.

2. Safety of remittance by mail. A check being drawn in favour of the party for whom it is intended must bear his endorsement before it can be collected, hence if lost or stolen in transit it is valueless to anyone else and the money still remains in the bank to the credit of the sender.

3. Payment by check insures a receipt for the money. The indorsement of the receiver is an acknowledgement of the receipt of the amount and is sufficient evidence of the fact in the absence of any other receipt.

4. The check book stub furnishes a record of the transaction. These stubs should be carefully kept and will be found very convenient in showing whether and when a bill has been paid, the cost of an article, etc.

5. Payment by check is a businesslike way of doing things. It shows that the party is accustomed to business methods and thereby creates a favourable impression.

6. Doing business with a bank gives one a commercial standing, and affords a convenient source of reference to parties with whom he is dealing.

A ledger account with the bank is not needed in this simple system of single entry book-keeping. The check book stubs furnish a sufficient record. A ledger account serves as a check against mistakes on these stubs, but such a check is also furnished by the pass book kept by the bank.

PERSONAL ACCOUNTS

The cash book and check book are sufficient for all cash transactions in single entry book-keeping, but personal accounts add trouble. Neither of these books affords a place for transactions in which time is involved. The best way to simplify bookkeeping is to do a cash business. Just so soon as an account becomes necessary the bookkeeping problem is complicated. The

business man keeps a day book and ledger for these accounts. The transactions as they occur are entered in the day book and from there they are posted to their respective accounts in the ledger.

THE EXTENDED LEDGER

The farmer can simplify things in his method of bookkeeping. Two ways are open in which this can be conveniently done. The first plan is by what may be termed an extended ledger. In this way one book is made to serve the purpose of both a day book and ledger. Make the ledger a book of original entry and include with the entry all items and necessary facts. This makes the ledger more complex than when a separate day book is kept but the one entry is simpler than the two needed in that case. Give a separate page to each account. For accounts which are likely to be merely temporary, part of a page will answer, and for those which are likely to be large several blank pages may be left. To the business man, with long and numerous accounts this plan would be objectionable because occupying too much room and making the ledger too bulky, but with the farmer this objection does not hold. The advantage of this plan is that a single entry completes the record, except when cash is paid or received, and there is no chance for accounts to remain unposted, as they often

do in the other system. Every account is ready for quick inspection, and for balance or settlement at any time, and the entries are all together. The sample page 173 will make the plan clear.

SEPARATE SLIPS

A second plan of simplifying personal accounts is to adopt the same plan of entry but keep them on separate cards or slips instead of on separate pages in the ledger. This possesses the same advantages as the other method, with the additional one that whenever an account is closed those slips are laid aside and only the accounts which are actually open need be kept in hand. Additional slips or cards will extend the account as much as needed and all the items are thus kept together. There is no waste of ledger space nor trouble in estimating how many pages a given account is likely to need, with transfers to another part of the book when those pages are filled. Practically these same advantages may be secured by means of the loose leaf ledger now in common use; this may be more convenient and avoids the danger of loss or misplacement of a loose slip.

MERITS OF THE SYSTEM

The single entry system outlined in the foregoing pages is believed to be as simple and

RECORDS AND ACCOUNTS 173

WALDO & SOPER

1905			Dr.		Cr.
October	1	By 2 Plow-points @ 40c.			80
		" 1 Scythe and snath			1 50
	10	" 200 lbs. Oil-meal @ \$1.50			3 00
		To 20 lbs Butter @ 25c.	5	00	
	15	By 1 bbl. Salt			1 25
		" 25 lbs. 10d. Nails @ 3c.			75
	19	" 2 gals. Paint @ \$1.50			3 00
	21	To 2 bu. Potatoes @ 50c.	1	00	
		" 1 bu. Apples		50	
	27	By 1 Pickaxe			85
	31	To Cash in full of %	4	65	
			11	15	11 15

businesslike as any plan available. Each man may introduce modifications to suit his own tastes or requirements but the general plan is one which the author can fully recommend. After years of experience in keeping personal and farm accounts he believes this is the simplest system available and one which will best meet the needs of the average farm business.

It is now proper to inquire how far this method answers the requisites mentioned at the beginning as desirable in a bookkeeping system. It meets the demands of requirements Nos. 1, 2, and 4 fully. It is simple, it shows the gain or loss at the end of the year, and it furnishes a record of all transactions. It does not meet requirements Nos. 3 and 5. It does not show where gains and losses occur and it affords no checks against mistakes. The latter requirement is met only by double entry bookkeeping, at the sacrifice of simplicity. The former will be discussed later.

DOUBLE ENTRY

This work is not intended as a manual of bookkeeping; therefore a full exposition of the methods of double entry bookkeeping cannot be given. A comparison between the two systems, with an explanation of the principal methods used in each, is, however, in place. The chief advantage of double over single entry book-

keeping, as already suggested, is in guarding against mistakes. It may also help to show where gains and losses occur, because it calls for more accounts, but it does not of itself answer this question. In return for these advantages it is necessary to sacrifice requisite No. 1. It is less simple and entails more work. There must be a ledger account and two ledger entries for every transaction, except that in the case of cash transactions a number of items are combined on the cash side of the entry by posting the footings for a given time in the cash account of the ledger instead of entering each separate item. A plan for combining other cash transactions in posting will be explained later.

THE CASH BOOK

The cash book follows the same general plan as that suggested for single entry. The division columns, if used, should correspond with accounts in the ledger, and so far as possible should be the ones which demand most frequent entries. The column for "investments" will not be needed in double entry for the ledger accounts will show all articles purchased during the year which should be added to the inventory. A column will be needed, which may be headed "ledger," into which shall be entered items which are to be posted directly to their separate

accounts in the ledger, no column being provided for them. Only the footings of the other columns at the end of the month are posted. This saves much time for it does away with a large number of entries.

In the specimen pages which are shown herewith, it is assumed that the lines of the business from which returns are desired to be readily seen are dairy, poultry and farm crops, a column being provided for each. At the end of the month the dairy account in the ledger is credited with \$60, the poultry account with \$15.86 and the farm crops account with \$281, instead of making the nine separate entries under the dates at which the transactions occur. For those items in the "Ledger" column, which must be entered separately, the *italicised* word at the beginning of the entry shows the account to which they are to be posted. In order to keep the ledger balanced, cash must be charged with the sum of all these items, that is with the total amount taken in during the month.

On the cash paid side of the cash book it is assumed that a column will be desirable for living expenses. This is supposing that the farmer is not to keep his farm accounts separate from his personal accounts, as most farmers do not. The second column provides for "Farm Expense" which will include things which are

strictly expenses, such as help, feed, etc. Things like implements or stock, which are in the nature of an investment, should not be entered here. In this case it is assumed that the account for "Living Expense" shall include only the actual cost of living, another column being provided for other incidentals. These two may be combined in one column under the heading of personal or incidental expense if it is not desired to know the actual cost of the living expenses. As on the other page *italicised* words show the account to which the separate items are to be posted. The titles of these columns should vary with the nature of the business.

THE DAY BOOK AND JOURNAL

A day book and journal, or a combination of the two are necessary in double entry bookkeeping. The combination daybook-journal, in which one book serves for both entries, is simpler. It must include every item which is not a cash transaction. In single entry bookkeeping when the farmer buys a plow and gives his check in payment, the entry which he makes on the stub of his check book completes the record, in the simple system outlined in previous pages. In double entry bookkeeping there must be, in addition to this entry on the stub of the check book, a daybook-journal entry and two ledger

OCTOBER 1

1905	DR.	CR.
First Nat. Bank	75 00	
To Live stock		75 00
Check for Guernsey bull Monarch, rec'd and de- posited		
Farm Expense	80	
Implements,	1 50	
To Waldo & Soper 2 plow-points (.80), scythe and snath (\$1.50)		2 30
8		
Implements	35 00	
To First Nat. Bank Farmer's Handy wagon, check No. 156		35 00
10		
Farm Expense	3 00	
To Waldo & Soper 200 lbs Oil-meal @ \$1.50		3 00
12		
Farm Expense	34 32	
To First Nat. Bank Taxes for 1905 \$48.27 Less timber rebate 12.15		34 32
	\$36.12	
Less 5%	1.80	
	149 62	149 62

RECORDS AND ACCOUNTS 181

OCTOBER 12

1905	Dr.	Cr.
Waldo & Soper	5 00	
To Dairy %		5 00
20 lbs. Butter @ 25c. on %		
15		
Farm Expense	2 00	
To Waldo & Soper		2 00
1 bbl. Salt, (\$1.25), 25 lbs.		
10d. nails @ 3c. (\$.75)		
18		
Bills Receivable	150 00	
To Live stock		150 00
Note of R. M. Burk, 6 mo.		
in payment for horse, Bill,		
sold to-day		
19		
Farm Expense	3 00	
To Waldo & Soper		3 00
2 gals. Paint @ \$1.50		
21		
Waldo & Soper	1 50	
To Farm Crops		1 50
2 bu. Potatoes @ 50c. (\$1)		
1 bu. Apples 50c.		
25		
Real Estate	45 00	
To First Nat. Bank		45 00
Repainting barn, ck. 158		
27		
Implements	85	
To Waldo & Soper		85
1 pickaxe		
	207 35	207 35

entries. The implement account must be charged and the bank credited with the amount.

Sample pages of the daybook-journal are shown at pages 180 and 181. The first part of each entry is the journal entry, giving the ledger accounts to which the transaction must be posted, with the amounts to be charged or credited to each. The second part of the entry is merely to explain the transaction, and may be as full or as brief as circumstances demand. This part takes the place of a separate day book entry. Fewer words will suffice to make the explanation here than in a separate entry in another book.

These pages serve to illustrate well the statement elsewhere made that doing a cash business is one of the best ways to simplify bookkeeping. Seven transactions with Waldo & Soper, the village storekeepers, appear, involving fifteen separate entries in the ledger. Had these been cash transactions all but the two in which implements were purchased would have fallen in one of the columns provided in the cash book and would have been posted with the footings of these columns at the end of the month, thus saving the labour of thirteen ledger entries. The original cash book entries would also have called for less writing than these daybook-journal entries.

Most of the items shown are self-explanatory.

The first one might appear as two separate items in the cash book with equal propriety, crediting "Live stock" with the amount received and charging the bank with the amount deposited. Here one entry serves to explain the two transactions. The cost of repainting the barn is charged to "Real Estate" because this is to add to the inventory value of the building when the next inventory is taken. It is not an expense which should be borne by a single year.

THE LEDGER

The name double entry comes from the fact that there are two entries in the ledger for each transaction, though, as already suggested, a number of items belonging on the same side of a given account may be combined in one entry. As a result of these two entries for each transaction, one being on the debit side and the other on the credit side, the two sides of the entire ledger must always foot up to the same amount. This is termed the "trial balance," and is one of the chief checks against mistakes. If in the transaction shown in the daybook-journal in which 200 pounds of oil meal were bought of Waldo & Soper on account, there had been a failure to enter this item on the debit side of the Farm Expense account, that side of the ledger would fall three dollars short when the sums of

all the debits and credits in the ledger were found. The mistake would therefore need to be found before the two sides would balance. With single entry there would be nothing to bring out the mistake, for there would be nothing to call the account in question, though if the mistake had been made on the other side of the entry, the disagreement with Waldo & Soper's account at time of settlement would be likely to bring it out.

It would complicate matters too much to show the ledger accounts for each transaction indicated in the specimen pages of the cash book and daybook-journal, but a few of them may be explained. The cash account in the ledger might appear somewhat as shown in the accompanying illustration. First on the debit side would appear the amount of cash on hand at the time when the last inventory was taken and the books balanced for the year. Then there would appear on the same side the total amounts of cash received during each month since that time. On the opposite side would appear the total amounts paid out during each month, these items being taken from the footings in the cash book each month. The difference between the two sides October 1 must be \$15.10, the same as shown by the cash book. When balanced at the end of October the total amount of cash received during the month, which is

CASH

Dr.		1905		1905		Cr.	
Jan.	1	Balance	45	63	31	136	27
	31		123	75	28	85	63
Feb.	28		96	44	31	186	40
Mar.	31		175	25	30	165	72
Apr.	30		256	10	31	157	28
May	31		78	56	30	430	45
June	30		422	90	31	192	66
July	31		185	00	31	214	34
Aug.	31		208	75	30	170	95
Sept.	30		162	42	31	852	25
Oct.	31		366	86			

\$366.86, the footing of our total column on the cash received side, less the balance at the beginning of the month, is entered on the debtor side of the ledger account. The total amount paid out during the month, \$352.25, is entered on the creditor side.

The ledger account for "Incidentals" must then be credited with \$2.50; that for "Swine" with \$7.50; "Dairy" with \$60; "Poultry" with \$15.86, and "Farm Crops" with \$281; the sum of which must just equal the \$366.86 charged to "Cash." From the credit side of the cash book the items charged to "First National Bank," "Implements," "Waldo & Soper," "Living Expense," "Farm Expense" and "Incidentals." must just equal the \$352.25 with which cash is credited.

These entries assume separate ledger accounts for Implements, Swine, Dairy, and Poultry, for convenience in knowing the total amounts charged and credited to these lines of work. These may be combined with other accounts if preferred. Bookkeeping is wonderfully adjustable and may be modified in many ways, to suit the fancy of the bookkeeper.

The ledger account with First National Bank should show the same balance at the beginning and end of the month as that shown by the check book stubs at the corresponding time. The account will be charged with the two

deposits shown in the cash book and the one shown in the daybook-journal. It will be credited with the checks drawn, which in this case are all entered in the daybook-journal, since no money has been drawn out directly. Bills Receivable is the common term given to the account which includes all notes due the firm, as distinguished from simple personal accounts.

The system of double entry represents too much work for most farmers to follow. Unless the business assumes larger proportions than is generally the case, or takes on more of a commercial character for any reason, the simpler plan of single entry will answer all purposes and give excellent satisfaction. Yet for one who has a taste for such things, a simplified double entry system, similar to that here suggested, will afford great satisfaction in enabling him to study his business carefully, and may well repay the extra labour involved.

FARM RECORDS

Requisite No. 3 has not yet been fully satisfied. The system just outlined does not show as well as it should be shown where gains and losses occur. Double entry can be made to do this but it involves much work and many puzzling questions. To attempt to charge each crop with the fertiliser, seed, labour and other expense

put upon it, or to charge and credit the dairy or poultry with all the items connected therewith, complicates matters altogether too much if done in connection with the business accounts kept in the regular set of books. This can be best and most easily done by separate farm records. These may be kept in any convenient way, but the simpler the better. A book for the purpose, or separate sheets or cards, may be used. It is a very simple matter to keep an account with a field of potatoes or hay if it is only necessary to charge the items of cost as they occur and credit the field with what it produces. If at the same time the seed, the time, and the other expenses must be credited to the proper account as a part of the regular double entry bookkeeping it becomes a very different matter.

TIME CARDS

Time cards, showing how the time has been employed, are very useful in determining sources of profit and loss. They should show the work of both men and teams. If properly kept these time cards will make it possible to determine the cost of any crop with a fair degree of accuracy, even if no special account with the crop has been kept. They will also serve as a record of operations, showing when things have been done. At times they may be of great value for this purpose

alone. The team records will also show the per cent. of efficiency of team work, and its consequent cost per hour. They are worthy of careful study with this point in view. They may be the means of reducing the number of horses kept or of readjusting the work in such way as to keep the ones on hand more fully employed.

The specimen schedule shown herewith, will illustrate the manner of keeping the record. At the end of the month the time given to any particular work may be placed in a column of footings at the end so that the total amount for the year can be quickly obtained. For these purposes it will be more convenient if one sheet is made to include the time of all men employed, since then only that one need be consulted to determine the time employed on a given crop or phase of the work. If a sheet for each man is kept they will serve as a record of lost time or other irregularities.

Time cards for the team-work are kept in the same way, but there is no call for a separate sheet for each team unless there should chance to be a team kept for some special purpose, a record of which might be desirable. The record may be kept in terms of one horse or of a double team, as may be thought most convenient. In the latter case, when one horse is used only half the number of hours it was employed would be entered in the record.

TIME CARD

Delos Rockwell

October, 1905

	1	2	3	4	5	6	7	8	9	10	11	12	13
Dairy	1½	1½	1½	2	1½	1	1½	1½	1½	1½			
Poultry	½	½	½	½	½	1	½	½	½	½			
Swine	½	½	½	½	½	2	½	½	½	½			
Teams	1	1	1	1	1	1	1	1	1	1			
Apple Orchard		7½	7½										
Peach Orchard				7									
Corn Field No. 1					8		9						
Corn Field No. 6									7½				
Potatoes										7½			
Fencing						3							
Miscellaneous						3							

* Sunday

PRODUCTION RECORDS

It is unnecessary to dwell upon the importance of production records. Much of the success of an undertaking will depend upon weeding out unproductive animals, unproductive lines of effort and unproductive crops. Unproductive fields must be brought up to a state of fertility which will make them pay. It is in finding out these things that one can answer the question of requisite No. 3. How to get this information in the simplest manner is the problem to be considered in keeping the farm records.

DAIRY RECORDS

It is important to keep an account with the dairy as a whole. Some men might be surprised at the result of this on their own farms. This can best be done in a little account entirely separate from the business records. All feed bought for the dairy should be charged. Feed produced on the farm and consumed by the dairy should also be estimated, or better weighed, and charged. The time consumed in caring for the cattle, as shown by the time cards, should also be charged. It would not be amiss to charge stable rental, or the depreciation, insurance and repairs on the dairy barn. These are expenses which really belong to the dairy.

Veterinary services, if any, should also be charged.

The cash book will show the cash returns. Whenever products are sold for other than cash they should be credited separately as the transactions occur. All stock sold and increase in the inventory, if any, should be included among the credits. Dairy products consumed in the family should not be overlooked and should appear among the credits. The dairy should also receive credit for the skim-milk fed to pigs or poultry. Credit should likewise be given for the manure produced, since this is one of the most important resources from the dairy in ordinary farming.

MILK RECORDS

Milk records are of first importance to the dairyman. He needs to know what individual cows are doing. The first requisite is a convenient set of scales, with pails brought to a uniform weight, so that the scales may be set at zero when the empty pail is on them. For this purpose scales graduated to pounds and tenths of pounds are more convenient than those registering pounds and ounces. The footings are then more easily made. If it is felt that weighing every milking involves too much work, weighing the milk for one day in each week will give a

fairly accurate idea of what each animal is doing.

Blanks should be provided upon which to enter the record. If the weighings are to be but once a week these may be easily ruled off with a pen, but for more frequent weighings the printed blanks designed for the purpose will be found much more convenient.

Butter-fat tests are essential in all forms of dairying where butter or cream are the products sought. Indeed progressive milkmen are no longer content with knowing merely that they are offering an honest quart of milk. They want to know its quality also. In some instances milk is being "standardised," that is, brought to a uniform degree of butter-fat content before being sold. In all these cases it is important not only to know the amount of milk which a cow gives during the year but the amount of butter-fat which it contains. Methods of making these tests are well described in experiment station bulletins and other works dealing with the subject and need not be repeated here. Suffice it to say that a composite sample, obtained by mixing samples from several different milkings is always a safer guide than a sample taken from a single milking. Experience shows that the fat content of a given cow's milk is subject to marked fluctuations.

SWINE RECORDS

On most farms swine are kept chiefly as an adjunct to the dairy. In some cases it may seem preferable to treat them merely as part of the dairy, charging and crediting all expenses and receipts connected therewith directly to the dairy. Items of feed, care, and other expenses should be charged and returns credited in the same manner as suggested for the dairy.

Feeding records will also prove useful in connection with swine. Note the amount of feed consumed from month to month. Catch and weigh an average pig and learn how much he has gained in weight. Which month gives most gain? What is the margin of profit when the litter is sold? Such questions as these may be easily answered to your own satisfaction by a little forethought, and with very little extra trouble or record keeping. Let the records be simple but be sure to put them in some shape where they will be available for future reference when wanted.

POULTRY RECORDS

Few farmers, unless it be special poultry farmers, will care to keep individual records with trap-nests, but a record can be easily kept with the poultry as a whole. In a simple, separate account kept as suggested, the feed consumed can

be charged by giving a little care to knowing the amount used. The time cards should show the amount of time consumed and other expenses can be noted as they occur. The account should be credited with all eggs and fowls used in the family as well as those sold.

CROP RECORDS

By this simple plan of little separate accounts having no connection with the regular business accounts, it is easy to keep an account with individual crops. Charge to the crop the seed and manure or fertiliser used, also a fair amount for rent of land. The time can be taken from the time cards if they are properly kept. It will afford satisfactory and useful information if this is separated in such a way as to show the time consumed in the different phases of the work, such as plowing, fitting, planting, tillage, harvesting, etc. When harvested the crop is credited with the yield produced. Such a record of the cost and returns from different crops for a series of years would prove a most valuable guide to any farmer and to others who might seek his advice.

FAMILY CONSUMPTION RECORDS

Few farmers know much of what it costs them to live. It is not easy to record every pint of

milk used and every head of cabbage and lettuce taken from the garden. It would not be a difficult task however to watch or record these things for a time. This would then serve as a basis from which fairly accurate estimates could be made of the amounts consumed during the year. A knowledge of the credit accounts involved is equally valuable, for it will help to place those lines of production which are called upon to help support the family in their proper light. The dairy, the swine, the poultry, the garden and the orchard do not usually receive the credit they deserve in this connection.

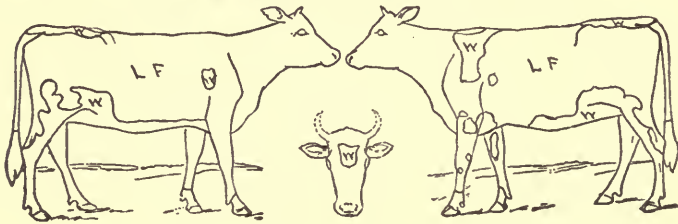
Such a record of family consumption will prove a source of satisfaction in more ways than one. Compare the account with that of your village or city neighbour when you have opportunity. If possible let this comparison show the difference in amounts of fresh eggs, poultry, milk, vegetables, fruit, etc, used, as well as the total cost. Such comparison may help you to be more content with your lot. Perchance your neighbour's salary will look less enticing to you if he gives you the facts fully.

THE METHOD

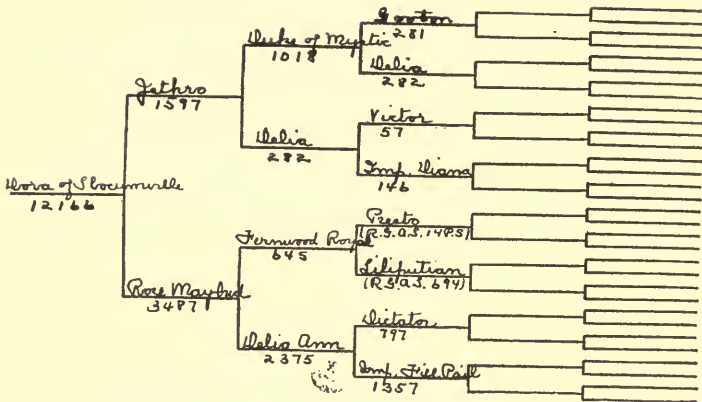
The method of keeping these separate accounts matters little. The chief essential is that it be as simple as possible. Any cheap blank book

Year.	1900						1901																							
	Milk.		Butter		Fat		Milk.		Butter		Fat		Milk.		Butter		Fat		Milk.		Butter		Fat		Milk.		Butter		Fat	
	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	¢	lbs.	
JAN.	599				474																									
FEB.	565				525																									
MARCH	383				535																									
APRIL	384				517																									
MAY	347	6.			648																									
JUNE	243				608																									
JULY	222				467																									
AUG.	810				323																									
SEPT.	651				49																									
OCT.	682				494	4.2																								
NOV.	495				581																									
DEC.	386				571																									
Total	5371				5976																									
Butter																														

Sketch, Pedigree, Breeding and Milk Record of Guernsey Cow
 Name Anna of Stoumville, No. 12166
 Owned by R. I. College of Agr. & Mech. Arts Private Herd No. _____



51. ONE COW'S RECORD



NAME Uva of Slocumville No. 12166 born Aug. 22. 1894

BRED BY Mr. W. Segar Slocumville R.I. DIED OR KILLED

PURCHASED OF Mr. W. Segar SOLD TO

DATE OF SERVICE	NAME & NO. OF SERVICE BULL	DATE LIVE FOR SALE	DATE OF SALE	SEX	NAME & NO. OF CALF
Oct 2/99	Leafa Exposition # 4284	July 15/00	July 19/00	Stem	Mark of Hingston # 13214
Jan. 4/01	Glennwood Duke of Madison STB	Oct. 12/01	Oct. 3/01	..	Elizabeth " " # 14682

can be used, giving as much room as the account may promise to need. Separate sheets or bill-heads will do equally well, except that they are more likely to be misplaced and lost. The card catalogue system in any form will be particularly convenient. This, or any form of separate sheets, possesses the advantage that the accounts of different years may be brought together for convenience in making comparisons.

These separate farm records showing the cost and return from different crops and lines of the business are even more important than business accounts. If you feel that you cannot keep both, begin here and let the other go. These records will show what things are paying and what ones are being run at a loss. Hence it will be easy to see whether the business as a whole is paying or not.

GENERAL ADVICE

Begin simply, but begin. Elaborate your method as you find more things which you want to know. In relative importance the different phases of the subject occupy about the following rank:

1. The inventory
2. Farm records
3. The cash book
4. Personal accounts, etc.

CHAPTER XII

MISCELLANEOUS PROBLEMS—FENCING

THE cost of fencing is a heavy charge upon the farm enterprise. The material alone costs from thirty to fifty cents a rod under most circumstances, even with wire fencing, which is usually the least expensive kind which can be built. A 100-acre farm, 160 rods long and 100 rods wide will require 520 rods of fence to enclose it. With highway across the end, the road fence, if needed, and half the line fence will make 310 rods for the owner to build. If the farm is divided into four fields by halving in each direction, 260 rods will be added. If divided into eight fields by again halving in the shortest direction 200 rods more will be needed. If a laneway along the centre fence reaches to the two back fields this will require 120 rods. Allowing 10 rods extra for a barnyard makes a total, under these conditions, of 900 rods, or a little more than two and three-fourths miles, of fencing to be built and kept in repair. Assuming, for convenience, that this fence will cost fifty cents a rod, complete, the cost will be \$450. With present quality of wire this is not likely to last more than six years, with more or less

repairs. The annual charge is therefore \$75, disregarding interest on the first cost. If instead of our present fence laws each man were required to fence in his own stock, regardless of boundary lines, and the owner of this farm should provide one permanent pasture occupying one-fourth of the farm adjacent to the buildings, only 260 rods of fencing would be required, making the annual charge but \$26. If his neighbour should chance to have a pasture next to his that fence would be divided and the cost still further reduced. Bringing in pasture as a part of the regular rotation greatly increases the cost of fencing.

The quality of material used is an important matter. It is an indisputable fact that the wire fencing used in recent years has proved very unsatisfactory, adding greatly to the ultimate cost, even though the price has been much reduced. It is to be hoped that some simple method of determining quality will be evolved, so that the buyer may be able to get good material by paying for it; he should then by all means do so.

No useless fences should be permitted to remain. If a fence cannot justify its existence beyond question it should be cut out. A careful study of this problem of the farm may yield most excellent returns. If pastures can be brought nearer the barn and unnecessary lanes

avoided this may materially reduce the amount of fencing required. Small fields are the bane of many New England farms. Unfortunately these are in many cases enclosed by stone walls, which are not easily removed. The great inconvenience in working such fields will warrant considerable outlay in removing the walls and attendant lines of weeds and brush.

Where pasture enters into the regular rotation a satisfactory portable fence would be a great convenience. Many types of these have been suggested, but they are usually too expensive or too unstable to give satisfaction. To move a woven wire fence is not really a great task and might often be done with advantage.

ECONOMY OF TIME

The labour problem forms the heaviest charge in farming operations. It therefore warrants careful study. There are many ways in which time can be economised or wasted.

The effectiveness of labour is often decreased by allowing unimportant things to usurp the place of the main work in hand. So many incidental things and interruptions are constantly occurring on the farm that this point needs to be carefully guarded. Forethought will prevent many of the interruptions or reduce their importance when they occur. This is particularly

true of breakages. The wise farmer is well provided with bolts, screws, rivets, nails and other things most likely to be needed. Having these things and the necessary tools at hand will often save the loss of much valuable time when men are waiting to go on with important work.

Putting all implements in good repair before the time when needed will also contribute much to the efficiency of work. Immediately after haying is a much better time to repair haying machinery than immediately before. Concentration is a motto to keep well in mind. Put through the main work in hand. Let the incidental things come afterward and by themselves if possible to do it.

Poor fences are the cause of much waste of time on many farms. Stopping to drive cattle out of fields into which they have broken, and to patch up a broken fence is a far too common occurrence. Important work must often cease while this is being done. The fence can be far more cheaply built when that is the main work in hand. If well done then other work need not be interrupted to do parts of the work at much disadvantage from time to time. Broken harnesses, worn out hose, loose nuts and many things of like nature all contribute to similar loss of time.

A fast walking team will do much to economise time. A 12-inch furrow must be eight and one-fourth miles long to equal an acre. If the

team walks two miles per hour in plowing it will require four hours and eight minutes to turn the furrow, regardless of stops and turns. At a walk of three miles per hour it will require but two hours and forty-five minutes.

The shape of fields is also an important factor in such operations as plowing. If a 100-acre farm of the shape indicated in the diagram on another page be divided into eight fields as there suggested it will require 1,320 turns, with a 12-inch furrow, to plow one of the twelve and one-half acre fields, disregarding the waste along fences. If each turn can be made in 30 seconds, the time consumed will be 660 minutes or 11 hours. If the farm is divided into four parts, by halving in each direction, as suggested, one of the 25-acre fields can be plowed with 1,650 turns, requiring $13\frac{3}{4}$ hours of time. This effects a saving of $8\frac{1}{4}$ hours over the time required in plowing the two fields separately. If two of the fields lying end to end are plowed together no more turns are required than in plowing one, and 11 hours would be saved in turning. A square field of $12\frac{1}{2}$ acres requires 1,500 turns, with a 12-inch furrow, which will consume $12\frac{1}{2}$ hours in turning,

If the furrow is only nine inches wide instead of twelve inches it will require about one-third more turns, with consequent increase in length of furrow, in time consumed in making turns,

and in time lost from inconvenient shape of fields.

A strong team, able to do the full amount of work required, trained to walk at a brisk pace, with implements of the largest size consistent with efficiency, and well arranged fields are important factors in the economy of time.

The shape of the farm itself may be an important matter. In some localities long, narrow farms, with a short frontage on the highway and extending a long distance back on the hills, are the rule. Such a farm is much more expensive to work than one which is more compact, with buildings more centrally located. The additional cost of going to and from work at the farther end of such a place, and especially of drawing in crops and drawing out manure, becomes a decided handicap to the business.

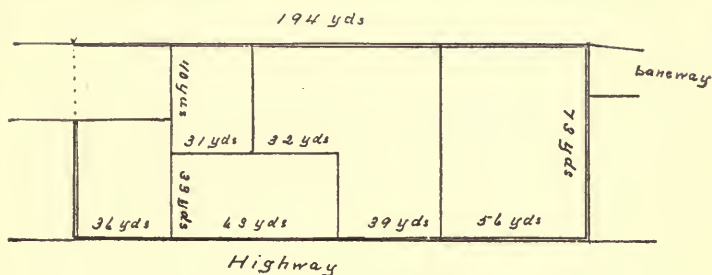
As striking illustrations of the loss of time which may occur from inconvenience in the arrangement of the farm or as a result of conditions which exist, John Hamilton, in one of the reports of the Pennsylvania Department of Agriculture, has called attention to the fact that the man who has driven his stock one-fourth mile to water twice a day for forty years, has travelled 14,600 miles in doing so. If instead, he has spent ten minutes, three times a day, in pumping water he has lost two and one-half years, of 300 days each, out of his life.

The location and arrangement of buildings is an important factor in the economy or the waste of time. Barns too far from the house or from each other add greatly to the distance travelled and the time consumed, during a life-time. So too, neglect to give careful study to the interior arrangement of buildings may add much to the time consumed in doing the work. A few hours spent in study and planning may save many days during the existence of the building. I recall one barn on the farm of a man who was noted for his thoughtfulness in these matters, and who provided himself with an unusual number of little conveniences seldom found. Yet the absence of a stairway necessitated going out of doors and around the barn whenever the second floor was to be reached. This meant every time that hay or straw was needed for the stock, besides the many times at which it would occur in the ordinary rounds of work. Most of the implements were kept on the upper floor and all the stock kept below. In storm and snow and wind, for forty years or more, so long as the barn stood, this trip had to be made and the large barn door above opened whenever it was necessary to go from one floor to the other. A little study of farm buildings will reveal many such illustrations.

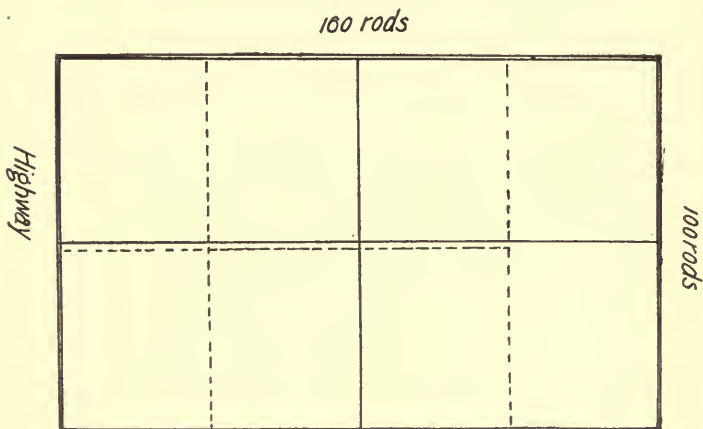
Another case comes to mind in which the dairy barn stands about twenty-five rods from



53. SMALL FIELDS (See diagram)



54. DIAGRAM OF SMALL FIELDS SHOWN AT FIG. 53
 Stone walls form the division lines. Approximate area within double lines 2.0+ acres



55. DIAGRAM OF FENCING PROBLEM FOR A 100-ACRE FARM



56. INCONVENIENT LOCATION OF BUILDINGS AND WELL

the house (A. Fig. 56) The farm supports a dairy of twenty cows and the milk is all carried to the house cellar to be separated and cared for, which requires ten or twelve trips per day. This means that the total distance travelled in both directions, for this purpose alone, will be about six hundred miles per year. It should be remembered, too, that much of this distance must be travelled when the man who carries the two heavy pailfuls of milk is already well-nigh exhausted from a long day's work in the fields. The additional trips needed for other purposes will bring the average well above two miles per day. Yet as long as he lived the owner of this farm kept up this laborious travel. His descendants are wisely planning to bring the barn nearer the house.

On this same farm the well is located more than ten rods away from the kitchen door. (B. Fig. 56.) For each daily trip to the well the total distance travelled is over twenty-two miles per year. The housewife estimates that at least twelve pailfuls of water per day are used, which shows how many times this twenty-two miles must be multiplied to give the amount of the year's travel. Such a condition does not look so bad on the ground as it proves to be when reduced to figures. Measure off ten rods from your kitchen door and it will not look very far. You might readily be induced to locate a

well there if the divining rod should say so and you believed in the divining rod. Many a home depends upon a water supply farther removed than this.

Haying operations afford a good field for study in economy of time. At a Pomona Grange meeting in Rhode Island I asked for the experience of the farmers present as to the cost of harvesting hay. The consensus of opinion expressed was about as follows. Mowing requires one-hour per acre, raking the hay and scatterings one-half hour. Two men and team will put a load to the barn in one hour. Three men will unload it in twenty to thirty minutes. The average yield of hay per acre in the United States for the last ten years has been less than one and one-half tons per acre. These figures would make the cost of harvesting about one dollar per ton, if no extra labour were needed in bunching to guard against rain.

I watched a good driver in heavy grass, working with a quick team. Turning at the corners took from twelve to fifteen seconds, when nothing hindered. Many teams would take double the time. This machine had a five-foot cutter-bar. Measuring six swaths together at different places showed that it was cutting about four feet three inches of grass on the average. On smooth land, with sharp knives, a six-foot cutter-bar, which the team would be able to handle,

would reduce the time of mowing nearly 20 per cent. Two feet added to the length of the hay rake will reduce the cost of raking 20 to 25 per cent. More important than either, a system of management which will bring the yield of grass up to three tons per acre will reduce, by more than half, the cost per ton for mowing and raking. A hay loader, with properly raked windrows, will materially reduce the time required in getting each load to the barn and make the farmer less dependent upon extra help, which is always most expensive and difficult to get in haying time. These are problems which cannot be figured out with exactness but they are problems which will well repay careful study.

CHAPTER XIII

COÖPERATION

MUCH has been written upon the subject of coöperation. A volume might well be devoted to this alone, as volumes have already been devoted to it. In the present connection, however, little more than a general outline of the field and its possibilities can be attempted. The subject naturally divides itself into four main lines, viz.: 1. Coöperative production. 2. Coöperative manufacture. 3. Coöperative buying. 4. Coöperative marketing. These will be considered in their order.

PRODUCTION

Coöperative production in its simpler forms has been long in vogue. The practice of "changing works" was common among farmers in the early day. Later it seems to have grown into disrepute to some extent, although recently many farmers have been driven back to it by the scarcity and inefficiency of farm labour. Many a farmer is now trying to manage his business alone who would gladly employ additional labour if available at prices which the returns



57. COÖPERATIVE OWNERSHIP OF A FARM ENGINE MAY OFTEN PROVE ADVANTAGEOUS



58. FILLING THE SILO
An operation in which cooperative labour works well

would warrant him in paying. There are several ways in which coöperative production among farmers can be carried on to advantage.

1. *The Ownership of Large Implements.*—As pointed out in the discussion of implements and machinery, the fixed charges incident to the ownership of an expensive implement prevent such ownership being profitable in a small business. If the implement is one which needs to be used for only a short time during the year, and particularly if the work is of such nature that it need not be done at a definite time, owning the machine in partnership by near neighbours will prove greatly to their advantage. The larger amount of work to which the fixed charges are thus apportioned may make the partial ownership a profitable one where entire ownership would be unprofitable.

A farm engine may often be advantageously owned in this way. It can do the work of sawing wood, grinding feed and filling silos for several farms as well as for one. In connection with it a silage cutter may also be included in the partnership, though in this case the partnership needs to be closely limited. The work of filling silos should be done within a comparatively short period of time and each farmer is likely to need the machines at the same time. If it is the custom to coöperate in doing the work, there is nothing to prevent coöperation in the

ownership of the machinery, since that can only be employed where the farmers themselves are engaged. A corn harvester might also be included in the outfit. Two or three farmers who can work together harmoniously will often find it greatly to their advantage to own the complete outfit for transferring the corn from the field to the silo in common, and to do the work together. One factor which will materially influence the desirability of such a plan is the opportunity or lack of opportunity to hire men with outfits for doing the work. In many communities men make a business of filling silos as they do of running a threshing machine, the same parties often owning both machines. If such an outfit can be secured at the right time it may be better to hire it than to assume the expenses of ownership, even in company with others. I have never yet known a man who had accumulated much wealth by operating such outfits, which may argue somewhat against the assumption of the ownership by the farmer himself.

Coöperative ownership of a feed mill presents less difficulties than in the case of corn machinery. Feed may be ground at any time and may be carried to the mill or the mill brought to the feed, whichever may happen to be most convenient at the time. A wood sawing outfit is especially well adapted to coöperative owner-

ship, since the work can be done at any time during the year when the time can be given to it, and the outfit itself can be moved from place to place with little trouble.

A grain binder, like the corn harvester, can only be used during a limited time, but is capable of doing far more work than that afforded by the average farm, with no loss from neglect of crops, if the work is properly planned and managed.

2. *The Ownership of Improved Sires and Breeding Stock.*—Two or three neighbouring farmers may combine in the purchase of a bull, either for general use or for use only with the best cows owned by each. By this means they may well afford to get the best blood available and easily build up high-class herds. I recall one instance where this plan was followed, to the marked advantage of the two herds concerned. In a similar manner, coöperative ownership or a coöperative association may be the means of bringing into a community a well-bred stallion of a type which might be otherwise unavailable. Even in communities where much attention has been paid to the breeding of horses it is often impossible to find a good stallion of the particular class which it may be desired to use. Good coach stallions are wanting in many communities where trotting-bred horses are to be found in abundance. The introduction of a

good jack, for the breeding of mules, may likewise prove of marked benefit to a farm community. A word of caution should be added in this connection for coöperative associations for the ownership of stallions often lead to failure.

3. *Coöperative Labour.* Coöperative labour has always been common among farmers in a limited way. In such operations as threshing, and latterly the filling of silos, extra help must be employed. This is most often secured from the neighbouring farms. The principle remains the same whether the service is paid for in money or by a return in kind. This plan of work might doubtless be extended with advantage in many cases, particularly on small farms. Instead of two farmers working separately to do their haying with incomplete equipment, the same amount of investment by each would often provide one complete equipment and by working together a saving of time and money might be possible for each. The success of such a plan will depend much upon the personality of the parties concerned, the location of the farms and other attendant conditions. If each farmer owns and operates certain parts of the equipment, instead of owning the whole outfit in common, there is less danger of friction. The plan of coöperative work can then be easily abandoned at any time if found undesirable.



59. A COOPERATIVE CHEESE FACTORY
Owned and managed by its patrons



60. A PROFITABLE COÖPERATIVE CREAMERY

MANUFACTURE

Coöperative manufacture in agriculture is best represented by the creameries, cheese factories and similar enterprises which dot the country from ocean to ocean. These are generally organised in the form of a stock company, with shares of stock issued as in other corporations. When started on the right foundation, and well managed, the outcome has nearly always been good. When started at the instance of promotors who were concerned in foisting upon the farmers a poor equipment at an excessive cost they have often failed. Where the farmers themselves have engineered the matter from the beginning the undertaking has generally proved successful, when good business men were connected with the management. For the want of such men some ventures have failed which had in them the other elements of success.

Conversation with a farmer connected with the management of one such creamery revealed the fact that the company had not only been able to make and market the butter of its patrons on the same terms offered by private creameries but the business had yielded such good returns to the stockholders that they were considering the question of devising some plan to reduce these returns, feeling them to be too high for wise

business management. In this case the charge for making and marketing the butter has been three cents per pound, the product of one month being paid for at the end of the succeeding month. A manager who is both a good butter maker and a good salesman is essential to such results.

To enter into the history or details of coöperative enterprises of this sort would far exceed the limits of the present undertaking. The reader is therefore referred to writings upon this particular field for further information regarding it.

BUYING

Where rightly planned coöperative buying may prove of marked advantage to a farm community. In the early days of the grange movement this was made a prominent feature of the order, but soon fell into disrepute. As there carried on it usually took the form of a grange store which aimed to carry a more or less complete stock of merchandise from which its members could purchase such articles as they wished. Such undertakings were difficult to maintain because demanding more time and attention to insure their success than the size of the business would warrant.

As an illustration of the kind of coöperative buying which does prove successful the practice of the Middletown Grange of Middletown, R. I. may be cited. This grange is located in a potato

growing locality. Its members buy commercial fertilisers and seed potatoes in large quantities. Instead of each man buying on his own initiative they buy together, having their own brand of fertiliser, mixed according to their directions, and having their seed potatoes shipped from Maine in carload lots when wanted. The plan has proved very satisfactory and affords a marked saving to the parties interested.

The same plan could be, and doubtless is, followed with success in the purchase of grain and other supplies. The coöperative creamery may well form the centre for the purchase of grain for its patrons. Such a plan would not only afford a saving in the cost of feed, but in many cases would also insure the use of grains which would secure a better balanced ration and better results in feeding. With a creamery manager who would inform himself thoroughly as to the best practices in feeding, this latter advantage might be even greater than the saving in price. The local grange might equally well serve as the centre for such coöperative buying of feeding stuffs. A discussion of the merits of different feeds and a study of the prevailing prices at the time would thus prove a topic of special interest for the grange meetings and the results obtained could hardly prove other than satisfactory, provided the business were done on a strictly cash basis, as it certainly should be.

Such coöperative buying might be profitably extended to any article which is needed in sufficient quantity by the community to make the undertaking worth while. The purchase of a given article on definite orders, in the manner suggested, avoids the difficulties which contributed to the disappearance of the grange store as formerly conducted. That coöperative stores may be run successfully, has been proved time and again, but they require good business management, with the right man at the head. They also demand a plan somewhat different from that usually followed by the grange store. Those undertakings which have succeeded have usually followed somewhat closely the Rochdale plan practised in England, in which no attempt is made to sell articles at cost but in which regular retail prices are charged. This provides a margin for the payment of expenses and for meeting losses caused by depreciation in value of goods or other property or from other causes. If dividends are warranted they are paid in proportion to the amount of goods purchased rather than the amount of capital invested by the individual.*

No community should embark in such an undertaking without a most careful consideration of all the problems and difficulties involved.

*For a full history and discussion of coöperative enterprises the reader is referred to Myrick's "How to Coöperate."

The failures have been far more numerous than the successes.

SELLING

Coöperative selling presents more difficulties than any other form of coöperation, yet it has been made a success in very many cases. When attendant upon coöperative manufacture, as in the case of creameries and cheese factories, it is free from the more troublesome features which attend the attempts to sell other forms of produce in this manner.

The fundamental weakness in this type of coöperation lies in the inherent quality of human nature which cannot resist the temptation to make private sales in competition with the coöperative organisation. If the coöperation consists merely in an agreement to maintain prices some one is very likely to cut under and destroy the price. If it is an agreement to market all the commodity produced through the organisation, the prospect of a slightly higher price from some other source is quite sure to draw away some of the goods which belong in the coöperative channel, to the detriment of the business. The fact that such advance may be only temporary and that the average returns from the coöperative system are likely to prove better, is seldom sufficient to prevent such deflection of products.

Another difficulty arises in connection with

the quality of the products offered. Unless there is a strong organisation with a central authority which will adhere rigidly to established grades much trouble is likely to arise.

That these difficulties are not insurmountable is evidenced by the success of many of the co-operative fruit shipping associations of the West. With a legally incorporated organisation, and good business men in charge, such undertakings may be made to yield substantial results. The management of such an enterprise constitutes a business of itself into which it is not the province of this discussion to enter. The farmer's training and surroundings tend to develop individuality rather than interdependence. It is not easy for him to work with others in business undertakings. If it were possible for him to forego this desire for individual effort and eradicate from his nature the distrust of his fellow farmers, which he is so likely to hold, he might often profit by union of effort in disposing of his products. Such union might take the form of small undertakings based upon mutual agreement between neighbours as well as the larger undertakings based upon organised corporations.

FIRE INSURANCE

Aside from the four main lines already discussed coöperation may take other forms not strictly concerned with the direct business

management of the farm. Among such forms which have proved especially satisfactory may be mentioned fire insurance and telephone companies. The movement on the part of old-line companies to avoid risks on farm property which has appeared in recent years, together with the increase in rates demanded upon such property, has favoured the development of mutual insurance companies among the farmers themselves. The Grange has been most largely instrumental in bringing this about. In some instances these companies have met with reverses at the outset of their career from lack of knowledge of insurance methods and the safeguards with which it is necessary to conduct the business. The outcome, however, has usually been entirely satisfactory, resulting in a perfectly safe and well-managed insurance at much less cost than in the old-line companies.

The fire insurance company with which the writer chances to be most familiar is limited to Grange members in good standing who may own property within certain specified townships. The policy contains, first, the usual provisions demanded by the state law. The by-laws of this company then provide for the election of officers and the general conduct of the business. Property to be insured is appraised by a member of the board of directors and passed upon by the board as a whole. No policy shall exceed

two-thirds of the actual value of the property covered by it. A fee of \$2.50, plus five cents for each \$100 of insurance, is charged for issuing a policy, except in case of revision, when the fee is \$1, plus five cents for each \$100 added to the amount already in force. If a dwelling remains vacant for more than ten days the company will pay half of its actual value in case of loss. Losses are met by direct assessments on the property insured, usually being levied at about a two-mill rate, which yields a sufficient amount from one assessment to cover several losses. The experience of this company has been very satisfactory and the cost very reasonable.

Other companies levy a fixed rate, thus accumulating a fund upon which to draw when losses occur, aiming thereby to secure a surplus which shall provide against assessments, although the parties insured are liable to such assessment whenever occasion may demand it. This plan is more like that of the old-line companies and may be subject to the same temptations.

TELEPHONE SYSTEMS

Coöperative telephone systems have proved equally satisfactory wherever inaugurated among the farmers. One to which the writer belongs is organised as a stock company, but no member



61. MARKETING CHEESE FROM THE COÖPERATIVE FACTORY
Approximate value of load, \$2,50.00



62. THE CHIEF FACTOR ON THE DAIRY FARM

is allowed to hold more than thirty dollars of stock. This stock fund is used in constructing the line, being paid in part by labour or poles in many cases. Each member buys his own phone. Fees are then levied to provide for the expenses of operation. This system now covers a considerable portion of several counties, with connections to all the leading towns in the territory. The fees levied upon stockholders are at present \$3 per year. Merchants and others who are not stockholders are charged a somewhat higher price. The undertaking has proved of the greatest convenience and satisfaction to the communities which it covers, and the cost has not even approximated that of the charges exacted by the established telephone companies. The system is now large enough to render its subscribers practically independent of those systems and also to furnish them a much better service, because connected with far more people in the vicinity.

CHAPTER XIV

SPECIFIC TYPES OF FARMING

THE comparative advantages of different types of farming can best be seen by analysing the problem and endeavouring to estimate the probable cost and return for each. The following estimates are made with care and after consultation with those whose opinions are of value, but it must be remembered that many of the items are subject to great fluctuation, varying with locality, season and other conditions. The figures should be accepted as suggestive only and carefully verified or replaced by others as conditions may demand. For purposes of comparison I have assumed in all cases, except for the very intensive types, a farm of 100 acres, valued at \$40 an acre for the land alone. To this is added the value of the buildings needed for the kind of farming which may be under consideration. The dwelling house is not included, for, as elsewhere explained, that is really not a part of the business.

In these comparisons it is assumed that twenty acres of land are occupied by buildings, woodland and waste places, including highway, waste land along fences, etc. This leaves eighty

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acres to be divided among the different crops and lines of production.

MIXED FARMING

INVENTORY

Farm, 100 acres @ \$40	\$4,000.00
Dairy and farm barn	1,000.00
Sheep barn.	200.00
Silo	100.00
Hog house	50.00
Hen house	50.00
10 Cows @ \$40	400.00
Bull	50.00
Young stock	150.00
50 Sheep @ \$4	200.00
3 Hogs @ \$15 and \$20	50.00
50 Hens @ 50 cents	25.00
Separator	100.00
Small dairy utensils	25.00
Team, harness and wagons	400.00
Mowing machine	40.00
Hay rake	20.00
Tedder	25.00
Plows and harrows	50.00
Grain drill	50.00
Spraying outfit.	15.00
Small implements	100.00

Total, \$7,100.00

This provides for the essential things on a mixed farm. Additional implements which would be desirable but which the size of the business may not warrant are a corn planter,

corn harvester, ensilage cutter, potato planter, potato digger and grain binder.

FARM ROTATION BALANCE

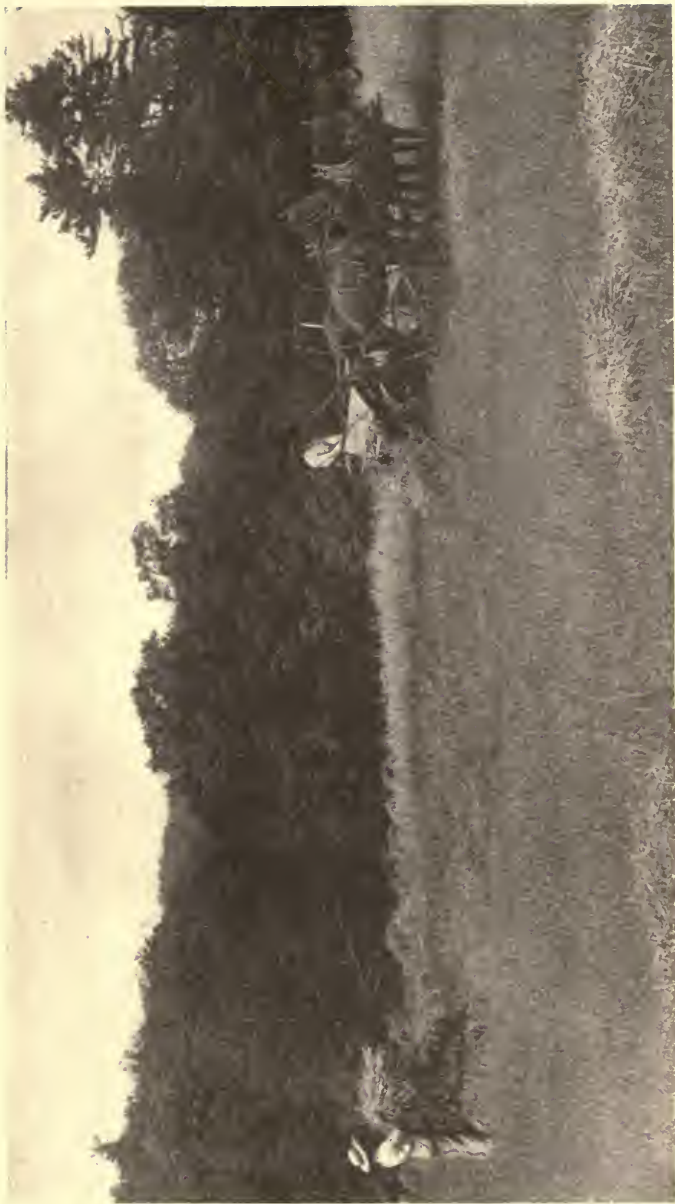
	Acres
Woodland, waste and buildings	20
Orchard	5
Pasture	20
Meadow	20
Corn	10
Oats	10
Wheat	5
Buckwheat	5
Potatoes	5
	100

PROBABLE EXPENSE OF MANAGEMENT

Interest on \$7,100 @ 5%	\$355.00
Depreciation, repairs and insurance on buildings @ 5%	70.00
Depreciation on team and tools, \$825 @ 10%	82.50
Taxes	40.00
Help (in addition to that of farmer)	200.00
Supplies and incidentals	200.00
	Total, \$947.50

PROBABLE RETURNS

2,000 lbs. Butter @ 20 cents	\$400.00
5 Calves @ \$10	50.00
4 Old cows or heifers @ \$25	100.00
10 Pigs, 4 weeks old	20.00
1,000 lbs. Pork @ 5 cents	50.00
300 lbs. Wool @ 25 cents	75.00
40 Lambs @ \$3	120.00
400 dozen Eggs @ 20 cents	80.00



68. GRAIN GROWING

Forms a desirable part of the rotation on Eastern farms, but is unpromising as a pure type



64. POULTRY FARMING AT LITTLE COMPTON, R. I.
Where the colony system prevails and poultry-keeping is the leading industry

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Fowls and chickens	50.00
125 bbls. Apples	125.00
100 bu. Wheat @ 75 cents	75.00
150 bu. Buckwheat @ 50 cents	75.00
500 bu. Potatoes @ 40 cents	<u>200.00</u>
Total,	\$1,420.00
Expense of Management,	<u>\$947.50</u>
Farmer's Salary,	\$472.50

The farm rotation balance suggested in the above problem is designed to be fairly representative, rather than the best apportionment. In many localities buckwheat would not appear and in others wheat would be replaced by rye. In this and succeeding problems estimates for help do not include the labour of the farmer himself; the net returns stand as the salary which the farmer receives for his services. No personal or family expenses should be included under the head of "supplies and incidentals."

A word of explanation is demanded regarding the figures given for probable returns. The problem is designed to illustrate a typical "mixed farm" on which nothing is made a specialty and nothing is pushed to a high state of productiveness, yet a farm which represents good farming and more than average crops. The yield of butter is placed at 200 pounds per cow, much below the possibilities of good cows but decidedly above the average returns shown by statistics. It is assumed that half the calves

are raised and half of them are sold at the end of the first summer. Surplus milk is fed to pigs, leaving the pork production small. In many cases it would be better to veal the calves and grow more pork. The return for apples is placed at one-half the estimated yield for a bearing year. The potato crop is a side issue, like everything else. It receives no special care or fertiliser and it is assumed that it will be possible to market 100 bushels per acre and provide for seed for the following year.

The farm is supposed to be largely self-supporting. It is assumed that the farmer will hire one man during the summer months and care for the stock himself during the winter. The farm is expected to provide feed for all the stock which it keeps. The farm manure, applied at some fixed place in the rotation, is depended upon to maintain fertility and there is no outlay for fertiliser. This may seem unwise to the New Englander but the typical farmer of New York and Pennsylvania will feel quite at home under these conditions. There are many ways in which the returns might be increased and many more in which they might be reduced.

A REPRESENTATIVE MIXED FARM, NEW YORK

The following actual figures are from a large farm in New York. It is one with some very

SPECIFIC TYPES OF FARMING 227

fertile bottom-land and a large amount of rough and steep hillside. The figures represent general averages as given from memory by the owner:

INVENTORY		
	Cost	Valuation
Farm, 276 acres @ \$30		\$8,280.00
Waterworks		1,000.00
Dairy barn and silos		4,500.00
Hen house, 20 x 60		200.00
Hog pen, 20 x 40		200.00
Horse barn, 28 x 40, with sheds.		800.00
Tool and carriage house		200.00
Outlying hay and straw barn		800.00
2 Tenant houses, \$800 and \$600		1,400.00
5 Work horses		400.00
2 Colts, unbroken		200.00
Harness.		40.00
Wagons		100.00
Sleighs		40.00
Separator	\$200	150.00
Dairy engine	\$100	50.00
Dairy room		50.00
Churns, milk cans and small utensils		30.00
Steam engine	\$400	200.00
Ensilage cutter	\$105	60.00
Corn harvester.		115.00
2 Mowing machines		50.00
Tedder	\$ 25	15.00
Hay rake		15.00
Hay press	\$150	40.00
Reaper		50.00
Grain drill	\$ 80	55.00
Thresher	\$200	40.00
4 Plows		25.00

Disc harrow	\$28.	\$20.00
3 Spring-tooth harrows		15.00
Corn cultivator	\$28.	20.00
Roller		15.00
Fanning mill		5.00
Grist mill		5.00
Buzz saw		15.00
Pulleys and shafting		10.00
Small implements		100.00
Bull		50.00
38 Cows @ \$30		1,140.00
8 Yearlings and two-year-olds		150.00
9 Calves		45.00
30 Sheep @ \$4		120.00
7 Brood sows		105.00
10 Shoats		60.00
30 Pigs		100.00
150 Hens @ 35c		52.50
12 swarms Bees @ \$2.50		30.00
		<hr/>
	Total, \$21,162.50	

FARM ROTATION BALANCE	acres
Woodland and waste	80
Rough pasture	50
Orchard	6
Rotation pasture	8
Corn	18
Oats	18
Buckwheat	6
Rye	12
Potatoes	1
Garden and small fruits	2
Meadow	75
	<hr/>

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EXPENSE OF MANAGEMENT

Help (3 regular men @ \$250.00 with perquisites)	\$1,200.00
Feed (\$600 to \$800)	700.00
Supplies and incidentals	300.00
Fertilisers (5 tons acid phosphate)	60.00
Taxes	30.00
	\$2,290.00
 To this should be added:	
Interest on investment, \$21,162.50 @ 5%	\$1,058.13
Depreciation, repairs and insur- ance on buildings, \$8,100 @ 5%	405.00
Depreciation on team and tools, \$1,930 @ 10%	193.00
	\$1,656.13
Total expense,	\$3,946.13

RETURNS

Butter, (\$65 per cow, 260-270 lbs. average)	\$2,470.00
Cows sold, 6 to 8 @ \$35	245.00
Pork	600.00
Wool and lambs, \$48 and \$132	180.00
Eggs and poultry, \$200 and \$60	260.00
Pork and beef consumed in family, \$60 and \$30	90.00
Milk and cream consumed in family	100.00
Apples, 200 bbls. @ \$1.25	250.00
Rye straw	135.00
Hay	150.00
Buckwheat	140.00
Potatoes, 75 bu. @ 40 cents.	30.00
Garden stuff	50.00
Honey	30.00
Calves	20.00
	Total, \$4,750.00

It will be observed that upon this farm there is a very heavy investment in buildings, \$8,100. Perhaps not all of this is needed from a purely business standpoint. Some of it may represent the home element rather than the business element, the perfectly legitimate wish to make one's surroundings pleasant and convenient. Yet the returns show that the farm is able to carry this heavy investment, with ample allowance for insurance, repairs and depreciation, paying an interest which it would be difficult for the owner to get with equal security in any other investment, and still pay a fair salary to the manager for his services. This farm too, is so located that it must compete in distant markets and the business is conducted on general lines, with no fancy products.

The rate of interest allowed above might be difficult for the owner to secure on the same property except by personal or interested management. As a matter of fact the farm is managed by the son, who pays a cash rental of \$600 and bears all operating expenses, including taxes, repairs and many improvements. In the returns given, adequate allowance has not been made for products used at home. A full account of these items would considerably increase the net proceeds.

It will be observed that while in this business the dairy is the leading element there is a wide

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diversity of operations, so that it fairly represents mixed farming of the better class.

A WOMAN'S FARM

The following figures from a woman's farm in the West are taken from one of the magazines. While somewhat incomplete they serve to give a fair idea of a somewhat different type of mixed farming under different conditions.

INVENTORY

Farm, 80 acres	\$4,000.00
3 Horses	200.00
Plows and harrows	30.00
Wagons	85.00
Binder, mower and seeder	180.00
10 Good cows	400.00
4 Brood sows	60.00
Harness.	40.00
Sundries	225.00
	\$5,220.00

RECEIPTS

Milk and butter	\$500.00
Hogs	250.00
Poultry and eggs	150.00
Garden surplus	75.00
Hay, 15 tons @ \$8	120.00
Corn, 500 bu. @ 20 cents	100.00
Oats, 1,000 bu. @ 25 cents	250.00
Other grains, fodders, etc.	350.00
Calves	50.00
	\$1,845.00

EXPENSES

One man	\$300.00
Feed, cows	300.00
Feed, other stock	150.00
Wear and tear	100.00
	<hr/>
	\$850.00

DAIRY FARMING

If run exclusively in the interests of the dairy, with summer soiling and silos and the careful attention of a dairy specialist our 100-acre farm should be able to make a showing somewhat like the following:

INVENTORY

Farm, 100 acres @ \$40	\$4,000.00
Dairy barn	1,500.00
Silos	300.00
Ice house	250.00
Separator	125.00
50 Cows @ \$40	2,000.00
Bull	100.00
Young stock	400.00
Team, harness and wagon	400.00
Engine	250.00
Ensilage cutter and carrier	125.00
Mowing machine	40.00
Tedder	25.00
Hay rake	25.00
Plows and harrows	50.00
Dairy utensils	50.00
Small implements	100.00
	<hr/>
Total,	\$9,740.00

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FARM ROTATION BALANCE

	Acres
Woodland, waste and buildings	20
Pasture	20
Corn (one-half followed by rye and wheat).	30
Oats and peas	15
Hay (followed by barley and millet)	15
	100

PROBABLE EXPENSE OF MANAGEMENT

Interest, \$9,740 @ 5%	\$ 487.00
Depreciation, repairs and insurance on buildings, 5%	102.50
Depreciation on team and tools 10 %	119.00
Taxes	60.00
Help	900.00
Grain	1,000.00
Supplies and incidentals	200.00
	Total, \$2,868.50

PROBABLE RETURNS

12,500 lbs. Butter @ 25 cents	\$3,125.00
35 Calves @ \$10	350.00
10 Cows @ \$40	400.00
	Total, \$3,875.00
Expense of Management,	2,868.50
Farmer's Salary,	\$1,006.50

This plan, as here outlined, provides for nothing but dairy cattle. Ten of the best calves are kept each year to develop into cows. This leaves ten heifers coming one year old and ten coming two years old to be carried through each winter in addition to the fifty which are old

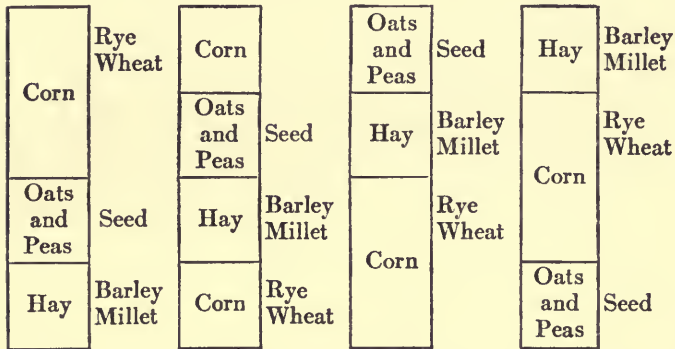
enough to be giving milk. The remaining calves it is assumed will be fed the skim milk and sold when six or eight months old. In actual practice it would probably prove better management to keep some pigs to help utilise the skim milk.

The farm rotation balance allows twenty acres for pasture. This is probably more than the best management would permit. Soiling must be the main dependence and more feed could be produced by limiting the pasture to merely an exercise ground. Of the sixty acres remaining one-half is devoted to corn, one-fourth to oats and peas and one-fourth to hay. The corn will be called upon for soiling and to fill the silos, any remaining being husked and the stalks cured dry. Part of the oats and peas will be fed green and part cured for hay. The hay land is plowed and sowed to barley and millet for late fall soiling and additional dry fodder, as soon as the hay is off. With clover the second crop might be depended upon for this purpose. Half of the corn ground is sowed to rye and wheat for early spring soiling, part of which will be cured for hay. This part of the corn ground is again planted to corn as soon as the rye and wheat are off. The remaining corn goes where the hay, followed by barley and millet, was the year before. Oats and peas occupy the remaining corn ground.

This would develop a four-year rotation which

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would work out about as shown in the following diagram, provided the twenty acres of pasture do not enter into the rotation. This could be brought in by pasturing the meadow after hay is off and turning over fifteen acres of pasture for the barley and millet. The chief disadvantage of the rotation is that it allows but one year's cutting of grass for each seeding.



It is assumed that the dairy specialist will keep better stock and secure a higher yield than the mixed farmer who makes the dairy only one of many lines. It is possible in time to considerably exceed the figures here given. It will be noted that the investment demanded in dairy farming is comparatively heavy. Depreciation in cows is provided for by the growth of young stock.

The showing could be much improved by providing for pure-bred stock, which would add greatly to the value of animals sold.

A TYPICAL DAIRY FARM—PENNSYLVANIA

INVENTORY

Land without buildings, 120 acres @ \$40 .	\$4,800.00
Water supply	100.00
<i>Buildings</i>	
Dwelling	1,200.00
Barns	2,200.00
Other farm buildings	200.00
<i>Live stock</i>	
20 Cows @ \$35	700.00
Young cattle	296.00
50 Hogs @ \$8	400.00
100 Hens @ 50 cents	50.00
<i>Teams and Tools</i>	
4 Horses @ \$50	200.00
Farm harness	40.00
Farm wagons	50.00
Corn harvester	125.00
Other farm implements	100.00
Binder	115.00
	Total, \$10,576.00

FARM ROTATION BALANCE

	Acres
Buildings, waste and woodland	20
Meadow	20
Pasture	40
Corn	20
Oats	15
Wheat	4
Potatoes	1
	120

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AVERAGE EXPENSES	
Taxes	\$ 52.00
Help	250.00
Feeds.	350.00
Supplies and incidentals	25.00
	Total, \$677.00

AVERAGE RETURNS	
5,000 lbs. Butter at 22 cents	\$1,100.00
8,000 lbs Pork @ 5 cents	400.00
Eggs	150.00
100 bu. Potatoes @ 50 cents	50.00
Stock sold	750.00
	Total, \$2,450.00

SHEEP FARMING

Sheep farming as a separate and independent proposition is a difficult problem. Even the men who believe most thoroughly in the sheep seldom advocate attempting to make that the only business.

For the following estimate I am indebted to Joseph E. Wing of Ohio.

INVENTORY	
Land without buildings, 100 acres @ \$40.	\$4,000.00
Barns and silos	1,200.00
Other farm buildings, windmills, etc.	900.00
4 Cows @ \$35.	140.00
100 Sheep @ \$5	500.00
2 Hogs @ \$10	20.00
100 Hens @ 40 cents	40.00
3 Horses @ \$150	450.00
Farm harness	45.00
Farm wagons	50.00
Other farm implements	250.00
	Total, \$7,595.00

FARM ROTATION BALANCE

	Acres
Buildings, waste and woodland	20
Meadow	20
Pasture	20
Corn	20
Oats	5
Potatoes	5
Apples	5
Soy beans	5
	<hr/> 100

PROBABLE EXPENSES

Taxes	\$ 85.00
Help	300.00
Supplies and incidentals	250.00
Interest on investment 5%	379.75
Depreciation, interest and insurance on buildings, 5%	105.00
Depreciation on team and tools, 10%	79.50
	<hr/> \$1,199.25

PROBABLE RETURNS

600 lbs. Butter @ 25 cents	\$150.00
300 dozen eggs @ 20 cents	60.00
500 bu. potatoes @ 40 cents	200.00
100 bbls. Apples @ \$1.50	150.00
75 Fat lambs raised @ \$7	525.00
100 Fleeces	150.00
25 Fat ewes	175.00
300 Fat lambs fed through winter, profit	300.00

Total, \$1,710.00

Expense of Management, 1,199.25

Farmer's Salary, \$ 510.75

Mr. Wing writes as follows concerning this estimate. "I do not know of any sheep farms in the United States that are devoted altogether to sheep. It is difficult here to do that thing. The parasite is troublesome where too many sheep are kept. A farm of 100 acres is too small to be managed with most economy. Hogs and sheep mix disastrously. Cows, hens, and fruit fill in well. It is all a question of the man. If he is good, things will increase mightily and profit will result. If he is slack or lacks genius he will not make the farm pay."

Sheep often prove profitable in mixed farming or as an adjunct to the dairy farm. A small flock, running with the cows or by themselves usually thrive well and prove proportionately more profitable than larger flocks. They are particularly well suited to dry hilly pastures, often bringing a better return from such land than it can be made to yield in any other way.

A NEW ENGLAND FARM ON WHICH SHEEP
FIND A PLACE—MASSACHUSETTS

INVENTORY

Land without buildings, 200 acres @ \$10	. \$2,000.00
<i>Buildings</i>	
Dwelling	2,000.00
Barns and silos	2,000.00
Other farm buildings	600.00
<i>Live stock</i>	
15 Cows @ \$40	600.00

15 Young cattle	150.00
200 Sheep @ \$4	800.00
6 Hogs @ \$7.50	45.00
100 Hens @ 50 cents	50.00

Teams and Tools

4 Horses	375.00
2 Oxen	140.00
Farm harness	50.00
Farm wagons	75.00
Other farm implements	183.00

Total \$9,068.00

FARM ROTATION BALANCE

	Acres
Buildings and woodland	60
Meadow	40
Pasture	100
Corn	6
Potatoes	<u>1</u>

AVERAGE EXPENSES

Taxes	\$160.00
Help	500.00
Feeds	500.00
Fertilisers	50.00
Supplies and incidentals	200.00

Total \$1,410.00

AVERAGE RETURNS

5,000 lbs. Butter @ 22 cents	\$1,100.00
1,000 lbs. Pork @ 6½ cents	65.00
875 dozen Eggs @ 20 cents	175.00
80 bu. Potatoes @ 60 cents	48.00
400 bbls. Apples @ \$1.50	600.00
700 lbs. Wool @ 18 cents	126.00
Lambs sold	400.00

Total \$2,514.00

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GRAIN FARMING

For pure grain farming in the same locality in the East, the problem would be somewhat as follows:

INVENTORY

Farm, 100 acres @ \$40	\$4,000.00
Grain barn	800.00
Team, harness and wagons	400.00
Plows and harrows	75.00
Grain drill	50.00
Binder	125.00
Small implements	100.00
	\$5,550.00

FARM ROTATION BALANCE

	Acres
Woodland, waste and buildings	20
Oats or barley	30
Buckwheat	10
Wheat or rye, followed by cowpeas or clover	40
	100

PROBABLE EXPENSES

Interest, \$5,550 @ 5%.	\$277.50
Depreciation, repairs and insurance on buildings 5%	40.00
Depreciation on team and tools 10%	75.00
Taxes	30.00
Help and thresh bill	150.00
Supplies and incidentals	100.00
40 bu. Cowpeas or 10 bu. clover	60.00
Fertilisers	800.00
	Total \$1,532.50

PROBABLE RETURNS

850 bu. Oats @ 40 cents	\$340.00
(1200 bu. less 350 for team and seed)	
40 tons Oat-straw @ \$6	240.00
300 bu. Buckwheat @ 50 cents	150.00
800 bu. Rye @ 60 cents	480.00
60 tons Rye-straw @ \$12	720.00
	Total \$1,930.00
	Expense of Management 1,532.50
	Farmer's Salary \$397.50

This estimate assumes that the fertility of the soil can be maintained by an annual expenditure of \$10 per acre for fertilisers. It also provides for keeping up the humus supply by following the fall grain each year with a crop of cowpeas or crimson or mammoth clover. By dividing between fall and spring grain and using buckwheat for part of the latter it will be possible for one man and team to do all the work of plowing and seeding. The only help needed will be in connection with harvesting and threshing. Barley may be substituted for oats, or wheat for rye, with about equal returns, varying somewhat with the locality.

Grain farming has naturally flourished where it has not been the custom to guard against depletion of fertility, and where extensive methods are possible. It offers little inducement to the Eastern farmer as a pure type, though by careful management the above returns could be

much increased. Grain growing as part of a rotation with other crops, where some other line forms the main issue, is much more promising.

BEEF FARMING

Although chiefly confined to the prairies and the ranch it will not be amiss to consider the possibilities of beef farming upon a typical Eastern farm. Changed into intensive methods the problem should work out something like the following.

INVENTORY

Farm, 100 acres @ \$40	\$4,000.00
Barn	1,000.00
Silos	300.00
30 Beef cows @ \$50	1,500.00
Bull	200.00
Team, harness and wagons	400.00
Mowing machine	40.00
Tedder	25.00
Hay rake	25.00
Plows and harrows	50.00
Small implements	100.00
	<hr/>
	\$7,640.00

FARM ROTATION BALANCE

	Acres
Woodland, waste and buildings	20
Pasture	10
Roots and forage	10
Corn	30
Hay	30
	<hr/>
	100

PROBABLE EXPENSE OF MANAGEMENT

Interest, \$7,640 @ 5%	\$382.00
Depreciation, repairs and insurance on buildings @ 5%	65.00
Depreciation on team and tools @ 10%	64.00
Taxes	50.00
Help	300.00
Supplies and incidentals	150.00
Grain	300.00
	<hr/>
Total,	\$1,311.00

PROBABLE RETURNS

30,000 lbs. Beef @ 5 cents (30 head one-year old)	\$1,500.00
Expense of Management,	<u>1,311.00</u>
Farmer's Salary,	\$ 189.00

For suggestions in making up these figures I am indebted to a well-known animal industry man. The farm rotation balance here suggested contemplates feeding from the silo summer and winter, with a small area of roots and summer forage to furnish a slight variety of feed. The pasture may or may not enter into the rotation. Land may be seeded in the corn at the last cultivation or following forage crops and allowed to remain in hay two years, half the thirty acres being newly seeded each year and allowing corn to occupy the same land or forage land a second year, one-half being on sod ground. Forage crops may be interspersed in part as suggested in the dairy farm rotation. Provision could be

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made for bedding in connection with the forage-crop area.

It is assumed that "baby-beef" can be made to reach 1,000 pounds in weight at one year of age. The prices allowed for investment are sufficient to provide for good beef animals.

This estimate is merely an attempt to adapt beef farming to our assumed type of farm, limited in size. In other words it is an attempt to transform a naturally extensive type of farming into an intensive type, and the results are not encouraging. With a larger investment in land, allowing for pasture in summer, and a correspondingly smaller expense for labour, the results may be quite different.

The following figures from a 1,000-acre beef farm in Missouri show the ability of such a farm to pay interest on a heavy capitalisation and still leave a substantial salary for the owner.

A PROFITABLE BEEF FARM—MISSOURI

INVENTORY

Land without buildings, 1040 acres @ \$65 .	\$67,600.00
Water supply, drains, etc.	1,400.00
<i>Buildings</i>	
Dwellings, including 5 tenant houses	6,000.00
Barns and Silos	3,000.00
Other farm buildings	1,000.00

Live stock

100 Cows (Short horns) @ \$100	\$10,000.00
50 Young cattle \$75	3,750.00
100 Beef steers @ \$50	5,000.00
300 Hogs @ \$5	1,500.00
200 Hens @ 50 cents	100.00

Teams and Tools

10 Horses @ \$100	1,000.00
Farm harness	100.00
Farm wagons	200.00
Other farm implements	200.00

Total, \$100,850.00

FARM ROTATION BALANCE

	Acres
Buildings, waste and woodland	100
Meadow	200
Pasture	580
Corn	80
Oats	40
Wheat	40

1040

AVERAGE EXPENSES

Taxes	\$ 450.00
Help	1,440.00
Supplies and incidentals	3,000.00

Total, \$4,890.00

AVERAGE RETURNS

100 lbs. Butter @ 25 cents	\$ 25.00
200 dozen Eggs @ 15 cents	30.00
100 tons Hay @ \$6.50	650.00
100 Steers	6,000.00
50 Cows (Short horns)	6,000.00
200 Hogs @ \$12.50	2,500.00

Total, \$15,205.00

POULTRY FARMING

Poultry farming adapts itself to a wide range of possibilities, but I know of no more business-like system than that which employs a farm of considerable size, similar to the one we have chosen for illustration. The figures here given are based upon the experience of a very successful poultry firm which adopts this type.

INVENTORY

Farm, 100 acres @ \$40	\$4,000.00
Barn, with root cellar	500.00
Henhouses (\$2 per hen,)	4,000.00
Incubator cellar, feed and cooking room	500.00
12 Colony brooder houses for chicks @ \$30	360.00
Fencing	300.00
Incubators	150.00
Team, harness and wagons	400.00
Plows and harrows	50.00
Mowing machine	40.00
Hay rake	25.00
Small implements	100.00
2,000 Fowls @ \$1.50 (75 cents each if not pure-bred)	3,000.00
	<u>\$13,425.00</u>

FARM ROTATION BALANCE

	Acres
Woodland, waste and buildings	20
Corn	20
Wheat	20
Clover	10
Oats and peas	10
Pasturage, set with fruit	20
	<u>100</u>

FARM MANAGEMENT

PROBABLE EXPENSE OF MANAGEMENT

Interest, \$13,425 @ 5%	\$ 671.25
Depreciation, repairs and insurance on buildings @ 5%	268.00
Depreciation on team, tools and fencing 10%	91.50
Taxes	40.00
Help (two regular men)	900.00
Feed (\$1 per hen less amount raised) . .	1,000.00
Advertising	200.00
Supplies and incidentals	300.00
	<hr/>
Total, \$3,470.75	

PROBABLE RETURNS

Eggs for market @ 30 cents per dozen . .	\$4,000.00
Eggs for hatching	1,000.00
Meat and breeding stock	1,000.00
Fruit	1,000.00
	<hr/>
Total, \$7,000.00	

Expense of Management, 3,470.75

Farmer's Salary, \$3,529.25

In this estimate of returns the cost of raising chicks is provided for by sale of hens, the receipts for which are not included.

In a business of this size the demand for litter in the houses corresponds to the demand for roughage on a dairy farm. Growing a considerable amount of grain, as above, provides for this as well as reducing the money outlay for purchased feed. An acre of beets should be provided for at some point. This may be taken from the pasture range in orchard or from the amount assigned to one of the other crops.

The plan here followed uses home made colony brooder houses for chicks, in which heat is used only while the chicks are young but in which they remain until ready to take their place in the regular laying flocks. The supplies and incidentals will include whitewash, kerosene and gasolene, bug-death, postage, etc. The price allowed for market eggs assumes a well established trade among customers willing to pay for a carefully prepared and fully guaranteed article. This price is somewhat exceeded by the firm upon whose experience these figures are based.

The fact which is likely to strike those unfamiliar with the business most forcibly is the large amount of capital involved. Many false notions exist in this regard. While it is perfectly true that one may make a beginning in the poultry business with very little capital, provided he does not need to depend upon that for a livelihood, it is equally true that to make it a business of any great importance demands a heavier investment than in many other lines of farming. Given that investment, coupled with skilful management, and the returns need no apology. It should be noted that the amount of labour demanded is also considerably more than is often supposed.

A MODEST POULTRY FARM—RHODE ISLAND

INVENTORY

Land without buildings, 113 acres . . . \$ 400.00

Buildings

Dwelling 500.00

Barns 200.00

Other farm buildings 600.00

Live Stock

2 Cows @ \$30 60.00

900 Hens @ 60 cents 540.00

Chicks and ducks 200.00

Teams and Tools

2 Horses @ \$50 100.00

Farm harness 40.00

Farm wagons 60.00

Other farm implements 50.00

Total, \$2,750.00

Estimate of cash needed for working capital, \$ 300.00

FARM ROTATION BALANCE

Acres

Buildings, waste and woodland 73

Meadow 18

Pasture 20

Potatoes $\frac{1}{2}$

Garden $\frac{1}{2}$

112

AVERAGE EXPENSES

Taxes \$ 3.00

Help 200.00

Feeds. 2,000.00

Supplies and incidentals 450.00

Total, \$2,653.00

AVERAGE RETURNS

Eggs \$1,800.00

Poultry 2,000.00

Total, \$3,800.00

SPECIFIC TYPES OF FARMING 251

GRASS FARMING

In many localities hay is a profitable crop. Under some conditions it may seem wise to devote the farm to hay alone. In that case the problem would work out in a manner similar to the following:

INVENTORY	
Farm, 100 acres @ \$40	\$4,000.00
Hay barn	1,000.00
Team, harness and wagons	400.00
Mowing machine	40.00
Tedder	25.00
Hay rake	25.00
Hay loader	60.00
Plows and harrows	50.00
Rollers	25.00
Small implements	50.00
Total,	\$5,675.00

FARM ROTATION BALANCE	Acres
Woodland, waste and buildings	20
Hay	80
	<u>100</u>

PROBABLE EXPENSE OF MANAGEMENT	
Interest, \$5,675 @ 5%	\$ 283.75
Depreciation, repairs and insurance on buildings @ 5%	50.00
Depreciation on team and tools @ 10%	67.50
Taxes	40.00
Helping in haying	200.00
Grain and bedding for team	100.00
Grass seed, 20 acres each year	40.00
Fertilisers, \$15 per acre	1,200.00
Supplies and incidentals	50.00
Total,	\$2,031.25

PROBABLE RETURNS

240 Tons hay @ \$15	\$3,600.00
Expense of Management	<u>2,031.25</u>
Farmer's Salary	1,568.75

These figures assume that by an expenditure of \$15 per acre annually for fertilisers it is possible to secure an average yield of three tons of hay per acre. Such yields are being exceeded year after year on good grass land with careful management. It is assumed that four crops will be taken before reseeding, which is done by working up the old sod as soon as the grass is cut, giving thorough and frequent tillage until September 1st and seeding to grass alone. As the hay is grown for market no clover is used and all nitrogen needed must be supplied in fertilisers. A side-delivery rake and a hay press are additional items of equipment worthy of consideration. In some cases the hay loader might not be profitable.

In determining whether this would prove a profitable type of farming the character of the land and the cost of marketing should be carefully considered. On good hay land in localities where hay brings a high price it is one of the most promising lines. New England is a particularly favourable region for hay farming since the prices average very high and the climate is favourable for the growth of grass. Much of the soil is deficient in fertility so that fertilising

must be more liberal than in many other parts of the country.

A feeling exists among farmers that to sell hay is a bad business policy, because it depletes the fertility of the land. Under the common system of taking everything off and putting nothing back this is true. It is easily possible, however, to supply all the fertiliser ingredients removed, in the form of chemicals, while hay farming, unlike grain farming, does not rob the soil of its humus, the depletion of which causes so much injury to the mechanical condition of the soil and such rapid depletion of fertility in continuous grain growing.

Certain objections apply to a system of all hay farming. Chief among these is the fact that the greater part of the labour is bunched at haying time, a season when it is most difficult to obtain help and when prices rule higher than at any other season of the year. There is not enough labour for team nor men during the remainder of the year to warrant keeping a sufficient force to handle the haying with regular help. It is therefore necessary to make careful provision for the extra help needed in ample time to avoid delay when haying comes.

There is a possibility that insect enemies, particularly the white grub (*Lachnosterna fusca*), may render continuous grass culture precarious. This latter insect is especially

troublesome in New England, and its habit of laying its eggs in grass land, being much more injurious in old meadows and pastures, may render it a serious enemy to this type of farming.

In some quarters a prejudice has arisen against hay fertilized with chemicals, owing to the belief that its quality is inferior. Should this belief prove well-grounded, it may become a serious objection to pure hay farming.

SPECIAL FARMING Terry Rotation

A three-year rotation limited to wheat, clover and potatoes, as formerly practised by T. B. Terry of Ohio, should show results somewhat as follows:

INVENTORY	
Farm, 100 acres @ \$40	\$4,000.00
Barn and sheds	1,000.00
Team, harness and wagons	400.00
Plows and harrows	75.00
Roller	25.00
Mowing machine	40.00
Tedder	25.00
Hay-rake	25.00
Potato planter	50.00
Potato digger	100.00
Grain drill	50.00
Binder	125.00
Small implements	100.00
	Total, \$6,015.00



65. A PROFITABLE HAY FIELD KEPT CONTINUOUSLY IN GRASS



66. MODERN IMPLEMENTS

Render hay farming much more feasible than it formerly would have been

SPECIFIC TYPES OF FARMING 255

FARM ROTATION BALANCE

	Acres
Woodland, waste and buildings	20
Potatoes	26 $\frac{2}{3}$
Wheat	26 $\frac{2}{3}$
Clover	26 $\frac{2}{3}$
	100

PROBABLE EXPENSE OF MANAGEMENT

Interest, \$6,015 @ 5%	\$ 300.75
Depreciation, repairs and insurance on buildings @ 5%	50.00
Depreciation on team and tools @ 10%	101.50
Taxes	40.00
Help	400.00
Supplies and incidentals	100.00
Grain for team	75.00
Fertilisers	250.00
	Total, \$1,317.25

PROBABLE RETURNS

5,000 bu. Potatoes @ 50 cents	\$2,500.00
750 bu. Wheat @ 75 cents	562.50
	Total, \$3,062.50
Expense of Management,	1,317.25
Farmer's Salary,	\$1,745.25

For a farm of this size the plan as here outlined is weak in not providing a profitable use for the clover hay, As practised by Mr. Terry on a smaller farm the clover can be utilised by liberal feeding to the team and family cow. The addition of a system of winter feeding of calves

for beef or of boarding stock which would pay a fair value for the hay and for the labour involved would materially increase the returns and render the plan more businesslike. As outlined here it would be necessary to allow much of the clover to return directly to the land unharvested.

The above estimate allows for 200 bushels of potatoes and thirty bushels of wheat per acre. With these yields the amount marketed will still provide a sufficient amount for seed. In case of potatoes it will allow for exchange of seed, in part at least, at an advance in price over that obtained for those marketed.

Mr. Terry was able to carry on this rotation continuously without the use of chemical fertilisers, and without any apparent depletion of fertility. Whether this can be done everywhere is open to question. Certain it is that in many localities chemicals would be needed at the beginning in order to secure yields anywhere near satisfactory. Yet the soil conditions brought about by the abundance of humus resulting from the clover sod so frequently turned under is doubtless a more important factor than the mineral elements present. With the clover carefully converted into manure and returned to the soil each year as Mr. Terry did it the fertiliser demands will be reduced to a minimum.

SPECIFIC TYPES OF FARMING 257

A POTATO AND HAY FARM—RHODE ISLAND

INVENTORY

Land without buildings, 84 acres @ \$200 . \$16,800.00

Buildings

Dwelling	5,000.00
Barns	1,200.00
Other farm buildings	600.00

Live stock

1 Cow	35.00
50 Hens @ 75 cents	37.50

Teams and Tools

5 Horses	800.00
Farm harness	60.00
Farm wagons	400.00
Other farm implements	500.00

Total \$25,432.50

FARM ROTATION-BALANCE

	Acres
Buildings, waste and woodland	18
Meadow	20
Pasture	18
Corn	6
Oats	10
Potatoes	12

84

AVERAGE EXPENSES

Taxes	\$ 80.00
Help	500.00
Feeds	300.00
Fertilisers	600.00
Supplies and incidentals	?

Total, \$1,480.00

FARM MANAGEMENT

AVERAGE RETURNS

400 dozen Eggs @ 24 cents	\$ 96.00
3,600 bu. Potatoes @ 56 cents	2016.00
40 tons Hay @ \$19	760.00
300 bu. Corn @ 57 cents	171.00
300 bu. Oats @ 38 cents	114.00
	Total, \$3,157.00

FRUIT FARMING

Fruit yields are even more fickle than those of most other farm crops. Returns are therefore hard to estimate, but based on general averages the problem will work out somewhat as follows, if a miscellaneous collection of fruit is grown:

INVENTORY

Farm, 100 acres @ \$40	\$4,000.00
Horse barn	500.00
Storage house	1,000.00
Teams, harness and wagons	700.00
Plows and harrows	100.00
Spraying outfit	150.00
Small implements	100.00
	Total, \$6,550.00

FARM ROTATION BALANCE

	Acres
Woodland, waste and buildings	20
Apples	40
Pears	10
Peaches	10
Plums	5
Cherries	5
Raspberries	3

SPECIFIC TYPES OF FARMING 259

Blackberries	2
Currants	1
Gooseberries	1
Strawberries and clover	3
	100

PROBABLE EXPENSE OF MANAGEMENT

Interest, \$6,550 @ 5%	\$327.50
Depreciation, repairs and insurance on build- ings @ 5%.	75.00
Depreciation on team and tools @ 10%	105.00
Taxes	50.00
Help, regular	600.00
Feed and bedding for teams	400.00
Fertilisers	800.00
Supplies and incidentals	200.00
	Total, \$2,557.50

PROBABLE RETURNS

1,600 bbls. Apples @ \$1 net	\$1,600.00
500 bbls. Pears @ \$1.25 net	625.00
1,000 bu. Peaches @ \$1 net	1,000.00
750 bu. Plums @ 75 cents net	562.50
500 bu. Cherries @ \$1 net	500.00
200 bu. Raspberries @ \$1.25 net	250.00
200 bu. Blackberries @ \$1.25 net	250.00
125 bu. Currants @ \$1 net	125.00
300 bu. Gooseberries @ 75 cents net	225.00
100 bu. Strawberries @ \$1.50 net	150.00
	\$5,287.50
Expense of Management	2,557.50
	Farmer's Salary \$2,730.00

A fruit farm of this size, with the large amount of marketing involved, would call for an additional team, thus increasing the investment

for that item. It should be said that there is also a large investment of passive capital, represented in the trees, which is not included in the above estimate. If this is added it will greatly increase the interest charge on capital. It is difficult to place a just value upon a bearing orchard. If the attempt is made it should be remembered that there is not only the item of appreciation in value for a young orchard but depreciation for orchards which have begun to pass their zenith. Each must be carefully considered or the owner will be led astray. When the grower develops his own orchard he may prefer to look upon it in the light of a crop under way rather than add a value to his farm which it might be difficult for him to realise in case of sale.

For purposes of illustration the farm rotation balance given above shows a larger variety of fruit than it would be advisable to grow under many conditions. The peaches and small fruits are necessarily short-lived so that an exact balance of this kind could not be looked upon as permanent. The strawberries are supposed to alternate with clover, allowing one acre in fruiting, one in young plants and one in clover each year.

On high-priced land, especially, it is entirely feasible to plant small fruits among the trees, thereby materially increasing the productive

possibilities of a given number of acres. This is especially desirable during the years when a young orchard is developing.

The item of help is designed to include only the regular help needed in caring for the trees and plants and in hauling the produce to market. The cost of picking, packing, packages, etc. is provided for by allowing a net price for the products sold low enough so that average market prices will cover these charges. These are variable items, depending upon the amount of fruit sold. Fruit prices are apt to be very irregular and it would be unwise to place too much dependence upon estimates of this sort, but it is believed that the prices allowed are conservative. The yield of the larger fruits is placed at about half that of a full crop in order to arrive at an approximate average between the bearing year and the off year, or years of light crops.

A SUCCESSFUL FRUIT FARM IN NEW YORK
MANAGED BY A FATHER AND SON

INVENTORY

Land without buildings, 114 acres @ \$100	\$11,400.00
Water supply, etc.	500.00
<i>Buildings</i>	
Dwelling	3,000.00
Barns	2,000.00
Other farm buildings	200.00

Live stock

1 Cow	\$50.00
Young cattle	10.00
2 Hogs @ \$5	10.00
100 Hens @ 50 cents	50.00

Teams and Tools

7 Horses @ \$125	875.00
Farm harness	100.00
Farm wagons	600.00
Other farm implements	300.00

Total, \$19,095.00

FARM ROTATION BALANCE

	Acres
Buildings, waste and woodland	30
Meadow	6
Pasture	6
Fruit	62
	104

AVERAGE EXPENSES

Taxes	\$ 100.29
Help	3,217.01
Feeds	360.61
Fertilisers	384.62
Supplies and incidentals, estimated (this includes fruit packages, \$1,467.69)	2,000.00
	Total, \$6,062.53

AVERAGE RETURNS

Total sales of fruit, less freight and commission	\$12,955.41
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This was considered an unusually good year.

TRUCK FARMING

At this point it will be necessary to depart from our typical farm of 100 acres, for a farm of 100

SPECIFIC TYPES OF FARMING 263

acres devoted to vegetables would represent a business of much greater size than any which we have considered. For this reason we will therefore assume a farm of ten acres, the land being worth \$125 per acre. For purposes of illustration, as in the case of fruit growing, a rather wide range of products will be included.

INVENTORY

Farm, 10 acres @ \$125	\$1,250.00
Horse barn	500.00
Root cellar	500.00
Teams, harness and wagons (3 horses)	600.00
Plows and harrows	50.00
Small implements	100.00
Total,	\$3,000.00

FARM ROTATION BALANCE

	Acres
Buildings and waste	½
Asparagus	1
Potatoes, followed by cabbage	3
Sweet corn, followed by turnips . . . . .	.1
Onions, followed by carrots	1
Cabbage, running	1
Spinach, followed by tomatoes	½
Beans and peas, followed by beets	½
Onion sets and lettuce, followed by sweet corn	½
Beets	¼
Carrots	¼
Parsnips	¼
Rhubarb	¼

FARM MANAGEMENT

PROBABLE EXPENSE OF MANAGEMENT

Interest, \$3,000 @ 5%	\$150.00
Depreciation, repairs and insurance on build- ings @ 5%.	50.00
Depreciation on team and tools @ 10%	75.00
Taxes	25.00
Help	800.00
Feed and bedding for teams (3 horses)	300.00
Manure and fertilisers	400.00
Seeds	60.00
Supplies and incidentals	100.00
	<hr/>
Total, \$1,960.00	

PROBABLE RETURNS

600 bu. Potatoes @ 75 cents	\$450.00
35 tons Cabbage @ \$20	700.00
400 bu. Onions @ 60 cents	240.00
500 bu. Carrots @ 50 cents	250.00
1,250 doz. ears Sweet corn @ 8 cents	100.00
200 bu. Turnips @ 40 cents	80.00
2,500 lbs. Asparagus @ 12 cents	300.00
100 bbls. Spinach @ \$1.50	150.00
150 bu. Tomatoes @ 50 cents	75.00
75 bu. String beans @ 80 cents	60.00
50 bu. Peas @ \$1	50.00
150 bu. Late beets @ 50 cents	75.00
500 dozen Lettuce @ 25 cents	125.00
6,000 bunches Onion sets	125.00
400 doz. bunches Beets @ 30 cents	120.00
400 doz. bunches Carrots @ 30 cents.	120.00
50 bbls. Parsnips @ \$1.50	75.00
Rhubarb	25.00

Total, \$3,120.00

Expense of Management, 1,960.00

Farmer's Salary, \$1,160.00

SPECIFIC TYPES OF FARMING 265

Such a wide range of products as here assumed would call for a local market demanding a general supply. If for a wholesale trade fewer kinds would prove more profitable. It will be noticed that in this type of farming the capital invested is much less in proportion to the total returns than in types previously considered. The interest charge is therefore smaller, while the expenses for help and fertiliser are proportionately larger. For the man with limited capital this type possesses manifest advantages.

A TYPICAL TRUCK FARM NEAR BOSTON

INVENTORY

Land without buildings, 14½ acres @ \$800 .	\$11,600.00
<i>Buildings</i>	
Dwelling	1,700.00
Barns	400.00
Greenhouses	1,000.00
<i>Live stock</i>	
1 Cow	25.00
35 Hens @ 80 cents	28.00
<i>Teams and Tools</i>	
3 Horses @ \$150	450.00
Farm harness	75.00
Farm and market wagons	400.00
Other farm implements	168.00
Hotbed sash	1,100.00
Total,	\$16,946.00

FARM ROTATION BALANCE

	Acres
Buildings, waste and woodland	4½
Small vegetables	10
	<hr/> 14½

AVERAGE EXPENSES

Taxes	\$ 180.00
Help	3,290.00
Feeds.	460.00
Fertilisers	748.00
Supplies and incidentals	800.00
	<hr/> Total, \$5,478.00

AVERAGE RETURNS

Vegetables, forty varieties	\$6,768.00
---------------------------------------	------------

Statement of expenses and returns taken from figures for five years.

The reader may find items in the foregoing estimates which his own experience will lead him to criticise or change. They are believed to present a reliable working basis for making comparisons under average conditions but too much emphasis is not to be laid upon the detailed items given.

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