A STUDY OF THE BASIC PRINCIPLES OF FARM MANAGEMENT

BY

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PART I

OBJECTIVES

Teacher trainers, supervisors, and teachers of vocational agriculture have long recognized the weakness in the instruction in farm management and related problems in the high school. Much material is available in this field but relatively little of it is suitable for use in high school classes. There is also a wide variety of procedures in the organization and use of material in this field.

In this study an attempt has been made to attain the following objectives:

1. To determine the nature and content of farm management units now being taught by teachers of agriculture in the high schools.
2. To set up a proposed course outline in farm management for use by teachers in the high school.
3. To organize the desirable technical content of farm management units to be taught by vocational instructors.

PROCEDURE

In securing and organizing the data of this study the following steps were carried out:

1. By visitation and the use of a questionnaire, secured from the teachers of agriculture in Virginia, the following information:
   a. The number of farm management units now being taught and the time devoted to such instruction.
   b. The number of farm management units that the teachers think should be taught and the time devoted to such instruction, provided suitable teaching units are made available.
   c. Schedules for teaching such units.
   d. Suggested list of needed units.
2. Secured the above information from certain selected teachers of agriculture in ten other states.
3. Prepared a list of units for farm management instruction in Virginia.
4. Secured and organized as reference material for student use the technical data for each of the selected units.
5. Had ten selected teachers try out the organized material and made such revisions as were suggested by their experience.

STATUS OF FARM MANAGEMENT INSTRUCTION

The situation in Virginia with respect to the number of farm management units being taught and the number the teachers think should be taught is shown in the following table. In each year, it seems, teachers would like to increase the number of units they are now teaching.

Farm management units taught in Virginia
96 white teachers

	Freshmen	Sophomores	Juniors	Seniors
Average units taught	3.0	3.7	6.3	7.4
Should be taught	4.9	6.6	10.3	13.0
Percent increase	63	80	63	76

The situation in certain other states is similar to that in Virginia in that the teachers have indicated a desire to teach more farm management units than are now being taught.

Farm managements units taught in other states
29 out-of-state teachers

	Freshmen	Sophomores	Juniors	Seniors
Average units taught	4.4	5.0	8.0	11.0
Should be taught	5.0	6.8	16.3	19.0
Percent increase	14	36	104	73

The number of class periods now devoted to the teaching of farm management by years and the number the teachers think should be devoted to such instruction if suitable teaching units were made available are shown in the following table. The teachers in Virginia have indicated

a desire to devote more time each year to these problems than is now being used.

Average time in clock hours devoted to farm management in Virginia
96 white teachers

	Freshmen	Sophomores	Juniors	Seniors
Hours now devoted	6.5	8.2	16.4	18.9
Should be devoted	9.0	12.0	21.6	26.9
Percent increase	38	46	32	42

The group of out-of-state teachers seem to be using more time for farm management instruction than the Virginia teachers for each year. The out-of-state teachers indicated that less time should be devoted to such instruction the first three years and an increase for the fourth year.

Average time in clock hours devoted to farm management in other states
29 out-of-state teachers

	Freshmen	Sophomores	Juniors	Seniors
Hours now devoted	19.5	18.4	47.6	90.6
Should be devoted	14.1	16.4	45.7	102.3
Percent increase	-38	-12	-4	13

The following farm management units were indicated as being desirable to teach. These units are based on the replies of 96 Virginia white teachers and 29 out-of-state teachers. The teachers varied in their choice of units that should be taught. The lowest number of the Virginia teachers choosing any one unit was 49, and the highest was 94. For the out-of-state teachers, the lowest was 15 and the highest was 28. Maintaining soil fertility was

the most popular choice of the Virginia teachers and marketing farm products tied with keeping farm records for first place with out-of-state teachers.

Frequency and rank of units as indicated by the teachers

Name	Virginia teachers		Other teachers	
	Frequency	Rank	Frequency	Rank
Purpose of farm management	73	8	20	16T
A study of farming types	60	17	23	6T
Determining size of farm business	69	13	24	5
Balancing the farm business	77	6	23	6T
Planning rotations	88	2T	22	9T
Maintaining soil fertility	94	1	27	3
Setting up production goals	51	19	15	21
Planning the farm layout	72	9	21	13T
Laying out the farmstead	65	14T	22	9T
Analyzing the farm business	71	10T	20	16T
Keeping farm records	88	2T	28	1T
Financing the farm business	76	7	23	6T
Insuring farm buildings	63	16	18	18
Insuring crops and livestock	49	20T	16	19T
Farm fencing	55	18	16	19T
Farm buildings	71	10T	22	9T
Farm labor	49	20T	21	13T
Farm machinery and equipment	83	4	21	13T
Choosing and buying a farm	71	10T	25	4
Drawing up contracts and agreements	65	14T	22	9T
Marketing farm products	79	5	28	1T

The number of complete written lesson plans the teachers have available on farm management are indicated below:

Average for 96 white teachers in Virginia	6.6
Average for 29 out-of-state teachers	18.3

The reference material seems to be inadequate for both groups, both as to quantity and the selection. Due to the wide variation in reference material used it was practically impossible to tabulate.

Teachers were asked to indicate their one greatest need in teaching farm management. The following results were obtained by those teachers replying to this question:

Needs of agricultural teachers in farm management instruction

Need	Virginia teachers	Other teachers
Suitable farm management teaching units	45%	35%
Reference material	37%	40%
Lesson plans	12%	10%
Additional technical knowledge	6%	15%

The experience in teaching agriculture for the two groups are as follows:

Average for 96 white teachers in Virginia	9.5 years
Average for 29 out-of-state teachers	12.3 years

SUMMARY

The agriculture teachers of both groups have indicated a desire to teach more farm management units than are now being taught. The teachers in Virginia would like to devote more time each year to these problems than is now being used. The out-of-state teachers indicated that less time should be devoted to farm management instruction the first three years and an increase for the fourth year.

The out-of-state group seems to be teaching more farm management than is being taught in Virginia. However, the fact that this group was selected by their respective teacher training departments may account for this higher trend.

There is some variation in the frequency of units indicated as being desirable to teach. Of the 96 Virginia teachers, the lowest number choosing any one unit was 49 and the highest 94. Of the 29 out-of-state teachers, the lowest was 15 and the highest was 28.

Suitable teaching units and reference material seem to be the two greatest needs of agriculture teachers in their farm management instruction.

SUGGESTIONS FOR USING THE MATERIAL

The material presented here is more or less a study of the basic principles of farm management. No effort has been made to go into the details of specific cases. Farm management is a general term and should be treated as such. Practices vary with each locality and even with the individual farms in the locality. Each farm presents an individual problem.

The general principles or factors as discussed in this study are designed to give the student a basic knowledge of farm management. They may be applied to any farm. Once the student acquires the basic knowledge of farm management, he is then in a position to apply the best combination of these factors to his own particular case. This study will also provide the busy teacher with a convenient guide for teaching the various units as well as a summary of some of the more important technical information needed.

It is suggested that most of the actual teaching of this study should be applying the general principles or factors of farm management to the conditions of the local community and on the individual farm.

P A R T I I

UNIT I

PURPOSE OF FARM MANAGEMENT

The main purpose of studying farm management is to help the farmer make more money. In order to do this he must be able to organize and manage the farm business in such a manner so as to get the greatest profit from the farm as a whole. Farm management is a unit and should be treated as such.

Farm management may be defined as follows:

1. "Farm management is a study which deals with the business side of farming."

2. "Farm management has to do with the organization and operation of an individual farm business."

3. "Farm management is a study which makes the most efficient use of land, labor, and capital on the farm."

4. "Farm management is that science which treats farming from the point of view of efficiency and continuous profit."

Farm management is an essential function in farming and is as old as agriculture itself. With the development of modern industry and commercialization of agriculture, farm management has become an increasingly complicated art.

Successful farming requires good farm management. Good farm management requires good judgment in selecting, organizing, and operating a farm business.

Farm management deals with the farm as a unit. It is concerned with the individual problems as they apply to the business as a whole. The

anagerial skills are emphasized rather than the operative jobs. More armers are likely to fail financially because of poor management and busi- ess ability than because of the lack of ability to do the operative jobs. Differences in the amount of profit from the same size and type of farms re frequently due to the farm management practices applied.

Managing a farm at the present time is quite different from that of a few decades ago. The chief problem in the earlier years was to provide sufficient quantities of the various farm products required by the farm family. Comparatively little was purchased or sold and only small amounts of cash was needed to operate a farm business.

Farming at present is more commercialized than formerly and new farm management problems must be faced by the farmer in conducting his business. He now produces farm products largely for sale to others and purchases the variety of commodities required for farm operations and family living.

The change from self-sufficing farming to a more commercialized system has made it possible for the successful farmer and his family to enjoy farm life to a greater extent than ever before. Successful commercial farming requires good management of the farm business. Management ability in farming is just as important as it is in industry.

The modern successful farmer must understand the economic principles of his business. He must be able to analyze his farm business, pick out the strong and weak points, and make adjustments accordingly. Farm management is not a simple matter of adopting certain approved practices and rules as set up in a text book. It is a combination of many factors and the best combination of these factors varies with different farms.

Farm organization and farm operation are regarded as the two principal divisions of the subject of farm management. These problems overlap to a considerable extent, particularly in the matter of making adjustments in our farming system to meet the changing economic conditions.

Successful farm management requires a large managerial capacity. The farmer who can handle all of the varied demands satisfactorily is likely to be a successful farmer. Good farm management can be achieved only by study, perseverance, experiment, close observation, and attention to details. As in other lines of endeavor, there must be a high ideal and an ambition to attain it.

Suggested exercises:

1. What is the main purpose of studying farm management?

2. Define farm management in your own words.

3. List several important farm management jobs and show how these differ from the operative jobs.

4. Discuss the importance of farm management as a factor in successful farming.

References:

1. Hart, V. B., Bond, M. C., and Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942

2. Hudelson, R. R. Farm Management. New York, The Macmillan Company. 1939.

3. App, Frank, and Waller, A. G. Farm Economics. Philadelphia, J. B. Lippincott Company. 1938.

UNIT II

A STUDY OF FARMING TYPES

Farming type is based largely upon the source of income. A community will tend to produce those products which have the greatest advantage. Types of farming are not established accidently but are the results of many years experience. The physical factors largely determine the type of farming for any region since they are natural forces and are not easy to change. Economic factors are subject to change and the progressive farmer must watch these changes and plan accordingly. It is possible to work against economic forces but the results are less efficient.

Classification of types of farming:

1. General farming.
2. Specialized farming.

Reasons why we have different types of farming in localities:

A. Physical or natural factors.
   1. Climate.
   2. Soil.
   3. Topography.

B. Economic and other factors.
   1. Marketing cost.
   2. Relative profits of competing enterprises.
   3. Changes in relative prices.
   4. Cycles.
   5. Special market demand.
   6. Land value.

7. Capital.
8. Labor.
9. Insect pests and diseases.
10. Neighbors.
11. Personal factors.

Farming Types

Usually farms having 50% or more of the income from one source are classified under their respective types as specialized farming. Farms securing their income from several sources, none of which equals 50%, are called general farms or general type farming. A farm receiving one-half or more of its income from poultry, dairy cows, fruit growing, vegetables, or grain would be classified as poultry farming, dairy farming, fruit farming, truck farming, and grain farming respectively. A farm which grows corn, small grain, hay, poultry, hogs and vegetables but no one of these represents one-half of the total income would be classified as general farming.

Climate

Climate refers to the amount of rainfall, sunshine, temperature, length of growing season and other factors. The relation of climate to types of farming is very close and is almost the ultimate factor in determining what shall be grown. Temperature is perhaps the most important climatic factor affecting the distribution of plants, although water supply is very close to temperature in this respect.

Some examples of climatic needs:

Potatoes require a cool moist climate and a growing season of 120 to 150 days.

Apples need plenty of moisture and plenty of sunshine. Proximity to large bodies of water reduces frost hazards.

Corn needs a hot climate, long growing season and plenty of rainfall.

Wheat has a very wide climatic range, is not bulky, can be stored and shipped and for this reason is a frontier crop.

A cool moist climate is necessary for the production of hay and pasture. Localities which produce large amounts of hay and pasture are usually important livestock areas.

The particular crops grown in any community will greatly influence the livestock produced in that locality. The crop with the more limited climatic and soil requirements take preference over the crops with wider adaptation.

Soil

The natural fertility, the type and the depth of soils are important factors in determining the type of farming in a locality. The quality of a soil may be improved but the type and depth of soils cannot be changed. The depth of a soil affects the humus and organic matter, moisture retention and drainage. A wider variety of crops and more intensive crops are grown on the deeper soils. Potatoes grow best on a sandy or sandy loam soil; apples require a deep soil and good air drainage; cotton grows best on dark clay soils; and alfalfa grows best on a good limestone soil.

Topography

Topography refers to the general lay of the land--the elevation above sea level and whether it is level, rolling or hilly. Topography is fixed by nature and is difficult to change. As agriculture tends to become more commercialized and with the increased use of modern farm machinery, topography is becoming an increasingly important factor in determining the type of farming in localities. Present farm machinery used in growing and harvesting many of our crops is not adapted to rough hilly land. Areas too rough and hilly for the production of cultivated crops may provide excellent pasture for the growing of livestock.

Marketing Cost

One of the most important economic factors affecting the type of farming is marketing cost. The distance to market and the character of the roads may limit the type of farming. Marketing cost depends largely upon bulk and perishability. Highly perishable products should be manufactured near the consumer, non-perishable foods near the producer. Intensive farming is usually found near the markets while extensive farming is found farther away.

Relative Profits of Competing Enterprises

The enterprises that pay best will tend to crowd out those that are less profitable. Many sections are favorable for growing a variety of products giving the farmer a rather wide choice in his selection. Changes in the demand of certain products tends to increase or lower the prices

and the farmer should grow those things which will result in the highest profits. No matter how profitable an enterprise is, it must give way to a competing product that pays better.

Change in Relative Prices

The type of farming in a locality seldom changes due to cycles of over- and underproduction but individuals often change from one enterprise to another due to extremely high or low prices during these cycles. This situation is usually temporary and the more successful farmers continue to produce those enterprises best adapted to the community.

Special Market Demands

The type of farming is limited to some extent by market demands. Profits depend almost entirely upon the possibility of a satisfactory market. The selection of enterprises should be based to some extent upon the local market demands where a choice can be made. Frequently the opportunities of local markets are ignored. It is usually more profitable to produce the kinds of products the market demands.

Land Value

The value of land will tend to influence the type of farming that is followed. Land has a location value aside from other values. As a rule, land that is close to a city or in an established area is higher priced than that in more remote areas. The higher priced land usually means more intensive farming. Pasture, hay and grain crops are usually produced on cheaper land than vegetables or fruit. Sheep and beef cattle are usually grazed on cheaper land than dairy cattle.

Capital

Often the amount of capital that can be invested will determine the type of farming. Livestock farming usually requires more capital than crop farming. Some types of farming require large amounts of land and small equipment, while other types demand less land and extensive equipment. A farm owner will require more capital than a tenant. A farmer with limited capital should operate a business which requires a minimum of cash outlay and one with relatively quick turnover.

Labor

The supply of labor, character of labor and wage scale will determine to a certain extent the type of farming followed. For example, the production of tobacco or vegetables requires a large amount of man labor as compared to livestock or grain farming. For the successful production of certain types of farming a large supply of cheap labor is very essential.

Insect Pests and Diseases

Insect pests and diseases are more prevalent in certain localities than in others and often prevent or limit certain types of farming. Examples of this may be cited in the case of fire blight which limits the Bartlett pear to certain restricted areas and the cattle tick which has been a factor in limiting cattle production in the south.

Neighbors

In establishing a farming business in a new community it is usually best to follow the type of farming which is being followed in the community.

In most localities the best type of farming has already been established and the farmer can profit from the experience of others. It is easier to secure trained help where we grow the same crops and livestock as our neighbors and there are certain advantages in marketing our products.

Personal Factors

The personal likes and dislikes of a farmer are not very important in establishing a type of farming in a locality. Where an individual finds out that he has a dislike for the type of farming practiced in the region he should move to another location rather than attempt to change his type of farming which is not adapted to the region.

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To be most successful the individual farmer should have a thorough understanding of the factors which determine the most profitable type of farming for his locality. He should further realize that conditions are constantly changing and adjustments must be made in the farming program to meet these changes.

Suggested exercises:

1. Discuss the factors which affect the types of farming in localities.

2. List the leading crops and livestock grown in the state and locate on a map the county or section grown.

3. List the leading crops and livestock in your section and explain why these enterprises are so located.

4. Check these enterprises with the factors discussed in the unit.

5. Discuss any other enterprises that might be profitably produced in your community.

References:

1. Hart, V. B., Bond, M. C., and Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

2. App, Frank, and Waller, A. G. Farm Economics. Philadelphia, J. B. Lippincott Company. 1938.

3. Warren, G. F. Farm Management. New York, The Macmillan Company. 1919.

UNIT III

DETERMINING SIZE OF FARM BUSINESS

The most desirable size of farm business depends upon the region or locality, the nature of the soil, the type of farming and the nature of the operator. It is largely an individual matter which must be adjusted for the particular region and circumstances. The ideal size varies for different locations and with different sytems of farming.

The typical size farm business in the United States is the family-size unit. The average labor force is approximately two men:

Farm operator	1.0
Hired help	0.5
Family help	0.5

Some ways of measuring the size of a farm business:

1. Total acreas.
2. Total capital.
3. Acres in crops.
4. Acres of important cash crops.
5. Number of important animals.
6. Number of men working.
7. Total receipts.
8. Productive man work units.

Under average conditions the moderately large farm business will usually give the largest labor income. The reasons for this are:

1. Larger volume of business.
2. Efficient use of man labor.

3. Efficient use of horse labor.

4. Efficient use of buildings.

5. Efficient use of machinery and equipment.

6. Efficient use of capital.

7. Certain advantages in buying and selling.

Ways of increasing the size of a farm business:

1. Extend--rent or buy more land.

2. Intensify--improving soil, more intensive crops, more and better livestock.

Conditions favorable for extending:

1. Low priced land.

2. Limited market.

3. Limited capital.

Conditions favorable for intensifying:

1. High priced land.

2. Good markets.

3. Plenty of labor.

4. Climate adapted.

5. Available capital.

Size of Farm Business

Other things being equal, the larger the farm business, within reasonable limits, the larger the income to the farmer. Formerly the amount of hand labor was the controlling factor in the size of the farm business, but under present conditions the determining factor is not what a man actually can accomplish with his own hands, but what he can accomplish with the aid of modern farm machinery.

Unlike most other industrial developments, agriculture has not combined and incorporated into large businesses, but has remained a large number of separate units, owned and operated individually for the most part. The wide expanse of area would make it difficult to operate such a large business from one directing center. Farming is more intricate than manufacturing. It comprises hazards not found in other business.

Measuring the Size of A Farm Business

The size of farm units must be measured by different yardsticks depending upon the type of farm. The crop acre is a satisfactory measure where we have the same type of farming. It is particularly adapted to grain and general crops farming. Total acres is most commonly used but does not represent a very accurate measurement. The animal unit is the most satisfactory measure where livestock is the most important source of income. Number of acres of tobacco, cotton, or fruit may be used in these types of farms. Other measures include total capital, total receipts, number of men working and total work units.

Total productive man work units is probably the best general measure since it can be applied to any type of farm business. A productive man work unit is the average amount of directly productive work accomplished by one man in 10 hours. The work unit is a measure of time required to perform farm operations. One work unit is equivalent to a 10-hour day's work.

Moderately Large Business Usually Pays Best

Under normal conditions, moderately large farm businesses are more profitable to their operators than are small businesses. With a small

business the chances for large profits or large losses are limited. With a large business, the chances of making a good income are greater than the chances of making a loss. Moderately large farm businesses usually return higher incomes than do small businesses because of the larger volume of sales and because of the greater efficiency in the use of labor, capital, machinery, buildings and other factors. The real income from a farm is derived from the three sources:

1. Returns for use of land.
2. Returns fom working capital.
3. Returns for labor expended.

A moderately large farm business will usually give greater efficiency in the use of labor, capital and other factors.

With a moderately large business, not only is more work accomplished per man, but also more work is carried on with a given amount of capital. The investment in farm buildings does not increase as rapidly as the increase in size of the farm business. A farm twice as large as another usually does not have double the investment in buildings. A small farm requires many of the same pieces of machinery as a large one, the difference being that on the small place full use cannot be made of the machinery.

Moderately large farm businesses have certain advantages over the smaller businesses in buying and selling. Discounts are often made in seed, feed and fertilizer purchases.

Larger quantities of products for sale attracts more buyers and often results in higher prices. Another advantage of a moderately large farm business is that it provides the opportunity of having a combination of several good-sized enterprises.

Increasing the Size of a Farm Business

A farm business may be enlarged by renting or buying more land, by growing more intensive crops, and by the use of more and better livestock. Some of the crop land may be shifted from extensive crops, such as hay and grain, to vegetables. The use of certified seed and more fertilizer may be used to increase crop yields. More livestock may be added and changing from grade to purebred animals should give increased production. Large fields, level topography, cheap labor and good markets are favorable to larger businesses. Rough topography, high-priced labor, poor soil and limited capital are decidedly unfavorable to large farm units.

The size of farm business which a farmer should attempt to operate depends upon many varying conditions. The kinds of crops which he grows, the type of livestock, the intensity of culture, the farm machinery and equipment he uses, the number and character of laborers that he employs and the efficiency of the farmer himself are all important factors in determining the size of the farm which is most economical.

A good procedure for the individual farmer is to compare the size of his business with the average of his neighbors. Most successful farmers have businesses larger than the average of their community. Under normal conditions, it pays to increase the size of business to approximately twice the size of the average in the community.

In making the final decision as to the proper size farm business to develop, the general principles discussed will serve as guides, but each farm operator must realize that he has an individual problem and must be worked out in the light of the foregoing discussion.

Ordinarily in farm management studies, it has been found that the most efficient unit is approximately double the average size in the locality.

Suggested exercises:

1. Discuss ways of measuring the size of a farm business and factors determining the most efficient size of business to operate.

2. Determine, by several of the appropriate methods, the average size farm business in the community or represented by the class.

3. Many farms are too small for efficient operation, a few are too large. By using the appropriate measures, develop an economical size farm business for the community. This will probably be about twice the average size represented in the locality.

References:

1. Hart, V. B., Bond, M. C., and Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

2. App, Frank, and Waller, A. G. Farm Economics. Philadelphia, J. B. Lippincott Company. 1938.

3. Hopkins, J. A. Elements of Farm Management. New York, Prentice-Hall, Inc. 1937.

4. Warren, G. F. Farm Management. New York, The Macmillan Company. 1919.

UNIT IV

BALANCING THE FARM BUSINESS

Balancing the farm business refers to the adjustment of the different enterprises on a farm. A well balanced farm business has its enterprises so adjusted that the greatest amount of profit is obtained from the business as a whole over a number of years. A well balanced farm business uses labor and machinery to good advantage, risks are minimized, by-products are not wasted, land is efficiently utilized, soil fertility is improved and income is distributed throughout the year. A successful business must be well balanced.

A successful farm business does four things:

1. Pays expenses.
2. Pays a return for the use of capital.
3. Pays the farmer fair wages for his labor and management.
4. Increases the productivity of the farm.

Factors which affect balance:

1. Labor distribution.
2. Distribution of income.
3. Crop rotation
4. Maintaining fertility of the soil.
5. Use of buildings and machinery.
6. Use of pasture.
7. Use of by-products for feed.
8. Risks.
9. Available capital
10. Personal fadors.

A farm business may be balanced by diversifying. A city business usually specializes.

Farm Balance

It is usually more important to correct the weakest factors rather than improve those that are already good. It is not enough to be above the average in only one or two of the above factors. The most successful farm business must be above the average in all of them.

In establishing a well balanced farm business, it is well to study carefully the farming methods in the community and profit by them. On the other hand, if a farmer understands the principles of good farm management, he may be able to set up a more profitable combination of his own. For the majority of the farms in the United States it is necessary that the farmer use his capital, equipment and labor on a variety of crops and livestock. These should be adjusted so as to make the most efficient use of labor, capital, equipment and buildings and other factors.

The variety of enterprises and the size of each that a farmer should include in his farming program will depend largely on the relative profitableness of the various enterprises over a period of years.

Labor Distribution

One of the most important reasons for developing a farm business consisting of several crops and different types of livestock is to distribute evenly the labor requirements throughout the year. The most profitable labor distribution may not be a straight line, but it is wise to avoid labor peaks and slack periods. The labor should be profitably employed

throughout the year; however, a well balanced business generally uses more labor during the summer months when the days are longer and working conditions better than in the winter.

Distribution of Income

A well balanced business tends to distribute the farm income over the entire year. From this standpoint a combination of crops and livestock is most desirable. A distribution of income is important especially when the farmer's capital is limited. The distribution of income is more important to some individuals than it is to others. Some farmers spend more freely when they have a large amount of money at a given time. Income is likely to be more profitably employed if it is well distributed.

Crop Rotation

Crop rotation is an important factor in setting up a balanced farm business. Most crops are more productive when they are grown in regular sequence on the farm. Rotating crops helps to maintain the fertility of the soil, yields may be increased and production obtained at a smaller expense than would otherwise be possible. A good rotation helps provide roughage for the livestock as well as profitable cash crops. Crop rotation helps to distribute labor and aids in the control of weeds and insect pests and diseases.

Maintaining Soil Fertility

The problem of maintaining or increasing the fertility of the soil is an important factor to consider in setting up balanced farm business.

There are many ways of keeping up the fertility of the soil, but the problem is to find the most economical way. This will vary with different farms and must be worked out individually, but generally speaking, the inclusion of livestock in the farming business tends to increase the efficiency of maintaining soil fertility.

Buildings and Equipment

Buildings and equipment represent a considerable amount of capital and should be used efficiently. In many instances the same building can be used for storage of crops as well as housing livestock. Equipment purchased for one enterprise can often be used for others.

Pasture and By-Products

A profitable combination of enterprises must provide a wise use of pasture and by-product feeds. This will necessarily mean the keeping of some type of livestock. Most farms have some untillable land which may be converted into permanent pasture and made profitable. Also most farm businesses have certain by-products which are not salable but can be used as feed for livestock. It is seldom profitable to pasture good crop land so the amount of tillable land in proportion to pasture land will affect the number of head of livestock to keep.

Risks

Agriculture is at best extremely hazardous. It is impossible for the farm operator to control the weather and frequently cannot control such

factors as insect pests and diseases, weeds, or other factors which may destroy or partially destroy the crop or livestock enterprises. The farmer is also unable to accurately forecast prices. By having a combination of enterprises the risk of farming is materially reduced.

Available Capital

The amount of capital available often has a direct relation to the farming program. As a general rule, it requires more capital to go into livestock farming than crop farming. The proportion of livestock to crops on many farms then depends upon the amount of capital the farmers have available.

Personal Factors

An individual farm operator should not allow his likes and dislikes to seriously interfere with his farming program. This may not be a very serious factor since most people usually like the things that pay best.

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Most farm management studies show that a well-balanced combination of crops and livestock usually pays better than does either extreme. This does not mean that the farm business should not practice some specialization. Often moderate specialization pays best, especially where one or two enterprises are particularly adapted to the region. A "balanced" farm business refers to the most profitable combination of the factors involved. Each farm operator has an individual problem, but the factors discussed should serve as guides in setting up a well-balanced, successful farm business.

Suggested exercises:

1. Explain fully what is meant by a balanced farm business.

2. Discuss factors which affect balance.

3. List the major and minor enterprises in the locality and work out a balanced farm business which might be used successfully in the community.

4. Test this "business" with the factors discussed in the unit and point out the weaknesses and strong points.

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1. Hart, V. B., Bond, M. C., and Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, 1942.

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UNIT V

PLANNING ROTATIONS

Crop rotation is a system whereby the crops grown on each field follow one another in a definite order. In choosing a rotation, the farmer should consider the cropping system followed by the more successful farmers in the community. Their rotations have been tried out over a number of years and found suited to the local conditions. It is often possible to improve such rotations, but it is seldom that they can be successfully replaced by an entirely different cropping system. The individual farmer must work out a similar rotation which will best fit the particular needs of his farm.

A well planned rotation should normally include three types of crops in this order:

1. Cultivated crops.
2. Small grain crops.
3. Hay crops.

On livestock farms where permanent pasture is limited the rotation should include pasture.

Reasons for following sod crops with cultivated crops:

1. Cultivation kills weeds.
2. Best supply of humus.
3. Best moisture supply.
4. More convenient to manure sod.
5. Small grain crops may not produce well after sod
6. Loose seed bed desirable for cultivated crops.

Reasons for following cultivated crops with small grains:

1. Grain crops subdues certain weeds.

2. Seed bed is firm and well adapted to small grain.

3. Plant food is reduced and is in a more quickly available form.

4. Nitrogen supply is reduced.

5. Serves as a nurse crop for grasses.

6. Keeps the land occupied.

7. Saves time and labor.

Reasons why sod crops follows small grain:

1. Easier to seed grass after small grain.

2. Grass crop is needed to build up organic supply.

3. Add nitrogen through the use of legumes.

4. Improves physical condition of the soil.

5. Helps to conserve moisture.

A good crop rotation has desirable features:

1. An approximately uniform area of the same crops each year.

2. Helps to maintain the soil fertility.

3. Furnishes enough feed for the livestock.

4. Provides as large area as possible for cash crops.

5. Saves time and labor.

6. Tends to eliminate weeds, insect pests and diseases.

7. Keeps the land covered in winter.

Advantages of a crop rotation:

1. Helps to control weeds, insect pests and diseases.

2. Improves the physical condition of the soil.

3. Helps maintain the supply of organic matter and nitrogen in the soil.

4. Provides for the growth of grass and legumes on each field.

5. Often saves labor--plowing, fitting land, seeding.

6. Keeps the land occupied with crops a greater part of the time.

7. Allows for the alternation of deep and shallow-rooted crops.

8. Provides for a balanced removal of plant food.

9. Counteracts the development of toxic substances.

10. Reduces soil loss by erosion.

11. Improves the quality of crops.

12. Systematizes farming.

Cultivated Crops

Cultivated crops include corn, tobacco, cotton, vegetables and others. Cultivation helps to eliminate weeds but these crops generally use up more soil fertility than small grain or sod crops.

Small Grain Crops

Small grain crops include wheat, oats, rye, barley, and others. These crops are shallow rooted and feed near the surface of the soil. They do not destroy as much vegetable matter as the cultivated crops since the stubble is returned to the soil and helps to rebuild some of the plant food removed in growing the crop.

Sod Crops

The sod crops include timothy, blue grass, red top, orchard grass, clovers, alfalfa, lespedeza, soy beans, cow peas and others. These crops

are relatively deep rooted and produce large amounts of leaves and stems. When these crops are allowed to decay in the soil they add considerable vegetable matter.

Advantages of a Crop Rotation

Cultivation tends to kill early maturing weeds, while those maturing late in the season are likely to be killed when the hay is cut at that phase of the rotation. Certain insect pests and diseases remain in the soil from year to year and when susceptible crops are grown every year they tend to multiply and finally reach a point which makes production unprofitable. Crop rotation will tend to minimize these results.

A good crop rotation provides for the recurrence of grass and legumes on each field which helps to maintain the supply of organic matter and also improves the physical condition of the soil.

A good cropping system makes the application of manure to the most responsive crops more practical. By the use of legumes and green manure crops it is possible to build up the nitrogen and organic content of the soil.

Rotation makes more efficient use of labor by distributing it more evenly over the entire year, and by eliminating many jobs in the preparation of the land.

Crop rotation, in contrast with continuous cropping, makes it possible to have the land occupied with a suitable crop most of the year. The loss of plant food by leaching is reduced and soil erosion is greatly minimized.

Alternating of shallow and deep rooting crops tends to prevent the exhaustion of available plant food in localized areas. Different crops have somewhat different plant food requirements and by rotating the crops it is possible to use the available plant food elements more evenly.

Continuous cropping may lead to the development of certain organic toxic compounds resulting from improper decomposition of soil organic matter. Crop rotation insures normal decomposition processes and prevents the formation and accumulation of injurious substances in the soil.

Where a crop rotation has been carefully planned, the management of a farm becomes more or less automatic and offers fewer problems than one which has no systematic method of cropping.

The 3-, 4-, and 5-year rotations are widely practiced in this state and experiments show that the results obtained are about the same. The one to use will largely depend upon the farming type followed. The 3-year rotation is especially adapted to grain farming, the 5-year rotation is suitable for livestock farming, and the 4-year rotation is well suited to general farming.

Suggested exercises:

1. Distinguish between crop rotation and continuous cropping.

2. Discuss the advantages of crop rotation.

3. List in order, the three general classes of crops usually included in a crop rotation, and show why these crops should follow in that order.

4. Discuss the desirable features of a good crop rotation.

5. Set up a 3-, 4-, and 5- year rotation that might be used in the locality and show how each crop follows a definite sequence on each field.

6. Set up the rotation practiced on the home farm and check with the advantages as discussed in this unit.

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UNIT VI

MAINTAINING SOIL FERTILITY

Soil fertility refers to the productive capacity of the soil. Continued success in farming largely depends upon maintenance or increase of the fertility of the soil. Soils vary considerably in the degree of fertility.

Factors determining the fertility of soils:

1. Moisture supply.
2. Depth.
3. Aeration.
4. Tilth.
5. Soil organisms.
6. Organic matter.
7. Plant food elements.

Definite steps in maintinaing the fertility of the soil:

1. Drainage if the land needs it.
2. Preventing or minimizing erosion.
3. Maintaining the lime requirement.
4. Maintaining the organic matter content.
5. Supplying plant food elements.

The order of these five steps is perhaps the most economical way to keep up or increase the fertility of the soil.

Benefits of drainage:

1. Soils warm up faster.
2. Better aeration.

3. Better root system.

4. More soil bacteria.

5. More available plant food elements.

Some ways of minimizing erosion:

1. Use of winter cover crops.

2. Crop rotation.

3. Contour farming.

4. Strip cropping.

5. Terracing.

Benefits derived from the use of lime:

1. Corrects acidity of the soil.

2. Increases the availability of plant food elements.

3. Stimulates soil organism.

4. Aids decomposition of organic matter.

5. Minimizes toxic substances in the soil.

6. Improves physical condition of the soil.

7. As a plant food itself.

Benefits of organic matter in soil:

1. Supplies plant food elements.

2. Helps maintain the moisture content.

3. Maintains organic life (bacteria).

4. Minimizes loss of plant food through leaching.

5. Improves the mechanical condition of the soil.

Methods of maintaining organic matter in the soil:

1. Plow under stubble.

2. Plow under crop residue.

3. Plow under winter cover crops.

4. Plow under green manure crops.

5. Use of barnyard manure.

Methods of supplying plant food elements to the soil:

1. Commercial fertilizers.

2. Legumes.

Moisture Supply

Moisture is an important though variable factor affecting the fertility of the soil. Plants differ in their water requirements and, for the same plant, climate influences this requirement considerably. Without moisture plants cannot grow. A fertile soil must meet the requirements and conditions for plant germination and growth. An adequate moisture supply then is very essential in determining the productive power of a soil.

Depth of Soil

The depth of the soil is important since crops are largely dependent on surface soil for plant-food. A deep, dark colored surface soil is always very desirable. Since the color the the surface soil is influenced by the organic-matter content and its productivity is at least partly dependent on the same factor, there is a relation between soil color, depth and productivity.

Aeration

Air in the soil is essential to root growth, to favor the development of helpful soil organisms, and to enable certain necessary chemical changes to take place. The air circulates through the surface soil and subsoil, and

this movement is called aeration. The air which circulates constantly plays its part in making possible the production of farm crops.

Tilth

A favorable tilth or soil structure is essential for the development of roots, thereby increasing the available feeding area for the plants. Good tilth tends to conserve moisture, it improves the aeration of the soil, resulting in increased bacterial and chemical activity which in turn increases the amount of available plant food. Good physical condition of the soil then is essential for high productive power.

Soil Organisms

The primary function of soil organisms or bacteria is the production of available plant-food for crops. Organic matter is the principal food of the bacteria so an adequate supply of organic matter will generally insure sufficient soil organisms. Organic matter tends to improve the soil as a medium for the growth of beneficial bacteria which is essential for plant growth.

Organic Matter

Organic matter is the most important source of plant food nutrients and is virtually synonymous with richness of the soil. The lack of organic matter is an important factor contributing to the cause of unproductive land. Organic matter is definitely related to the temperature, moisture holding content, and the tilth of the soil. Since the nitrogen of the soil is in the organic matter, its depletion reduces the amount of nitrogen also.

Organic matter aids in preventing soil erosion, both by wind and by water. It improves the chemical condition of the soil by serving as a storehouse of plant nutrients and by rendering some of the inorganic elements more readily available to the plant, thus making the soil more fertile. Organic matter also serves to correct certain toxic conditions in the soil which may result from the use of excessive amounts of commercial fertilizers and other similar materials. Adequate organic matter is, therefore, of the utmost importance for the conservation of soil fertility and profitable crop production.

Plant Food Elements

A fertile soil requires sufficiant quantities of the essential plant food elements in an available form. There are ten plant food elements essential for plant growth, and the amount of growth may be restricted by a deficiency of any one of these elements. The yield of crops in Virginia is dependent more often on the plant-food supply than on any other soil fertility factor. The productivity of the soil then is dependent largely upon the supply of available plant food elements in the soil. Success in farming depends upon maintenance or increasing the fertility of the soil. Regardless of the desirability of location, favorable climate, nearness to market, and favorable economic factors in the selection of a farm, these are of little value if the soil is poor and is not capable of producing good yields of crops.

Drainage

The first problem in maintaining the fertility of the land is drainage, if the soil needs it. Where drainage is inadequate, usually there can be no successful production or economic returns. Soil with an excess of moisture will not produce well regardless of the methods used. Land should be drained where excess water is the limiting factor in crop production. The entrance of more air in the soil, a warmer soil, the development of helpful soil organisms, and the growth of more and deeper roots are the results of proper drainage, which in turn, become important factors in making available the plant-food elements.

Erosion Control

The next step in maintaining the fertility of the soil is to control erosion, since this is an important factor in the maintenance of the productivity of the soil. The first thing to do in controlling erosion is to put fields to the uses to which they are best adapted. Land which is too erosive for cultivated crops can often be used advantageously for permanent pasture. Strip cropping and contour farming aids in the control of erosion on farms where it is necessary to cultivate sloping fields. The use of winter cover crops and a proper crop rotation to avoid placing a large part of the farm in cultivated crops will help to maintain fertility and minimize erosion. The addition of legumes makes it possible to build up the organic matter and reduce the erosive effect. Terraces properly constructed and maintained are an effective means against excessive erosion. Erosion then is a rather serious problem in Virginia and must be controlled in order to secure efficient production.

Maintaining the Lime Requirement

Although lime alone will neither maintain nor materially improve rundown-soils, any practical plan of permanent land improvement must include applications of lime as one of its essentials. The use of lime in field crop production may be based on the need of the legumes in the rotation. A liming practice based on this need is economically sound on grain, livestock, and general farming. On most soils then, it is necessary to follow a definite liming program. Where needed, it should usually be applied once in the rotation in sufficient amounts to meet adequately the requirements of the cropping system. Lime corrects the acidity of the soil, stimulates soil organisms, aids in the decomposition of organic matter, lessens the possibility of toxic substances forming in the soil, improves tilth, and in turn increases the availability of plant food elements. Lime is also beneficial as a plant-food, since calcium and magnesium are both essential elements of plant growth. Regardless of other practices used, it is essential on most farms to maintain the lime requirement in order to get productive yields.

Maintaining the Organic Matter Content

The fertility of the soil is closely related to the supply of organic matter. Soil organic matter or humus, is formed from the numerous plant residues that find their way into the soil, including leaves, stubble, roots, stable manures, and special crops grown for the purpose of enriching the humus content of the soil. The proper management of livestock also results in the return to the land of a portion of the fertility. The growing of

legumes in the rotation, the use of barnyard manure, the return of all stubble and crop residue to the soil, and the plowing under of green-manure crops and winter cover crops are the most important methods of maintaining the organic matter in the soil. Conservation of organic matter is of utmost importance for the maintenance of soil fertility and profitable crop production.

Supplying Plant Food Elements

The only way to restore a depleted supply of elements is to add plant-food material to the land. Nitrogen, phosphorus, and potassium are the three plant food elements most commonly lacking in soils. Nitrogen is a limiting factor on many soils and is one of the most expensive plant food elements we have to buy. Much of the nitrogen supply can be maintained economically by growing legumes in the rotation. Commercial fertilizers are concentrated plant-food materials. As a general rule their use increases as the agriculture of a country becomes older, because the soils become lower in plant-food and it becomes necessary to use commercial fertilizers to secure economic returns. The soil is the most important source of wealth in an agricultural community. Its maintenance in a high state of productivity is essential to the prosperity of that community.

Suggested exercises:

1. Discuss factors determining the fertility of soils.

2. Trace the steps in maintaining the fertility of the soil and show why the order of these five steps is an economical way to keep up the soil fertility.

3. Outline an economical soil-management system for the community which would tend to maintain or increase the soil fertility.

4. Visit one or more productive farms in the locality and study the soil-management practices used.

References:

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UNIT VII

SETTING UP PRODUCTION GOALS

The goal should be the optimum rates of crop and animal production. The highest rates of production are not necessarily the most economical. After a certain rate of production has been reached, the profits from further intensive methods begin to diminish; and if too great a degree of intensity is practiced, the increased cost of production will be greater than the value of the increased production. This is known as the law of diminishing returns.

Measures of production:

1. Crop yields per acre.
2. Rates of animal production.

Factors influencing the rates of crop production:

1. Fertility of the soil.
2. Use of good seed.
3. Proper planting methods.
4. Judicious fertilizing.
5. Proper cultivation.
6. Control of insect pests and diseases.
7. Crop rotation.

Factors influencing the rates of animal production:

1. Kind of animal.
2. Age of animal.
3. Feeding practices.
4. Proper housing

5. Care in handling.

6. Proper sanitation methods.

7. Breeding practices.

Influence of crop yields on farm income, Walworth County, Wisconsin*

Crop Index	Number of Farms	Average Farm Income
Less than 71	13	$ 234.00
71 to 90	68	651.00
91 to 110	116	888.00
111 to 130	53	1,104.00
Over 130	12	1,021.00

*Data from Wisconsin Experiment Station Bulletin 364

Relation of eggs produced per hen to labor income*

Eggs per hen	Average eggs per hen	Average labor income
Low	113	$ 655.00
Medium	145	1,317.00
High	177	1,593.00

*Data from Cornell Experiment Station Bulletin 684

Economical Rates of Production

The most economical rates of production rather than the highest rates of production should be the goal of every successful farmer. The more successful farmers usually make better than average rates of production for their community. The average crop yields and rates of animal production are low. It is essential that successful farmers make better than average yields on their crops and rates of livestock production.

Relatively high rates of production brings economics of production. The amount by which the number of animals or acres of crops for which one

man can take care of is reduced by having high rates of production is not in proportion to the increase in production. In other words, with high-producing land or livestock, one man can handle more units of production. More units are also produced for a given investment in buildings and equipment.

Crop Yields Per Acre

The rates of production for crops may be measured by the number of units, such as bushels or barrels per acre. The combined yields of all crops may be expressed as a percentage of some base. This measure is called crop index.

Rates of Animal Production

The rates of production for livestock are usually measured by the number of units of product produced by each kind of animal. Examples of this would include the amount of milk produced per cow, the number of eggs laid per hen, pigs farrowed per sow, appreciation per beef animal, and other rates of animal production.

Factors Influencing Rates of Crop Production

The productivity of the soil is perhaps the most important factor in obtaining good crop yields. The use of good quality seed is also of great importance in crop production. Good seed is one of the best investments the farmer can make in increasing his production. Careful preparation of the seedbed is essential in obtaining profitable and economic yields. Good crop yields usually cannot be produced on a poorly prepared seedbed.

Regular use of a crop rotation including a legume, good tillage practices, the use of disease-free seeds of high-yielding and good-quality strain, the careful timing of the planting date, and the avoiding or combating of diseases and insects by approved methods, are practices favorable to high yields.

The more successful farmers in a community generally follow a good soil improvement program, use a little heavier application of fertilizers, till more thoroughly, use better seed, and are more prompt in their farm operations.

Factors Influencing the Rates of Animal Production

It pays to take good care of the livestock on the farm. Livestock efficiency is a very important factor in successful farming. Poor producing animals play a great role in holding down profits. It requires nearly as much feed, equipment, housing, and labor to care for low producing animals as it does for high producing ones.

In order to obtain high production from livestock it is necessary to obtain good animals to start with and give them better than average care. A careful sanitation program, which includes proper feeding, housing, and vaccination are important in securing efficiency from the animals. An economical method of improving the livestock is to cull the older and low producing animals and breed from purebred high producing sires.

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Crop yields and rates of production from the livestock are important factors affecting returns from farming. Farms that make crop yields per acre, pounds of milk per cow, number of eggs per hen, and other production factors above the average for the locality, usually make the largest returns per farm.

It must be remembered that there are limits in the rates of production it pays to obtain. Farmers should strive to obtain the most profitable rates of production for their particular farm. No definite rates can be set up as these will vary with different farms and also with prices and other factors.

A farmer who is satisfied with low yields and rates of production is not likely to succeed in farming. Farm management studies show that the more successful farmers have crop yields and rates of animal production approximately 50 to 100 percent higher than the average in the locality.

Economical production usually is obtained by following practices in the growing of crops and the care of livestock that are favorable to high yields per acre and high production per animal.

Suggested exercises:

1. Show why the highest rates of production are not necessarily the most economical.

2. Discuss the important factors influencing rates of production.

3. Find the average rates of production for the major enterprises in the community.

4. Compare these averages with the home farm.

5. Make recommendations for more economical or higher rates of production.

Referances:

1. Hart, V. B., Bond, M. C., and Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, 1942.

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3. State and County statistics.

UNIT VIII

PLANNING THE FARM LAYOUT

A good farm layout should provide not only an efficient field arrangement, but also a well-planned farmstead, economical fences, convenient lanes and driveways and the most profitable utilization of land.

A good farm layout should provide for:

1. Efficiency of labor.
2. Efficiency of land.
3. Efficiency of equipment.
4. Economy of fences.

Important factors affecting farm layout:

1. Size of fields.
2. Shape of fields.
3. Distances—farmstead to fields, between fields.

Relation of size of fields to labor required to plow an acre*

Number of fields	Average size of fields (acres)	Time required to plow one acre	
		Man hours	Horse hours
40	1.02	8.5	19.8
57	3.48	6.5	15.0
78	7.24	6.2	16.2
40	11.68	5.7	14.3
27	20.26	5.1	13.2

*Data from Table 1, Cornell Extension Bulletin 55

Relation of size of fields to economy of fencing and of land in crop fields completely fenced*

Number of fields	Average size of fields (acres)	Rods of fencing to the acre	Per cent of crop land occupied by fences
26	2.1	37	4.6
41	6.3	21	3.7
64	9.8	17	2.7
27	13.3	15	2.3
24	18.4	13	1.8
12	38.3	9	1.1

*Data from Table 2, Cornell Extension Bulletin 55

Efficiency of a Good Farm Layout

Labor is used more efficiently if the fields are so arranged that the distance between them and the farmstead is reduced to a minimum. Small irregular shaped fields increase the amount of waste land that is not cultivated. Large rectangular fields are better suited for the use of modern farm machinery than small irregular shaped fields. The size and shape of fields affects the cost of fencing. A large field will cost less per acre to fence than a small one. The shape also affects the cost of fencing. A square field is the most economical from the standpoint of fencing. A field 40 rods square (1600) square rods requires 160 rods of fence; a field 80 rods long and 20 rods wide (1600) square rods requires 200 rods of fence.

Size of Fields

The most important factor in the layout of farms is the size of fields. The size of the farm, the type of farming, and the rotation followed, limit the size of fields on any farm. It is desirable to have as many fields

as there are years in the rotation, and to have the fields of approximately equal size. Farm fields are often smaller than is either necessary or desirable. With the increased use of modern farm machinery, the size of fields is becoming a more increasingly important problem.

Large fields with straight edges do not require such frequent turning as small irregular shaped fields. Fields that are two to three times as long as they are wide, usually make the best shaped fields, for the work can be done with the least loss of time. Uniformity in the size of fields aids in systematizing the farm business. There seems to be a direct relationship between the farm layout and the labor income, mainly because a poorly-planned farm wastes labor and equipment time. Since large fields give greater economy of labor, fencing, and land, the farmed fields should be as large as the size of the farm and the physical factors will permit.

Shape of Fields

Any irregular shape for a field is undesirable since it requires more time to perform farm operations in fields of irregular shape than in regular shape fields. Triangular fields have the largest proportion of short rows and are the most wasteful of labor. Square fields are bad if they are small. Large square fields are very economical. For fields of moderate size, the rectangular shape is the best. Small fields should be proportionately longer than large fields in order to provide longer rows. The importance of the effect of shape on fields on land, labor and equipment varies inversely with the size of the field.

Distance

Travel between the farmstead and fields and going from one field to another is not directly productive work. It is merely getting ready to perform the operation. This requires time and labor and makes it highly desirable to have our fields as conveniently arranged to the farmstead as possible. The nearer the fields are to the farmstead the more valuable they are to the farmer. If a field is a half mile distant from the farmstead, each round trip means a mile of travel.

Where livestock is kept, it is generally desirable to have lanes and driveways. These should be arranged so as to save time and labor and at the same time waste a minimum of land and fences. It is desirable to have as many fields as possible corner on the farmstead. Gates should be located so as to afford the most convenient access to fields.

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We have inherited many poorly arranged farms in Virginia which need adjusting to present farming conditions. Many farms have natural obstructions such as topography, swamps, streams and other barriers which would not be economical to overcome. There are many farms, however, that can be improved from the standpoint of arrangement. It is usually desirable to change over slowly with the ultimate goal of setting up a desirable farm layout which will result in the most profitable use of land, labor, equipment, and fencing.

Suggested exercises:

1. Discuss the important factors affecting the farm layout.

2. Make a sketch of the home farm showing the location of the farmstead, fences, and natural boundaries which cannot be changed.

3. Make a plan for the long-time development of the farm which will provide as good a layout as the natural obstructions will permit.

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UNIT IX

LAYING OUT THE FARMSTEAD

The farmstead refers to that part of the farm which is occupied by the farmhouse, barns and other buildings, lawn, home garden, home orchard and feed lots.

Desirable features of a well-planned farmstead:

1. Good drainage.
2. Located near the highway.
3. House and barn on the same side of the road.
4. Near the center of the crop land.
5. Convenient water supply.
6. Barn in rear of the house.
7. Buildings fairly close together.
8. Good walks and driveway.
9. Lawn should not be too large.
10. Garden should be convenient to the house.
11. Adequate shade trees.

Planning the Farmstead

A farmstead well-planned should provide for the needs of the home as well as for the needs of the farm business. Often the needs of the farm home are neglected.

It is impossible to have an ideal location and arrangement on every farm, but many farmsteads can be improved without excessive cost. As a rule, changes should be gradual, and may be done at odd times.

The size of the area will vary according to the demand made upon the farmstead. This will usually depend upon the size of the farm, the type of farming and other factors.

Drainage

The best location for the farmstead is on a slight elevation to permit drainage. A farmstead should have good drainage for the sake of health. A poorly drained area tends to promote the accumulation of disease organisms as well as the disadvantages of mud and standing water after rains.

Location as to the Highway

The farmstead should be well planned so as to make the best use of land and labor. Near the highway and near the center of the farm is the ideal condition. The house and barn should be on the same side of the road if possible. Having the house and barn on the same side of the road is more desirable since this eliminates the danger of having to cross the highway so frequently.

Location as to the Center of the Farm

Where the farmstead is located near the center of the farm, all four sides are connected with the fields and cuts the distance from farmstead to fields to a minimum. If the farmstead is located near the highway it is often on the edge of the farm and the distance to the fields is increased. This location has the advantage of convenience to the highway and results in more social interests for the family.

Water Supply

A convenient water supply is one of the most important factors to consider in planning the farmstead. No farmstead site is satisfactory which does not have an adequate supply of water convenient to the house and barns.

Building Arrangement

The various barns and outbuildings should be conveniently arranged in a group so as to save time in doing the daily chores. The loss of labor time in doing the chores is an important item in the efficiency of the farm layout. The barn should be behind the house and reasonably close to eliminate too much walking.

Walks and Driveway

The road or driveway leading to the farmstead should be improved sufficiently to allow vehicles to get over it with ease during all seasons of the year. Often the road leading from the highway to the farmstead is never improved with the result that during certain periods of the year it is practically impassable. It is usually desirable to have walks of some type around the farmstead which will eliminate the objection of mud and water during certain periods of the year.

Lawn

The lawn should be of modest size so that it can be kept neat and attractive with a minimum amount of labor. Neatness is essential for an

attractive farmstead. A well kept lawn plus a few shade trees and shrubs and flowers not only makes an attractive farmstead but adds considerable value to the farm as well.

Garden

A good garden is very valuable to a farm and should be conveniently located with respect to the house to facilitate ease of caring for and gathering the vegetables. Most of the work in a garden as well as that done on the lawn is accomplished at odd times.

Shade Trees

It is not always possible or economical to build over the farmstead where it has already been established, but it may be possible to improve it. Shade trees may be added, minor buildings moved, and when new buildings are erected they can be arranged conveniently. Drainage can be provided if needed, the driveway can be improved and the general appearance of the farmstead can often be improved without much cost.

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Since the farm business is planned and directed from the farmstead, it is important to have it well located and conveniently arranged. A location near the center of the farm has definite advantages in shortening the distances to the fields. Location near the highway usually shortens the driveways and makes it easier to get to the market or school.

Suggested exercises:

1. Discuss the desirable features of a well-planned farmstead.

2. Make a sketch of the farmstead showing the location of each building, driveway, garden, and lawn.

3. Check this sketch with the desirable features of a well-planned farmstead and point out the weaknesses and strong points.

4. Make recommendations for improvements.

5. Visit one or more well-planned farmsteads in the community and study the arrangement of buildings, distances, and other desirable features studied in this unit.

References:

1. Myers, W. I. How to Plan the Farm Layout. Cornell Extension Bulletin 55. 1922.

2. Hart, V. B., Bond, M. C., and Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

3. Hudelson, R. R., Farm Management. New York, The Macmillan Company. 1939.

4. Warren, G. F. Farm Management. New York, The Macmillan Company. 1919.

UNIT X

ANALYZING THE FARM BUSINESS

A business analysis is designed to assist the farmer in finding the strong and weak points in his business and suggest changes that should result in greater profits. An analysis of a successful farm business will show that it pays expenses, pays a return for the use of capital, pays the farm operator fair wages for his labor and management, and leaves the farm as productive as before.

A business analysis comprises the following:

1. Compute the labor income.
2. Compute the efficiency factors.
3. Compare these with some known standard.
4. Pick out the strong and weak points.
5. Make recommendations.

Important efficiency factors:

1. Size of business

   Productive man work units.

   Man equivalent.

   Average capital.

   Animal Units.

   Acres of crops.

   Total receipts.

2. Balance of business

   Percent receipts from crops.

   Percent receipts from livestock.

   Acres of crops per animal unit.

3. Rates of production

   Yields per acre.

   Returns from livestock.

4. Labor efficiency

   Productive man work units per man.

   Acres of crops per man.

   Animal units per man.

   Gross receipts per man.

5. Capital efficiency

   Years required for receipts to equal capital.

   Value of machinery per acre of crops.

   Percent of capital in productive livestock.

Farm Business Analysis

To be successful, a farm must pay a fair rate of interest on the apital invested, return fair wages for the operator's labor, and at the ame time, maintain or increase the fertility of the soil. Experience hows that it is not always possible to distinguish profitable farms by asual observation. In many cases the appearance of prosperity may be argely due to outside sources of income.

Most farmers realize that the profits from a large business should e more than from a small one, and that good crops and livestock are more rofitable than poor ones. Their problem is determining just how good or ow poor the business is. The difficulty is measuring the degree of efficiency.

In order to determine profitable farming, it is necessary to have some standard by which we can measure a farm or group of farms with some known standard. Labor income is most commonly used as a measure of business success in farming. Labor income may be defined as the amount a farmer receives for his labor and management in addition to food furnished from the farm and a house to live in. A labor income of $1000 means that the farmer made $1000 above his operating expenses, above interest on his investment, and in addition to farm privileges.

Size of Business

Without a reasonable size of business there is little opportunity for a farmer to make a satisfactory income in farming. The farm business must be large enough to permit the efficient use of capital, labor, and managerial ability. The size of the business may be increased by buying or renting more land, growing more intensive crops, adding more livestock, or securing better livestock, and performing work outside the farm during certain seasons of the year when the farm work is slack.

Balance of Business

Results show that a well-balanced farm business is usually a profitable business. It is not enough to be good in only one factor. In order to be most successful it is necessary to be above the average in all of the efficiency factors. It is usually more important to strengthen the weakest factors rather than striving to improve those factors that are already good. The old adage that a chain is no stronger than its weakest link may be applied in the case of analyzing a farm business.

Rates of Production

Crop yields and returns from livestock greatly influence farm profits. The more successful farmers have higher yields per acre and larger returns from the livestock than the average for the locality. The quality of crops and livestock grown is very important in securing good rates of production. Obtaining the highest possible value from any one efficiency factor is not always desirable, since most any one of them may be forced up to, or above, the point of marginal returns.

Labor Efficiency

Efficiency in the use of labor is important and bears a close relation to the degree of success in a farm business. Work should be so organized that a given amount of effort accomplishes more than the average. Farm management studies show that the more profitable farm businesses have a higher number of productive man work units per man than the average for the community. Where the number of productive days of labor per man is small, the profits are usually correspondingly small.

Capital Efficiency

A wise use of capital is very important. A farm business may over capitalize by paying too much for land, having too many or too expensive buildings, too much machinery and equipment, or too high-priced work stock. A successful farm business must be well equipped but not over equipped. It is essential to have a large share of capital in productive use. A comparison of expenses with receipts serves as a means of emphasizing the importance of thrift in farming.

Many farmers have most of their capital invested in land and buildings and as a result are short on operating capital. Farm management studies show that there is a close relation between the operating capital and the profits from farming.

Suggested exercises:

1. Discuss the importance of labor income in measuring the efficiency of a farm business.

2. Compute the efficiency factors applicable to the home farm.

3. Compare these with the average of the community or county.

4. Make suggestions for improvement.

References:

1. A Method of Analyzing the Farm Business. U.S.D.A. Bulletin, 1139.

2. Hudelson, R. R. Farm Management. New York, The Macmillan Company. 1939.

3. Nuckolls, W. J. The Virginia Farm Account Book. Extension Division, V.P.I.

4. Plans, Records, and Accounts for Supervised Farming in Vocational Agriculture.

UNIT XI

KEEPING FARM RECORDS

Farmingis a business and to be successful it must be conducted in a businesslike manner. It involves the production and sale of commodities the same as do most other kinds of businesses. Present farming conditions emphasize the importance of keeping records. Benjamin Franklin once said: "The merest memorandum, in black and white, is worth a carload of recollections."

Importance of keeping farm records:

1. Furnishes a history of the farm business.
2. Shows the financial condition of the farm
3. Suggests ways of increasing profits.
4. Aid in securing credit.
5. Aid in making out income-tax returns.

Principal kinds of farm records:

1. Inventory.
2. Financial accounts.
3. Record of happenings.
4. Single enterprise accounts.
5. Cost accounts.

Farm Records

The first step in keeping farm records is to decide on just what facts about the farm business you wish to know and then select the type of records that will secure this information in the simplest way. The

use that is made of farm records is the measure of their value to the farmer, and the simpler the accounts kept, the greater the chance for them to prove of use.

Most farmers keep records of one kind or another. One of the oldest examples of farm record keeping was that practiced by shepherds in ancient times, who counted their flocks by dropping pebbles in a bag. Another example of primitive record keeping is that of measuring the number of barrels or bushels of corn by keeping tally on the side of the wagon box.

History of the Business

Farm record keeping furnishes a history of the business transactions of the farm, with special emphasis on its financial side. Keeping farm records is not a direct way of making money, but rather a means of pointing out just where profits are being made and losses occur. Farm records tell the story of the farm business over the entire year and serve as a basis for comparing one year with another. As a rule a farmer gives closer attention to details of the farm business when he keeps records than he would otherwise. Records properly kept and used will lead to a better understanding of the business management of the farm and should result in the improvement and a more successful farm business.

Financial Condition of the Farm and Suggested Improvements

There are two ways to raise the standard of living on a farm; namely, increase the income or decrease the expenses. A record of the farm business will help the farmer to eliminate certain expensive practices and point out

the best sources of income. The practices of keeping farm records will not of itself turn a poor farmer into a good one, or losses into profits. If accurately kept and utilized they are an aid to a better understanding of the farm business which should result in more profitable farming.

Securing Credit and Making Out Income-Tax Returns

The farmer who has a well-kept record of his business is in a better position to borrow needed funds than is one who has no record. Records are also very beneficial to farmers in making out income-tax returns. Farm accounts provide a record of the past upon which to base future operations.

Inventory

A farm inventory is an itemized list of what a farmer owns and owes, together with the value of each item. It shows the net worth of the farm business, and determines whether or not the farmer is getting ahead financially and how much. In any system of record keeping the inventory is absolutely essential. It is the basis upon which record keeping is built. The beginning of the year is perhaps the best time to take the inventory. This may differ with the type of farming and the locality. The inventory should be taken at approximately the same time each year. Taken once each year, it is one of the simplest records to keep and one of the most valuable to the farmer. Inventories provide an accurate record of the gain or loss made during the year, and are valuable in comparing one year with another. In taking the annual inventory, the farmer should be conservative in estimating the value of his farm products.

Financial Accounts

A financial account is simply a record of money received and paid out in connection with the farm business. The financial account gives a record of all business transactions of the farm. It shows the amount and distribution of receipts and expenses. More farmers probably keep financial records than any other accounts. It furnishes a great amount of information about the farm business as well as being a valuable record of the business transactions. When used in connection with the annual inventory, it furnishes the necessary information for figuring the labor income. Financial records well-classified, show the receipts and expenses for each enterprise for the year. It is usually more difficult to classify the expenses than the receipts, but the record will show all the money spent on the farm business.

Record of Happenings

Records of everyday happenings such as the date livestock is bred or born, when the pasture season begins and ends, when labor is hired or discharged, date of the last frost in the spring and the first frost in the fall, seeding time, harvest time, and other information are often very valuable to the farmer.

Single Enterprise Accounts

A single farm enterprise account is a financial record of the receipts and expenses involved in the production of the enterprise. It shows the receipts and expenses of the individual crop or class of livestock.

It is used when it is desired to make a more careful study of some particular enterprise than can be made from the financial account. Single enterprise accounts usually deal with the more productive enterprises on the farm. They are not so accurate as complete cost accounts but they are much easier to keep and take much less time. They give much more information about the enterprise being studied than can be obtained from the financial and inventory accounts. A single enterprise account includes an inventory at the beginning and end of the period of time included, all receipts and expenses connected with the enterprise, and all labor involved.

Cost Accounts

Cost records or cost accounts deal mostly with facts about the farm as a whole, and serve to compare this year's business with that of last year or the year before. Cost records make use of the inventory, financial records, labor records, feed records, supply records, crop yield and animal production records. These records are summarized and a distribution of indirect costs are made.

Cost records systematically recorded, summarized, and studied year by year are very valuable to the farmer whose circumstances permit him to obtain them. Complete cost records will show the cost of every crop and each class of livestock, together with the income each has produced, and the resulting profit or loss for each, with the cost per acre, bushel, ton, or animal.

Cost accounts are perhaps too complicated and require too much time for the average farm business. It is usually better for a farmer to keep

inventories and financial records and study the results that may be obtained from them at first, and then after the farmer understands fully the general farm records, it may be desirable in some cases to keep cost records.

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Generally speaking, the most satisfactory system of keeping farm records is one that requires a minimum of time but which is complete enough to furnish the information desired by the farmer. For most farmers, an inventory once each year, a financial record of receipts and expenses, a record of happenings, and perhaps a few individual records on the more important enterprises are usually sufficient.

Farm management studies have proved that the simpler the farm records the more likely they are to be kept. A few minutes each day will usually suffice to record all necessary transactions. No specific knowledge of accounting is necessary in keeping simple farm records. The important thing is to record items promptly just as soon as the transaction occurs.

Suggested exercises:

1. Secure a copy of the following publications prepared by W. J. Nuckolls, from the Extension Division, Blacksburg, Virginia:

   a. How to Take a Farm Inventory and Make Out a Credit Statement.

   b. The Virginia Farm Account Book.

2. Discuss farm inventory, financial records, record of happenings, single enterprise records, and cost accounts.

3. Set up a typical farm business and apply the above records.

4. Proceed with the home farm and supervised farming program.

References:

1. Nuckolls, W. J. How to Take a Farm Inventory and Make Out a Credit Statement. Extension Division, Blacksburg, Virginia.

2. Nuckolls, W. J. The Virginia Farm Account Book. Extension Division, Blacksburg, Virginia.

3. Hart, V. B., Bond, M. C., Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

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UNIT XII

FINANCING THE FARM BUSINESS

As the capital requirements of farming have expanded, credit has become increasingly important in the operation of the farm. When land was free or cheap and farm equipment and supplies used to a much more limited extent, less capital was needed to acquire, equipm and operate a farm. Farmers then often were able to acquire sufficient capital of their own with which to finance their needs. Now that the capital requirements have greatly increased, farmers use credit facilities rather extensively.

A farm business may be financed by:

1. Capital accumulated by the farmer.

2. Use of farm credit.

Why credit is often needed to finance agriculture:

1. It requires a large amount of capital to get started in farming.

2. Slow capital turnover.

3. Possibility for making more money.

4. More intensive use of land, good livestock, and modern farm machinery requires more capital than was formerly used.

5. Tendency towards commercialized farming.

6. Necessary to operate the business in many cases.

7. Farming is an individual rather than a corporate business.

8. Higher standard of living.

Principles to be observed in the use of credit:

1. Reasonable assurance that the loan will more than repay itself and its cost.

2. The length of time for which the loan is made should be adequate.

3. Favorable terms should be obtained.

4. Definite provisions should be made for repayment.

Sources of credit for the farm:

1. Individuals.

2. Merchants or dealers.

3. Banks.

4. Insurance companies.

5. Federal land banks.

6. Production credit corporations.

7. Others.

Farming Requires Large Amounts of Capital

The amount of capital a farmer has to work with is a very important factor in determining the degree of success of the business. Not all farms having an equal amount of capital invested make the same labor incomes; however, labor incomes are likely to increase with an increase in capital. Limited capital usually compels the farmer to follow rather closely to a one-crop system of farming which is generally more hazardous than diversified farming.

Slow Capital Turnover

Due to the large amount of fixed capital invested and the slow turnover in the farm business, the periods for which farmers need credit are usually longer than in most other kinds of business. The seasonal and biological factors affects the rate of capital turnover. It takes a season

to produce a crop and it takes time to grow an animal. It is possible for people to get into industry with very little capital. This is not true with most farm businesses. To become a farm owner, capital is necessary. Farm management studies show that on an average it takes approximately six to seven years for the profit to equal the capital outlay on a farm.

Possibility for Making More Money

The general tendency is for increasing amounts of agricultural credit to be used. Not many years ago a mortgage on a farm was considered very bad business. Perhaps it was a sign of incompetency in some instances, but not in all. Today the situation is different. If credit can be made to return itself, the cost of its use and a profit on the operation, then borrowing is certainly desirable. It must be remembered, however, that credit must be used on a businesslike method. For those who know how to use it profitably it is an instrument of great good. For others it can be the cause of much disaster.

More Intensive Agriculture

Purchasing, equipping, and operating a farm business represents a considerable investment. If it were not for the credit available to those properly qualified, fewer men could enter into farming for themselves. Credit also makes it possible for farmers to take advantage of modern farm machinery, good livestock, seed, fertilizer, and other things used on the farm on a more profitable basis.

Commercialization

A tendency towards commercialization of agricultural production has had a great influence upon the increased use of credit. The practice of specializing in the production of one or a few enterprises and depending upon buying in the market, rather than producing a great variety of commodities and consuming them at home, has increased the farmers credit operations.

Credit Is Essential

Credit, properly used, makes possible the successful operation of farms by operators who are well qualified except for capital funds. Credit also makes it possible for farmers to move up the agricultural ladder much faster than they could ordinarily do otherwise. A day laborer on a farm requires little capital. As he moves up the ladder to tenant, part owner, and eventually full owner, it requires more and more capital.

Individual Business

Since agriculture is largely an individual business, the need for credit is increased. The fact that it is much more difficult to start farming gradually than it is to become part owner in a corporation means that larger amounts of credit must be used. One hundred shares of stock in a corporate business might be sold to ten individuals purchasing ten shares each. If a hundred-acre farm were sold, it is likely to be bought and operated by one individual, since it would not be feasible to divide it up as in the case of the shares of stock in the corporation.

Higher Living Standards

More capital is required now to lead normal happy lives on the farm than formerly. The city and farm are no longer isolated from each other and what one group enjoys the other will strive for. Such essentials as adequate transportation, telephones, radios, and education have greatly stepped up the living standards of rural families.

Loan Must Repay Itself

Credit in agriculture should be extended on the basis which will usually permit the farmer to repay the loan from the proceeds of the crops or livestock on which he is borrowing. The source of credit must be adequate. It must be extended at a reasonable cost and must be adapted to agriculture.

Adequate Time

In every case the length of time the loan is made should be sufficient to allow the farmer to repay from the returns of the enterprise financed. This should be calculated in terms of normal operations of the farm business during normal times. It is essential to consider what the conditions are likely to be during the period of repayment.

Favorable Terms

As low interest rates as possible should be secured. Borrowing money to purchase and equip a farm business is an extremely important decision.

It may mean success or failure for the farmer. Successful farmers shop for credit just the same as for any other commodity and assure themselves that the terms are reasonable.

Provision for Repayment

Credit may be obtained by farmers for both productive and non-productive purposes. When obtained for productive purposes, it should be paid normally out of the farm earnings. When credit is obtained for nonproductive purposes, care should be used in providing for repayment.

Credit is based not only upon the security that is offered for loans, but quite as much upon the character and ability of the borrower. Farmers should conduct their business in such a manner as to establish good credit standing. Prompt repayment of debts when due, the efficient organization and management of the farm, and a reputation for honesty and integrity are all important factors in giving the farmer a good credit rating.

Sources of Credit

There are many sources of credit available for financing agriculture. It is essential, however, that the farmer study carefully and select the one which will best suit his particular needs. The time, as well as the purpose of the loan must be considered. Adequate credit, at a reasonable cost, which is adapted to the particular loan is essential.

From the standpoint of time, there are three common types of credit; short-time, intermediate, and long-time credit. Short-time credit is used principally for financing agricultural production. Intermediate

credit is used for production purposes and in making improvements. Long-time credit is used primarily for financing real estate.

Suggested exercises:

1. Why is credit usually needed to finance agriculture?

2. Discuss principles to be observed in the use of credit.

3. Discuss several sources of farm credit and show the advantages and disadvantages of each source.

4. Invite a local banker to discuss banker-farmer relations on loans, how farmers can improve their credit, and how surplus funds can be invested to good advantage.

References:

1. Murray, W. G. Agricultural Finance. Iowa State College Press. 1941.

2. Hudelson, R. R. Farm Management. New York, The Macmillan Company. 1939.

3. Hart, V. B., Bond, M. C., and Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

4. Love, H. M. Financing Truck Crops in Three Eastern Virginia Counties. Experiment Station Bulletin, 369. 1945.

UNIT XIII

INSURING FARM BUILDINGS

Very few farmers carry enough insurance on their buildings. Farm buildings represent a large share of the capital investment, and the farmer should carry adequate insurance on these buildings as a means of protecting his farm business from serious loss.

The most common hazards to farm buildings are:

1. Fire.
2. Lightning.
3. Windstorm.

Types of fire insurance companies:

1. Commercial Fire Insurance Companies.
2. Cooperative or Mutual Fire Insurance Companies.

Basic principles to consider in insuring farm buildings:

1. Protection as far as possible against all hazards.
2. The amount of insurance must be reasonable.
3. The cost must be kept relatively low.
4. Avoid moral hazards.
5. Adjustments must be fair.

Farm Building Hazards

The business of farming is at best extremely hazardous. Many risks may be reduced to a minimum through the use of insurance. Insurance does not eliminate losses, but it distributes losses from the individual to the group. For example, a fire is uncertain on any particular farm,

but a study of fire insurance records in a given locality over a period of years can be determined rather definitely. An uncertain loss to any one farmer can be established in this locality. This uncertain loss is paid in the form of insurance premiums. A fire might seriously affect a farm business if the farmer had to bear the entire loss. These losses are bearable when spread over a large group.

Farm buildings are exposed to many hazards. The more important of these are fire, lightning, and wind. Protection against fire is perhaps the most important insurance need of the farmer. Fire insurance is made available to farmers through two types of insurance agencies—the commercial fire insurance companies and the cooperative or mutual fire insurance companies.

Types of Insurance Companies

Fire insurance, to include loss by lightning, and wind insurance, on buildings and contents are the most common type of insurance found on the farms. Wind insurance is much more prevalent in the middle western states than in any other section of this country.

There are certain advantages and disadvantages to consider in both the commercial and the mutual companies. A farmer can often secure more insurance on his buildings through the commercial companies than through the mutual companies. The cost, however, is usually higher with commercial companies. The chief advantage then of the mutual fire insurance companies is the reduced cost in most cases.

Farmers sustain severe losses in many sections from windstorm. Windstorm insurance on farm buildings is provided by both commercial and cooperative companies the same as for fire insurance.

Protection Against All Hazards

Farm buildings should be protected as far as possible against all unavoidable hazards. The farmer should study his policy very carefully before buying to make sure that he is getting the protection he needs. Certain provisions may be overlooked if the contract is not carefully read and interpreted. If any one hazard is not provided for in the insurance contract, the farmer may lose his buildings from that particular hazard and find himself worse off than if he had not obligated himself to the amount of the premium.

A policy giving protection against loss by fire and lightning on all kinds of farm property is usually desirable. Many farmers want protection also against windstorm. Insurance which protects against loss from both fire and wind is commonly referred to as combined protection.

Reasonable Amount of Insurance

Experience has shown that it is not practicable for an insurance company, at least in the case of farm risks, to protect the owners to 100 percent of the value of the property insured. The honest farmer is perhaps better served by having his property insured to approximately 75 percent of its value at moderate rates, than by having his property insured to 100 percent of its value at rather high rates caused by the moral hazards of a few unscrupulous persons.

The problem of overinsurance has caused more trouble to fire insurance companies than any other single problem. Insurance must be written in such amounts only as will at all times leave the owners of the insured

property directly and personally interested in avoiding loss. A large number of individuals are likely to relax in their care and vigilance against fire dangers when the loss of insured property means a personal gain rather than a personal loss to them.

Relatively Low Cost

The cost of insuring farm buildings must be reasonable so that the owners can afford to take advantage of it. In order to keep the premiums at a reasonable rate, it is necessary to consider carefully all physical hazards and reduce the moral hazards to a minimum. Insurance, to be practical, must be economical and consistent with the risk to be assumed.

Moral Hazards

By the moral hazard is meant the danger of loss resulting from the willful action or inaction of the insured or of other persons connected with the property. Overinsurance is the primary cause of this moral hazard. In no case should the insurance company safeguard a farmer against his own negligence or carelessness.

Fair Adjustments

Both the farmer and the insurance company should be fair in adjusting losses. The insured should receive an amount on the basis that he is led to expect from the agreement in the policy. It is very essential to have a clear understanding as to all the provisions in the insurance policy.

There should be a certain degree of understanding between the farmer and the company if protection is to be available on truly favorable terms.

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Farmers can do much themselves to reduce the fire hazard. Many fire losses that occur on farms as well as elsewhere are the result of carelessness on the part of the owner of the property destroyed. Every reasonable care possible should be taken to minimize the fire hazard.

Suggested exercises:

1. Discuss the importance of insuring farm buildings.

2. Discuss the common hazards to farm buildings and the basic principles to consider in insuring farm buildings.

3. Secure specimen copies of fire insurance contracts from a local agent and study them from the standpoint of cost and protection offered.

4. Have a local insurance agent discuss the problem of insuring farm buildings.

References:

1. Hudelson, R. R. Farm Management, New York, The Macmillan Company. 1939.

2. Agriculture Yearbook, 1924.

3. Specimen copies of insurance contracts.

UNIT XIV

INSURING CROPS AND LIVESTOCK

The value of crops and livestock grown on farms in this country is enormous. The need for practical crop and livestock insurance is just as great as any other type of insurance.

Principles of crop and livestock insurance:

1. Protection as far as possible against all unavoidable losses.
2. A reasonable amount of insurance per acre or animal insured.
3. The cost must be reasonable.
4. Avoid moral hazards.
5. Method of adjustment must be fair.

Reasons for crop insurance:

1. Many risks are beyond the farmers control.
2. Crops represent a large investment.
3. Need for more and better crop insurance.

Reasons for livestock insurance:

1. Large investment in livestock.
2. Protection against disease and accident.
3. Small percentage of livestock insured at present.

Protection Against Unavoidable Losses

An ideal crop or livestock insurance policy should provide protection as far as possible against all unavoidable hazards to which the crops or livestock are subject. Farming, as a business, is extremely hazardous. Many risks may be reduced to a minimum through the use of insurance. There

seems to be a great need for more practical insurance to cover the losses of all unavoidable hazards in the production of crops and livestock on farms.

Reasonable Amount of Insurance

Crop and livestock insurance should cover only such damages as will result in serious financial loss to the farmer. A reasonable amount of insurance based on the average yield per acre in the case of crop insurance and normal value of animals in the case of livestock insurance should be wirtten. From the standpoint of the individual and the insurance company, crop and livestock insurance must be written in such amounts only as will at all times leave the farm owners personally interested in avoiding losses due to negligence.

Reasonable Cost

The insurance company must operate with reasonable efficiancy in order to keep the expense to a minimum and make it profitable for the farmer. The cost of the insurance should bear a reasonable relationship to the value of the protection it affords. A large proportion of the amount contributed by the insured as premiums is used to meet the operating expenses of the insurance company. The company then, pays back in indemnities to its patrons a much smaller amount than the sum collected from the insured in the form of premiums. Crop and livestock insurance to be practical must be economical and consistent with the risks to be assumed.

Moral Hazards

In no case should the insurance company safeguard a farmer against his own negligence or carelessness. This is knows as a moral hazard and no insurance company can afford to assume such risks. Insurance written to protect against the negligence of farmers is very expensive and penalizes the honest and efficient farmers.

Fair Adjustment

Fair and reasonable adjustments, as well as economy in the operation of the business, are as much in the interest of the buyers as they are in the interest of the insurance companies. Extravagance is likely to be reflected in increased premium rates. The adjustments of losses should be fair to both the farmer and the insurance company. There should be a certain degree of understanding between the insured and the company or local agent. As a rule, the better the understanding the more favorable the terms.

Reasons for Crop Insurance

The value of crops grown on farms in this country is enormous. Farmers assume many risks in producing these crops. Most of these risks are beyond the farmers control. Yields may be influenced by climatic conditions or insect pests and diseases. The fluctuation in prices of farm products is an important cause of financial loss in farming. The difficulty of controlling the supply and other factors are also extremely difficult to control. Adequate insurance should be available to assume these risks.

Hail insurance is the most common type of crop insurance used by farmers. There are several other specialized types of crop insurance used in a few areas to a limited extent. Frost insurance, storage insurance, and fruit drying insurance are examples. New plans for insurance are being tried out in the Federal Crop Insurance Program on certain crops which was started in 1939. Most of this is still in the experimental stage.

Losses resulting from crop damage may be reduced considerably by the farmers themselves. Diversified farming tends to scatter the risks so that all the crops are not exposed or equally affected by unfavorable weather, insect pests or diseases, at any one time as in the case of one-crop farming. The use of good seed and proper cultivation and harvesting methods are also good insurance against losses.

Reasons for Livestock Insurance

Farmers have a large investment in livestock and need insurance protection. The losses from diseases at times are extremely large. Protection against disease and accident to livestock may be secured from a number of insurance companies at a very nominal charge.

The demand for livestock insurance in this country has been relatively small in the past. There is an increasing demand for insurance covering purebred livestock. With the introduction of more and better livestock in this country, and with increasing attention to the minimizing of risks in farming, the demand for livestock insurance is likely to increase. The present amount of livestock insurance outstanding in the United States is less than one percent of the value of all farm animals

Farmers themselves can greatly reduce the livestock hazards by the use of a careful sanitation program, which includes proper feeding, housing, and vaccination.

Suggested exercises:

1. Discuss the principles to be observed in crop and livestock insurance.

2. What are some reasons for this type of insurance?

3. Secure from a local insurance representative specimen copies of crop and livestock insurance contracts. Study these policies to see what kind of protection is offered and the cost of such insurance.

4. Secure a local insurance agent and have him to discuss crop and livestock insurance problems.

References:

1. Hudelson, R. R. Farm Management. New York, The Macmillan Company. 1939.

2. ValGren, V. M. Crop Insurance. U. S. D. A. Bulletin, 1043. 1922.

3. Agriculture Yearbook. 1924.

4. Specimen copies of Crop and Livestock insurance contracts.

UNIT XV

FARM FENCING

The importance of effective enclosures for fields, pastures, orchards, barnyards, gardens, and other types of property units has long been recognized. A successful farm business generally has livestock, cover crops, grazing crops, and permanent pasture. All of these require fences. A good fence is a permanent improvement and should be well constructed.

Advantages of fences on a farm:

1. Essential where livestock is kept.
2. Guard against damage from the neighbors stock.
3. Allow rotation of pastures.
4. Increases the value of the farm.

Disadvantages of fences on a farm:

1. Expensive to build and maintain.
2. Fence lines waste land.
3. Waste time in going from one field to another.
4. Tend to harbor weeds and brush.

Principal kinds of fences found on farms:

1. Rail fences.
2. Board fences.
3. Stone fences.
4. Barb wire fences.
5. Woven wire fences.
6. Electric fences.

Materials used for posts:

1. Wood.

2. Metal.

3. Concrete.

The location of gates is very important. Cattle guards or automatic gates are convenient and save time.

Advantages of Fences

The number of rods of fence required on a farm will depend largely on the size of the farm, the size and arrangement of fields, and the type of farming. Many farms include livestock, cover crops, grazing crops, and permanent pasture, all of which require fences. Fields that are fenced may be pastured when crops are not growing on them. Grazing the fields helps to eliminate weeds and the manure or droppings from the animals tends to increase the production from the farm as a whole.

A well-built fence is an important item in farm management as it affords good insurance against losses of both crops and livestock. Good fences protect farm properties and promote good relationship between neighbors by avoiding annoyances from stray animals.

The construction of a fence is an important job. Regardless of the materials used, no fence will prove satisfactory unless it is properly constructed. It is wasteful to buy good fence materials and then do a poor job of construction.

Fencing is very essential to effective crop rotation. It is just as necessary to keep livestock out of certain fields as it is to keep them in others. Many farms have too much fence because they are cut up

into too many small irregular fields. In order to allow rotation of pastures, some type of fence is necessary. Temporary fences are often used in dividing the area in permanent pasture. They are easy to build or take down and at the same time provide sufficient protection for the rotation of pastures.

A good fence is a permanent improvement and increases the value of the farm. Delapidated fences are evidence of careless farming. Good fences not only give better protection but add greatly to the attractiveness and worth of a farm.

Disadvantages of Fences

Fences are expensive to construct and maintain and should not be erected unless they are actually needed. The cost will vary depending upon the kind of fence used and how well it is constructed. For a permanent fence, it is usually more economical, to use a good quality of fencing material and construct it well.

Fences always waste some land. Stone and rail fences waste more land than wire fences. Crops are often injured along fence lines caused by turning around with the farm machinery.

Fence rows make an excellent place for the growth of weeds and brush. They also tend to harbor insect pests and rodents. Fence rows usually have to be mowed by hand each year and this takes considerable labor. Unless this is done the fence rows soon grow up with brush and as a result waste more and more land.

Where the fields are fenced, time is lost in executing many of the farm jobs. In hauling manure, crops, supplies and other things it is necessary to go where the gates are located rather than directly across the

fields in many cases. Since fences are expensive, they should be used as economically as possible. Each fence also occupies a strip of land that cannot be used for crop production.

Kinds of Fences

The most desirable kind of fence depends upon the livestock kept, crops grown, and the permanency of the fence. Wire fences are most commonly used today. Either woven wire or barb wire or a combination of both is generally used on most farms. A few of the old type stone and rail fences are still in use in this state.

The fence around the barn lot is generally more satisfactory if it is built out of boards or some similar material. A wire fence is not so satisfactory and there is a likelihood that the stock may get crippled due to entanglement and injury.

Many farmers are now using electric fences. Electric fences require a minimum of wire and are rather inexpensive to construct and maintain. A single stran of wire is usually sufficient. This must be attached to insulators on the posts and sufficient current supplied to turn farm animals but not to injure them. Electric fences may be operated by a battery or a regulated electric current. They are well adapted to use temporary fences.

Electric fences are dangerous unless they are properly constructed and controlled. Defective electric fence equipment may kill or injure persons or livestock. Farmers using electric fences should buy their equipment from a reliable manufacturer and make sure that the fence is properly installed.

Materials Used for Posts

Most fence posts in this state are made of wood. Steel and concrete posts are used to a limited extent. As wood posts become scarcer steel and concrete posts are likely to be used to a greater extent. Black locust and red cedar make excellent posts and will last many years. Other native woods are used in areas suitable to their growth and are very satisfactory. Treating posts with creosote increases their life considerably.

Wood posts are more economical to use than either steel or concrete, especially where the wood is grown on the home farm as is the case with most farms. Metal posts are light in weight and easily handled and can be driven into most soils rather easily which reduces the labor and cost of setting. Concrete posts are often used as corner posts or gate posts. When properly made, they will give satisfactory service for many years.

Gates

Gates should be located in the most convenient places and should be sufficiently wide to allow any or all equipment to pass through easily. Many farmers make the mistake of making gates too narrow. Gates that are used frequently should swing easily. A gate that drags on the ground is difficult to operate. A few hours of extra labor spent in the construction and proper hanging of a gate will save time and effort.

Cattle Guards

Cattle guards or automatic gates are convenient where trucks or tractors are used. They save a lot of time and are not difficult to make. Where openings are used frequently, these are perhaps a good investment for the farmer.

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Temporary fences are often used to advantage on the farm. They are more economical to construct and may be moved from place to place without too much difficulty. In building a temporary fence it must be remembered that this fence will probably be taken down and moved. The posts may be driven in the ground and this makes them much easier to remove. The staples should not be driven too far into the posts so that they may be removed easily.

Permanent fences should be well-constructed. Corner posts of adequate size, well set, and braced are the most important factors in erecting a good fence. Fences give better protection and last longer where they are properly stretched and fastened securely to the posts. Do not be afraid to stretch the fence tight. As long as the tension curves are not pulled out, the tighter the fence is stretched the better. The fence should be close enough so that the animals will not try to get their heads through. It should be high enough so that the stock are not able to reach over. A woven-wire fence with barb wire on top gives excellent protection to the crops and it is not likely to injure the livestock.

From the standpoint of economy in fencing a square field is the best. A field 40 rods square requires 160 rods of fence to enclose it.

A field 80 rods long and 20 rods wide will require 200 rods of fence. Large fields are more economical per acre to fence than small ones. A square field containing one acre requires about 50 rods of fence. A square field containing 40 acres requires about 8 rods of fence per acre.

There is an urgent need on many farms for a rearrangement of the fences. The division of fields should be with reference to cultivation, crop rotation, and other factors as well as economy of fencing.

Suggested exercises:

1. Discuss the principal kinds of fences and point out the advantages and disadvantages of each kind.

2. Make a study of the fences on the home farm to include: kinds of fence used, height, kinds of posts, bracing of corner posts, and the general condition of fences.

3. Calculate the cost of fencing various sized fields at current prices.

References:

1. Hart, V. B., Bond, M. C., and Cunningham, L. C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

2. Kelley, M. A. R. Farm Fences. Farmers Bulletin, 1832. 1940.

3. Current catalogues on farm fences from various manufacturers.

UNIT XVI

FARM BUILDINGS

Two thousand years ago Cato gave advice on farm buildings which is still good today. "In his youth, the farmer ought, diligently to plant his land, but he should ponder before he builds . . . . when you do build, let your buildings be proportioned to your farm, and your farm to your buildings."

Factors to consider in farm buildings:

1. The farm house is a home plus business headquarters.
2. Buildings should be suited to the farm.
3. The roof and foundation are the two most critical parts of any building.
4. Plan the buildings for convenience.

The number, size, and kind of buildings depends on:

1. Size of the farm.
2. Type of farming.
3. Number and kind of livestock kept.
4. Feed to be stored.
5. Equipment and machinery to be housed.

Farm House

A farm is a combination of a home and a business. The farm dwelling should be planned from the standpoint of efficiency as well as providing modern conveniences. The farmhouse does not have to be luxurious in order to be comfortable and convenient. A rather expensive home, if it can be

paid for, is not considered bad farm management as the farmer is entitled to and should have all of the modern living conveniences. It must be remembered, however, that the house furnishes only a place in which to live and does not provide a living.

The home affords a place where the business of the farm may be planned and decisions made. It furnishes protection for the farm family, and is the most important of all the farm buildings. The farmhouse should be attractive and tend to harmonize with its surroundings.

The modern conveniences of a farm home should include a good heating system, running water, bath, sewage disposal, and electric lights. Comfort, conveniences, and labor saving devices should be the main considerations in the farm home.

Buildings Suited to the Farm

Barns and other farm buildings are expensive and should not be erected unless the farm business actually has a need for them. The amount to invest in buildings should be based on the earning power of the farm. A farmer cannot afford to have expensive buildings on a cheap farm. If a farmer desires a good house and barns, he should have a good farm on which to put them. Many farmers make the mistake of over-building. Farm buildings are not directly productive and should be in keeping with the farm.

Critical Points of Buildings

The roof and foundation are the critical points of a building. Painting the farm buildings is desirable and makes them more attractive,

but it is the roof and foundation that has most to do in limiting the life of the buildings and should receive first consideration. Failures of many buildings to stand true are the results of careless work in making the foundations. The footings and foundations of a building should extend deep enough below the surface of the ground to prevent damage due to freezing. The depth will vary according to the location but from eighteen to thirty inches should suffice in most places. The roof in generally the first part of a building to wear out. The kind of roofing material used generally depends upon the type of building erected. Regardless of the kind of roof used, it should be inspected frequently and the necessary repairs or replacement made before the building is allowed to depreciate seriously due to a leaky roof.

Plan for Convenience

Farm buildings should be conveniently arranged in order to save labor. The average farmer is likely to make more mistakes in the arrangement of farm buildings than he is in over-building. It is important to work out the floor plan before repairing old buildings or erecting new ones. The floor plan is a very important factor to consider before building a dairy or livestock barn. Buildings can often be enlarged by adding an "L" or "T" to the original building and also by changing a gable roof to a gambrel roof or by raising the building.

Well-planned buildings are a permanent asset to the farm business. Buildings should be designed so as to admit as much sunlight as possible. This is especially true of buildings housing livestock. The purposes of

natural lighting of farm buildings are to make the buildings more sanitary by destroying germs, to aid in dryness and warmth, and providing more light in caring for the livestock. The amount of sunlight admitted into a building will depend upon the number, size, and position of the windows. Sunlight is of most value during the winter and spring months.

Among the many things which must be considered in planning farm buildings for convenience are: relation of each building to the others and to the farm as well as the size and shape of the buildings.

Building Needs Vary

Buildings will vary according to the individual farm needs. The Buildings on most farms will include a comfortable, convenient residence, well-constructed and conveniently arranged barns, poultry houses, hog houses, granaries, silos, garage, work shop, and shelters for equipment and machinery.

The outside appearance of a barn is not so important as the actual construction and arrangement of the interior. Large well-painted buildings are desirable provided the farm business can afford them. Often, too much of the farm capital is tied up in buildings. Excessive capital invested in buildings is hard to get back from the farm either through extra profits from the livestock and crops sheltered, or through added sale price of the farm. The cost of housing livestock or storing feed in too expensive buildings tends to eat up the profits.

Livestock farms usually require more buildings than crop or general farming. A pure-bred stock farm is usually justified in having more expensive

buildings than where grade stock is raised. Pure-bred animals usually require better housing conditions, and then too, good buildings help to advertise the farm business. Some type of building should be provided for housing all the machinery and equipment. The cost of providing shelter for equipment and machinery is more than offset by the decreased depreciation.

No definite rule can be set up as to what proportion of the total capital should be invested in buildings because the prices of land and buildings materials change so frequently. Small farms are likely to have a higher percent of the capital invested in buildings than larger farms. Livestock farming may have a higher percentage of investment in buildings than general farming. Erect only those buildings that are needed, plan the buildings carefully, and be as economical as possible.

Suggested exercises:

1. Discuss the factors to be considered in planning and erecting farm buildings.

2. What proportion of the home farm capital is invested in buildings?

3. Secure plans from the Experiment Station of the common buildings in use in the community and study these from the standpoint of arrangement, economy and efficiency.

4. Make recommendations for improving the buildings on the home farm.

References:

1. Hart, V.B., Bond. M. C., and Cunningham, L.C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

2. Hudelson, R. R. Farm Management. New York, The Macmillan Company 1939.

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4. Building Plans from the Agricultural Experiment Station.

UNIT XVII

FARM LABOR

Labor is one of the most expensive items involved in operating a farm business. Since labor is often the limiting factor, the work should be planned so as to get the fullest possible use of every hour available. Labor efficiency is essential to successful farming.

The scarcity of farm labor is due mainly to:

1. Seasonal work.
2. Educational trends.
3. Farm families are smaller now than formerly.
4. City industries pay higher wages.

Ways of increasing labor efficiency on the farms:

1. Have a moderately large-sized business.
2. Have a well balanced business.
3. Have a good farm layout.
4. Plan the work ahead.
5. Do work on time.
6. Use good seed of high yielding strains.
7. Keep good livestock.
8. Use modern labor saving machinery.
9. Have a list of rainy day jobs.
10. Use good judgment in managing the labor.

Seasonal Work

The seasonal character of the business is one of the greatest drawbacks in securing farm labor. A farmer who can offer steady year-round

employment can usually get a better class of labor and often at a slightly lower rate of wages than one who hires at only certain seasons of the year.

Farmers who can use labor only part of the year are likely to be hardest pressed for help when they need it and may get only a poor class of labor. Other things being equal, the farmer who diversifies and can employ his laborers all the year can more easily secure and hold an efficient class of workers.

Educational Trends

Farm boys have always been an important source of farm labor. Our present educational laws tend to keep the farm boys in school much longer than formerly. Most of the rural parents are now interested in securing a better education for their children than they themselves received. This is as it should be, but at the same time has influenced the scarcity of farm labor.

Farm Families Smaller

Statistics show that farm families are decreasing in size. This is also an important factor in the scarcity of farm labor, since less help is available from the farm family itself.

Cities Pay Higher Wages

The wages a farmer has to pay for hired help is greatly influenced by the manufacturing wages paid in that locality. The trend in manufacturing wages in Virginia from 1910 has been upward. Farm wages also followed

the same general movements. The trend in both was upward, but more so for manufacturing than for farm wages. Wages in cities are generally higher than most farmers can afford to pay and the social privileges usually are greater also. Farmers must compete with industrial employers for hired help and it is very essential that this help be used efficiently.

Moderately Large Business

The size of the farm unit is an important factor affecting labor efficiency. A moderately large farm tends to provide more productive working days throughout the year than the small farms. A moderately large farm business makes possible the economic use of more modern labor-saving machinery and equipment than does the small farm. Many jobs on the farm require more than one man. A farm business sufficiently large to profitably employ two or more men will usually accomplish more per man than on a farm employing only one man.

Balanced Business

Since labor is one of the major costs of farm operations it is essential that an adequate amount of productive work be provided at all times of the year in order to make the best use of the available labor. Farm management studies show that the more successful farms have better labor efficiency than the less successful farms. Much of this may be due to the proper organization and balance of the farm business. An adequate amount of productive livestock will provide employment during the winter

months and aid in keeping the available labor profitably employed throughout the year. Most of the improvement and repair jobs can be done during the winter months or slack periods. Examples of this would be repairing and building fences, repairing buildings, equipment, machinery, and other jobs that have to be done on a farm.

A well-balanced business is usually adjusted so as to allow a fairly even distribution of labor over the entire year.

Farm Layout

There is usually a direct relationship between the farm layout and the labor income, mainly because a poorly-planned farm wastes labor and equipment time. Since large fields give greater economy of labor, the farmed fields should be as large as the size of the farm and the physical factors will permit. Any irregular shape for a field is undesirable since it requires more time to perform farm operations than on regular shaped fields. Travel between the farmstead and fields and going from one field to another is not directly productive work. It is merely getting ready to do the job. This takes time and labor and makes it highly desirable to have the fields as conveniently arranged as possible. From the standpoint of labor efficiency it is best to have the farmstead near the center of the farm.

Conveniently arranged barns and other buildings save much time in doing the daily chores. Successful farmers tend to make use of all available labor saving devices possible in order to step-up the labor efficiency on their farms.

Plan Work Ahead

A farmer should plan his work well in advance and manage to keep busy most of the time on worth while productive jobs. Careful planning to arrange for doing the different farm jobs at the proper time will help considerably in leveling out labor peaks and slack seasons.

There are certain farm jobs that are more or less fixed as to the time in which they may be done. Planting and harvesting of crops are good examples of fixed farm jobs. Certain jobs such as plowing, spreading lime, threshing, and husking corn may be shifted to a limited extent. Jobs such as building fences, repairing buildings, and farm machinery, and similar jobs may be done at any time during the year.

Do Work on Time

In planning the year's work, the farmer should consider these different types of jobs and fit them into the program of work so as to provide employment throughout the year and at the same time get the work done at the proper time.

Some farmers are nearly always behind with their farm work. They work just as hard as their neighbor who generally has his work completed on time. The difference is usually due to a lack of proper planning.

Use of Good Seed and Livestock

Crop yields and rates of production from the livestock are important factors affecting labor efficiency in farming. It requires almost as much labor to care for low producing animals as it does on high producing ones.

The amount of labor required to produce ten acres of crops is practically the same regardless of the yields made. It pays to use seeds of high-yielding and good quality strain and high producing animals.

Modern Machinery

Good farm machinery and equipment helps to increase the labor efficiency on a farm. The use of modern labor saving machinery, where the size of the farm business permits, has greatly aided the farmer in overcoming the labor problem since more work can be accomplished per man. The amount and size of farm machinery that can be profitably used is limited to the size of the farm business.

Rainy Day Jobs

A list of rainy day jobs should be planned in advance so that the farm labor can be profitably employed during bad weather. This helps provide for a full year's work and the machinery and equipment can be kept in good condition, thus avoiding unnecessary delays in their use at critical times.

Management of Farm Labor

Labor efficiency depends on good management of the labor as well as an efficient farm organization. Good judgment on the part of the farm operator will go a long way towards getting the maximum amount of work from hired men. If possible, hire a good man and pay him more than one not so good. Give the hired man good treatment, ask his opinion on things, and provide a full year's work.

Suggested exercises:

1. Discuss the reasons for a scarcity of farm labor and some ways of increasing labor efficiency.

2. Calculate the average cost per farm for the locality. Compare this with the labor cost on the home farm.

3. What percent of the total cost of operating the farm is labor cost?

4. Make recommendations for improving the efficiency of labor on the home farm.

Referances:

1. Hart, V. B., Bond, M.C., and Cunningham, L.C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

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3. App, Frank, and Waller, A. G. Farm Economics. Philadelphia, J. B. Lippincott Company. 1938.

4. County and local statistics.

UNIT XVIII

FARM MACHINERY AND EQUIPMENT

The selection and acquisition of the smaller implements and tools does not create a serious problem as they are necessary on any farm. The more complicated expensive machines do present an important problem for many farmers. The invention of each new piece of modern farm machinery and equipment gives an advantage to the farmer who can profitably use it and means a handicap to those who cannot.

The machinery and equipment that can be profitably used on a farm will depend largely upon the following factors:

1. Size of the farm.
2. Type of farming.
3. Size and shape of fields.
4. Topography.
5. Character of the soil.
6. Cost and capital available.
7. Mechanical ability of the farmer.

Ways of minimizing the cost of farm machinery and equipment:

1. Buy good machines and equipment of a standard make.
2. Handle the machinery and equipment with reasonable care.
3. Keep machines and equipment repaired and in good working condition.
4. Keep machinery and equipment properly lubricated.
5. Provide adequate shelter.

Conditions most favorable for tractor operations:

1. Level topography.

2. Large regular fields.

3. Farm large enough to keep tractor busy.

Advantages of a tractor:

1. Saves time and labor.

2. Displaces horses and saves feed bill.

3. Helps to get work done on time.

4. Gives available belt power.

Disadvantages of a tractor:

1. Difficult to operate on hilly or rough topography.

2. Difficult to operate on small irregular fields.

3. Too expensive for small farms.

4. Not adapted to all farm jobs.

Size of Farm

The farmer must determine what equipment can be profitably used on his farm. A certain machine may be very desirable but would not be profitable due to the limited amount of work for it to perform. The size of the farm business may justify the purchase of various machines profitably in a large business but extravagant for the small farm. To make the best use of machinery and equipment, seasonal needs and possibilities should be considered. The larger farm has greater seasonal use of machinery and equipment which tends to lower the cost per unit for its use.

Type of Farming

Some types of farming require large amounts of land and small equipment, while other types may demand but little land and extensive machinery and equipment. Regardless of the amount needed, it is very important to select the implements that are adapted to the type of farming followed. Specialized farming usually requires special implements which may not be used on any other enterprise. There are many implements, however, which may be used successfully on a variety of crops. Where general farming is practiced, it is generally wise to select machines which are adapted to as wide a use as possible. The same machines may be used for several crops, thus cutting down on the cost.

Size and Shape of Fields

Many fields are too small for the efficient use of farm machinery. Irregular shaped fields are always undesirable, and the smaller the field the more important it is to be uniform in shape. In using the larger machines, the shape of the field, as well as the size, is a very important factor. The farmer should consider his farm layout very carefully before deciding on what implements and the size of implements to purchase. Large regular fields are better suited for the use of modern farm machinery than small irregular shaped fields.

Topography

The topography of the farm will have considerable influence on the selection of farm machinery. It is more difficult to use heavy machines

on rolling or hilly land than on level land. Farms that are mostly rolling or hilly may have a large percentage of the land in pasture or hay and will need proportionately less machinery than on a farm of level topography. Level or slightly rolling farms can use machinery more efficiently than hilly farms. Topography may be the limiting factor in the selection and use of farm machinery and equipment on many farms.

Soil

The character of the soil is also an important factor in the selection of farm implements. Tractors and other expensive types of machines are more commonly used on the more productive soils than on the poorer soils. Many farms are too poor to profitably use the more expensive equipment. Disc plows are used in localities where soil conditions are such that moleboard plows will not operate to best advantage. The soil condtions will determine what type of furrow opener, grain drill or type of cultivator and certain other equipment to buy.

Cost and Available Capital

Farm machinery and equipment is expensive. Many farmers may base their decision on what will be convenient rather than what is profitable. Regardless of how beautiful, durable, and efficient a farm machine may be, its cost must be borne by the products it helps to produce. The cost must be offset by a saving in labor, or improved product value sufficient to more than take care of the cost of the machine. A farmer with limited capital may have need for a machine that could be profitably employed

but the money necessary to purchase this machine might be more profitably invested in livestock, fertilizer, or feed. The available capital as well as the cost of machinery should be considered carefully by the farmer.

Mechanical Ability of the Farmer

The farmer should consider his mechanical ability or the ability of the person who will operate the machinery. Some farmers are naturally not mechanically-minded and should recognize this fact in the purchase of machinery and equipment. As a general rule, the farmer with very little mechanical ability should buy the simpler designs of machines. Some of the more expensive farm equipment and machinery is rather complicated and requires a person with considerable mechanical ability to operate it satisfactorily. The number of men needed to operate the farm is far less than formerly, while the qualifications required to use the machinery and equipment efficiently are much higher.

Standard Equipment

It is important to consider how well the make of machine is established and perfected. We should consider the availability of repair service and replacement of parts locally. Valuable time may be lost if it is necessary to send to the factory for new parts. It is usually best to select machines of a standard make which has proved satisfactory.

Handle with Care

The care and skill in management is an important factor in minimizing the cost of farm machinery. Thoughtlessness in handling and care of farm

machinery results in the loss of thousands of dollars and much needed time to the farmers every year. A reasonable amount of care in the operation of machinery and equipment will result in considerable length of life of the machines and equipment and thereby lower the cost of operation to the farmer.

Keep Machinery Repaired

Many machines are scrapped each year which are capable of doing several years of useful work if only a small percentage of their original cost were expended for necessary repairs. The proper time for repairing farm machinery is during their period of inactivity and before the spring rush begins. During the winter months or on rainy days is usually the best time to overhaul the farm machinery.

A good practice is to check for loose bolts, screws, and adjustment of parts when lubricating the machine. Loose bolts wear oblong holes or get lost, resulting in serious damage to the machine. Parts out of adjustment result in rapid wear, possible breakage, and inefficient operation.

Lubrication

Timely and thorough lubrication is a vital factor in prolonging the life of farm machinery. Many farmers are careless about oiling and greasing their machines with the result that the life of these machines is materially reduced. For best results use only high-grade oils and greases of recognized manufacutre and make certain that all parts needing oil or grease are sufficiently lubricated at all times.

Adequate Shelter

The most economical way of prolonging the life of machinery and equipment starts with keeping the new implements well protected from the weather. Machinery and equipment represents capital invested and should be housed properly and not left in a fence corner or under a tree for wooden parts to rot and metal parts to rust. Over a period of years, weather can be the severest enemy of farm machinery and equipment. It is not necessary, and perhaps unwise to build expensive storage for the farm implements. Cheap storage, however, is considered a good investment as the decreased depreciation on the machines will more than offset the cost of the buildings.

Conditions Favorable for Tractor Operations

Tractors are most numerous in sections having large areas of level topography but are used to a limited extent in practically every locality in this country. While tractors are more efficient on large level farms, they may be used profitably under varying conditions on most any type of farm provided there is sufficient work to keep them busy. The more days the tractor can be kept at productive work, the more profitable it is likely to be.

Advantages and Disadvantages of Owning a Tractor

The advantages and disadvantages of owning a tractor must be carefully studied. This is an individual problem and will vary with different farms. The farmer will have to consider the cash requirements to buy and operate a tractor as against the ability to accomplish more work while the

weather and season are right. Where a tractor will pay for itself, it is very desirable to own.

Suggested exercises:

1. Discuss the importance of farm implements.

2. Discuss the important factors to consider in purchasing farm machinery and equipment.

3. How may the cost of farm machinery and equipment be minimized?

4. Make a survey of the farm implements on the home farm and list the needed repairs.

5. Study the prices of various machines and equipment and discuss those that you think could be profitably used on the home farm.

References:

1. Hart, V.B., Bond, M.C., and Cunningham, L.C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

2. Hudelson, R.R. Farm Management. New York, The Macmillan Company. 1939.

3. The Operation, Care and Repair of Farm Machinery. John Deere, Moline, Illinois.

4. Current catalogues of farm machinery and equipment from some of the well established firms.

UNIT XIX

CHOOSING AND BUYING A FARM

The selection and purchase of a farm is a very important problem. The farmers should take plenty of time and study it from every angle. This is perhaps the most important decision the farmer will have to make and should be undertaken only after a careful study has been made of the conditions which are likely to affect the success of the business and the satisfaction to be derived from farm life.

Factors to consider in choosing the region:

1. Decide upon the type of farming you wish to do.
2. Select a region adapted to that type.
3. Select a prosperous region.
4. Consider the people in the locality.
5. Consider the markets.
6. Consider the improvements.

Factors to consider in buying a farm:

1. Available capital or credit.
2. Size of the farm.
3. Location.
4. Productivity.
5. Topography.
6. Farm layout.
7. The buildings.
8. Water supply.
9. Future developments.
10. Clear title.

Type of Farming

If a man has a preference for a particular type of farming, as a general rule he will be more successful if he follows that type of farming. Before buying a farm it is important to consider the type of farming being followed in that locality. The type of farming found in any particular region is the result of many years of experience and is usually adjusted to the local conditions and is best adapted to that section.

Adaptation

Where a farmer has a preference for a particular type of farming, as a general rule he should select a farm if possible in a region adapted to that type. Generally speaking, it is not wise to embark on an entirely new type of farming in a region where it has not been followed. Sometimes it is successful but it is exceedingly hazardous. Some farmers have no particular choice as to the type of farming followed. He can buy a farm in a community where he wants to live and take up the appropriate type of farming.

Prosperous Region

The general prosperity of a region is usually a good indication of the value of the farms. A prosperous region is likely to have good buildings, good roads, good schools and other facilities for both business and pleasure. The chances of success are likely to be greater in a prosperous region than one not so prosperous.

People

The character of the people in a community should be considered before buying a farm. Disagreeable social conditions may not affect the productive capacity of the farm, but will materially affect the home life and pleasures of the farmer and his family. It is very desirable to locate in a community where your interests and ideals are in agreement with those of the neighbors.

Markets

The availability of adequate markets is an important economic factor and one that should be considered carefully by the prospective farmer. The distance to market and the character of the roads should be observed. Other things being equal, the nearer the market the farm is located, the greater the possibility for securing maximum profits.

Improvements

In selecting a region, the improvements should be considered. Such things as the availability of good roads, good schools, electricity, and telephone are becoming increasingly important. The prospective farmer should consider these essentials before making the final selection. It is doubtful if many farmers would want to buy a farm and locate in a community which does not have these conveniences.

Capital or Credit

The amount of capital and credit available will usually determine the size of farm business that is selected. It is important to have a

proper distribution of capital among the items of land, buildings, machinery and equipment, livestock, and supplies. The farmer will also need some operating capital. A farmer who invests all of his capital in real estate will be seriously handicapped. In order to secure the maximum income from a farm business, it must be properly equipped and supplied. With limited capital, a good practice is to buy as large a farm as possible and still have enough funds left to equip and operate the farm selected.

Size of Farm

It is well to remember that the larger the farm business, within reason, the more profitable the business, other things being equal. It is usually desirable to purchase a moderately large farm if possible. It requires a farm business of considerable size to provide an income that will even cover operating expenses. Unless there is a margin above the maintenance charges no progress can be made in the farm business.

Location

The location of a particular farm in the community is important. In any locality some farms are more accessible to the improved roads, schools, churches, local market, electricity, etc., than others. Where a farm is located some distance from the highway, the character of the road leading to the farm is extremely important to consider.

Productivity

Success in farming is determined to a large extent by the productivity of the soil. The natural fertility of the soil is perhaps the most important

single factor to consider in buying a farm. A farmer has to distinguish between a neglected farm and a poor farm. A neglected farm may be profitably brought back into a high state of cultivation in a few years. Soils of low fertility are a handicap and may prove to be a liability if they are farmed. A poor farm may be expensive to own regardless of its cost.

Topography

With the increased use of modern farm machinery, topography is becoming an increasingly important factor to consider in the purchase of a farm. If the land is very steep, it is not practicable and often difficult to use improved machinery. Such fields may be worked but the cost of producing crops on such land is higher than on level land. Where cost of production is higher, the profits are necessarily less.

Farm Layout

In selecting a farm it is difficult to find an ideal arrangement of buildings and fields. Farm layout is an economic factor and is important in securing the most economical use of land, equipment, and labor. Much time may be lost because the fields are small, irregular in shape, or because important fields are far from the farmstead. The arrangement of the buildings, themselves, has much to do with the ease of doing farm chores. The farmer should pay particular attention to the farm layout before making the final decision.

Buildings

Good buildings are a permanent asset to a farm business, but are expensive and should not be erected unless the farm business actually has a

need for them. The amount to invest in buildings should be based on the earning power of the farm. The prospective farmer should consider the buildings in relation to the size of the farm. The condition of the buildings should be examined carefully so as to determine their value. It is usually better to buy a farm on which few buildings have been erected rather than one which has been over-capitalized in buildings.

Water Supply

A convenient and adequate supply of water is extremely important on any farm. A farm without plenty of water is very undesirable. Where livestock farming is practiced, special attention should be given to the convenience and dependability of the water supply in the various pastures. Springs or creeks are very desirable and are usually a permanent source of water.

Future Developments

When a person buys a farm he should consider the probably development of the locality. It is wise to consider the future possibilities of an increase in land values. A large part of the profit in farming in many regions is due to the increase in land values.

Clear Title

Before buying any farm make sure that you get a clear title. The title abstract should be brought up to date. If the seller does not furnish an abstract, then the buyer should have one made and filed for his protection. Have the deed transferred in writing.

Suggested exercises:

1. Discuss the factors to consider in choosing a desirable region for farming.

2. Discuss the factors to consider in selecting and buying a farm.

3. Make a score card for use in selecting and buying a farm using the factors discussed in this unit.

4. Compare two or more farms in the community which are for sale and determine which is the most desirable.

References:

1. Hart, V.B., Bond, M.C., and Cunningham, L.C. Farm Management and Marketing. New York, John Wiley & Sons, Inc. 1942.

2. Hudelson, R. R. Farm Management. New York, The Macmillan Company. 1939.

3. Warren, G. F. Farm Management. New York, The Macmillan Company. 1919.

4. Thomson, E. H. Selecting a Farm. Farmers' Bulletin, 1088. 1935.

UNIT XX

DRAWING UP CONTRACTS AND AGREEMENTS

An agreement is an understanding between two or more persons. If an agreement is legally binding it is a contract. An agreement must be legally binding before it can be enforced by law. Contracts or agreements are a means of self-regulation as distinguished from governmental regulation.

A contract is a legal term for a bargain or agreement. It is a legal transaction in which the declared will takes the form of a promise or set of promises. One or all parties are bound to some performance. It is an agreement between two or more persons to do or not to do something for a valid consideration. Contracts are founded upon agreements under which the parties concerned assume the discharge of certain obligations.

Factors to consider in drawing up contracts and agreements:

1. An understanding.
2. Consideration.
3. Competency.
4. Freedom of action.
5. Legality.
6. Put in writing.

Essentials of father-son farm business agreements:

1. Farm partnership must be desirable.
2. Desire of the son to farm.
3. Agreement must be fair.

4. Ability to work together.

5. Knowledge of good farm management.

6. Adequate size farm business.

Understanding

Before written agreements or contracts can be drawn up, the parties concerned must come to some sort of oral agreement or understanding. It is necessary that the parties should actually intend to enter into an agreement. This contractual relation must be agreeable to all parties concerned.

Consideration

An agreement or contract must involve some consideration. A consideration may be defined as something bargained for and given in return for the promise. Something must be given or promised. There must be something capable of being reduced to money value. Most agreements are not enforcable unless they are founded upon legally valid consideration. There is no valid contract without an offer on one side and an acceptance on the other.

Competency

A contract made with an incompetent person is illegal and cannot be enforced. Minors, intoxicated persons, and insane persons are not considered competent and a contract involving such persons is not legal.

Freedom of Action

Consent to a contract must not be obtained through force. There must be complete freedom of action on the part of all parties concerned.

Contracts are illegal if made by threats of violence, concealing material facts, and if impossible in their nature. There must be mutual willingness on the part of all contracting persons.

Legality

A contract to be of any value must be legal and not contrary to statutory law or public policy. No. special form of contract is required to make it legal, but the terms of the agreement should be expressed clearly and in simple language. The parties must have capacity for legal transactions and these transactions must not contravene the law or good morals.

Put in Writing

A contract may be oral or written. If oral, to be legal, it must have one or more witnesses. A contract which cannot be performed within one year and contracts involving a guaranty must be in writing. Written contracts and agreements are always more satisfactory than oral ones. Written contracts serve as a memorandum to all parties concerned. Farmers should insist upon written contracts for the sale or purchase of livestock to be delivered at a future date, the hiring of laborers by the month or year, the leasing of land, the construction of buildings, the purchase of land, and other similar transactions.

Desirability of Partnership

Before any father and son farm partnership agreement can be successful, both must share the belief that a farm partnership is desirable. There must be a desire on the part of both the father and the son to enter into

a farm partnership agreement and a belief that this will help to provide for a more prosperous and satisfying farm life. In most cases this is an ideal way for the young man to start farming. The father and son partnership is a good way to keep the home farm in the family. Communities, and agriculture in general, will usually benefit by keeping these boys on the farm.

Desire to Farm

To be successful in any business, it is necessary to be interested and have a liking for it. A successful farmer likes his work and gets a great deal of satisfaction out of his accomplishments. Unless the farm boy has a desire and enthusiasm for farming, he is not likely to be very successful in his farming venture. It is essential that the son's wife also have a liking and some knowledge of the farm problems. This is often an important factor in determining the success or failure of a farm business.

Fair Agreement

The type of agreement drawn up has much to do with the success or failure of a father and son partnership. The best kind of agreement will vary according to the conditions found on the individual farms. The father and son should share in the profits in proportion to their contributions to the business. The agreement should be flexible enough to take care of the many different situations encountered on farms. It should be rather simple and easily understood. It is important to remember that the agreement must be suited to the farm and the partners.

Ability to Work Together

The father and son must have the ability to work and get along together. Any selfishment or individual notions on the part of either father or son must give way to cooperation and agreement for the best of the farm business as a whole. Unless they can work together peacefully, the father-son farm partnership agreement is doomed to failure before it even starts. It is very essential also that their families be able to get along together. Where the father and son have a desire to work together and believe that both of them can profit by a farm partnership agreement, then it is likely to be highly successful.

Knowledge of Farm Management

If the father-son farm business agreement is to succeed, the farm business must make money. A knowledge of good farm management is essential since this is one of the most important factors in determining the success or failure of a farm business. The development of a profitable farm business is largely an individual farm problem, but to be most successful on any farm, the basic principles of good farm management must be followed.

Size of Business

The farm business must be large enough so as to furnish profitable employment for both father and son if they are to succeed in their partnership business. The number of acres will vary with the type and intensity of the farming conducted. Where the present farm business is too small to provide productive employment, better farming methods, more livestock, new

enterprises, or perhaps more acres may be used to increase the farm income and provide profitable employment for the persons to be engaged in the business.

- - -

"Father-Son Farm Business Agreements are the answer to a big farm problem. They give the able farm boy his start and the father a chance to ease up before he is ready to retire. They make for a stable, wholesome community life by keeping the farm in the same family for many years.

"If agreements of this kind are to succeed, the business must provide adequate income for both men. Also the farm earnings should be divided in proportion to the contribution of each one, the division being based on well-kept records. When he starts in business, the son should be assured of a minimum income and provided with satisfactory living arrangements." Circular 587, University of Illinois.

Suggested exercises:

1. Discuss the factors to consider in drawing up contracts and agreements.

2. Discuss the essentials of a father-son farm business agreement.

3. Study the father-son agreement plans as set up in the references and decide which one might be most applicable to the home farm.

4. Secure a local lawyer to discuss contracts and agreements from the point of view of farm business affairs.

References:

1. Hill, B.E. Father and Son Farm Partnerships. Special Bulletin 330. Michigan State College. 1944.

2. Cunningham, J. B., and Case, H. C. M. Father-Son Farm Business Agreements. University of Illinois Circular, 587. 1944.

3. Gray, L. C. The Farm Lease Contract. Farmers' Bulletin, 1164. 1939.

UNIT XXI

MARKETING FARM PRODUCTS

Marketing farm products is essentially the distribution of goods from the farm to the consumer. The simplest form of marketing is the sale by the producer directly to the consumer. Modern business, the development of large cities, and the division of labor in industry, all tend to reduce this form of marketing. Most farm products today are marketed through various marketing agencies or middlemen.

Characteristics of farm products which affect their marketing:

1. Bulk.
2. Perishability.
3. Seasonal production.

Important marketing functions:

1. Assembling.
2. Grading.
3. Storing.
4. Transporting.
5. Packaging.
6. Selling.
7. Insuring.
8. Financing.

Factors to consider in marketing farm products:

1. Adjusting production to the markets.
2. Choosing the time to sell.
3. Selecting the market.
4. Method of marketing.

Bulk

Most farm products are bulky and occupy considerable space in relation to their market value. The relation between bulk and market value of the product is the principal factor in determining marketing cost. The bulkiness of a farm product in proportion to its value will determine to a large extent whether it can be shipped long distances or must be used locally. Increases or decreases in freight rates greatly influence the market opportunities in different regions. Potatoes, cabbage, and hay are examples of products that are rather bulky. Products such as butter, cheese, and eggs are less bulky in comparison to their market value.

Perishability

Farm products are perishable and must be marketed rather quickly. There is a wide variation between products and also between the same products under different physical conditions. Some products such as milk, fresh fruits and vegetables are highly perishable and deterioriation takes place rapidly. Cereals, cotton, and tobacco are less perishable and may be kept for a considerable time under proper conditions. Highly perishable products are either marketed locally or require rapid transportation under refrigeration to the distant markets.

Seasonal Production

Most of the farm products are highly seasonal and mature during a relatively short period of the year. Few, if any, farm products come to the markets in an even flow the year around. Some are more seasonal than

others, however. This influences the marketing greatly, particularly if they are perishable. This causes an over burden on the transportation, storage and financing facilities. Farm products that mature in a relatively short time must be stored and fed to the consumer markets over the entire year.

Assembling

Before farm products can be marketed efficiently they must be assembled or collected at certain points. Farming is a business of many small units and each unit is capable of producing only small quantities of any one product. Many of these farm units are located some distance from the markets. Since transportation and processing can be done more economically in large units, the function of assembling is very important.

Grading

Uniform grading of farm products is becoming an increasingly important problem as agriculture tends to become more and more commercialized. Consumers as a rule, desire products having fairly definite and uniform qualities. Graded products nearly always demand a higher price than those that are ungraded. Grading of products makes trading possible without the buyers and sellers actually seeing the products.

Storing

Most farm products are highly seasonal in production while they are consumed throughout the year. This makes storage necessary. Storage may be done by the producer, the consumer, or by some intermediate agency.

Farmers frequently store the less perishable products such as grain for considerable periods, but the more perishable products are frequently stored by the middlemen who have special warehouses equipped to handle such products.

Transporting

Transportation is one of the most important marketing functions since a large part of the farm products are grown at a considerable distance from the large cities. The farmer should determine the relative cost and efficiency of the different transportation methods. Improved transportation methods and facilities have greatly aided the marketing of farm products. Such improvements as paved roads, motor trucks, refrigeration cards, and air transport have all influenced our marketing system.

Packaging

Many farm products must be packaged before they can be marketed. Packaging facilitates handling, prevents losses due to bruising and exposure, and places the product in convenient quantities for the buyers. For example, fresh fruits and vegetables are usually put up in boxes or crates, eggs are put in cases, and potatoes are frequently sacked.

Selling

Farm products as a rule do not effectively sell themselves. Some one has to find buyers and see that proper prices are received. As products change hands between producer and consumer, there must be a buyer and a

seller. Goods are often bought and sold many times as they pass through the various middlemen between the farm and the consumer. The most important middlemen or agencies are the local buyers, the wholesaler, the commission men, the brokers, the jobbers, and the retailers.

Insuring

There are certain risks involved in the handling and marketing of farm products. These products may burn up, deteriorate in quality if not handled properly, or the price may decline. The owner or marketing agency must necessarily assume these risks. Insurance companies and other special agencies may accept most of these risks for a small percentage of the value of the goods.

Financing

The process of advancing money is called financing. Products must be financed from the time they leave the farm until they reach the consumer. The farmer also does his share of financing in growing and harvesting products. The farmer is frequently paid for his products as they leave the farm. Most of the financing is done by the middlemen, who in turn borrow from the banks.

Adjusting Production to the Markets

Farmers should understand that each farm product more or less has its own marketing problems. Production must be adjusted to the market demands in order to receive a satisfactory price. The farmer who produces

things that are wanted will find a ready market. The price of farm products depends largely upon the desire for those products by the consumers. By studying the markets carefully, the farmer can often make profitable changes in order to meet the demands of the consumer.

Time to Sell

Deciding the best time to sell is an important problem confronting the farmer. Prices of many commodities vary throughout the year. There are fairly definite price movements for most farm products. These can be determined easily by a study of price records over a period of years. Where practical the production may be adjusted at a time when returns will be largest. The farmer has to consider whether to sell his products immediately after harvest or hold them for a short or for a long time.

Selecting the Markets

Marketing is an important part of farm production, and the location and type of markets go a long way in determining the most profitable system of farming in any locality. Lack of efficiency in marketing occasions great losses to the farmers each year. The farmer should study the preferences of several potential markets to which he could sell his products and select the one which affords the greatest profits for his particular type of product. Products may be sold at home or locally, or at some distant market. Many farmers use only one market continuously and profitably. At times, however, they may shift from one to another, depending on the condition of the crop and the prevailing prices.

Method of Marketing

Marketing directly to consumers from roadside markets has developed rapidly in all parts of the country. A good location is the first prerequisite for a successful roadside market. A proper display of the products usually induces the prospective customer to stop. The products must always be carefully graded and packed.

Cooperative associations have been organized with the primary object of improving marketing conditions and thereby securing a better income for their members. Virginia farmers are selling farm products and buying farm supplies cooperatively valued at approximately $20,000,000 annually.

Regardless of the marketing method used, the farmer should always keep in mind the fact that a foundation is laid for the successful disposal of his farm products when they are grown properly and prepared for the trade by careful grading and packing. A farm product of good appearance and high quality will almost sell itself, while low-grade products are usually difficult to dispose of at any price.

Suggested exercises:

1. Discuss the characteristics of farm products which affect their marketing.

2. Briefly review the important marketing functions.

3. Discuss the important factors to consider in marketing farm products.

4. List the important markets for the major products in the community.

5. Select one or more major farm products in the community and trace the various steps involved from the time it leaves the farm until it reaches the consumer.

6. Secure an official to discuss the operation of a local cooperative marketing association.

References:

1. Hart, V.B., Bond, M.C., and Cunningham, L.C. Farm Management and Marketing. New John Wiley & Sons, Inc. 1942.

2. Hudelson, R.R. Farm Management. New York, The Macmillan Company. 1939.

3. Warren, G. F. Farm Management. New York, The Macmillan Company. 1919.

A P P E N D I X

To: Teachers of Vocational Agriculture

Teacher trainers, supervisors, and teachers of vocational agriculture have long recognized the weakness in the instruction of farm management and related problems in the high school. Much material is available in this field but relatively little of it is suitable for use in high school classes. There is also a wide variety of procedures in the organization and use of material in this field. An attempt is being made to set up a suitable course in farm management units for use in vocational agriculture classes.

Your cooperation and prompt reply to the following statements will greatly facilitate the setting up of a desirable course of study in farm management. Your answers will be used for statistical purposes in determining the weaknesses and strong points in the teaching program. Your name will not be used in any way. A stamped envelope, self-addressed, is enclosed for your convenience. Thank you for your assistance.

Sincerely,

V. B. Cauley

1. How many farm management units do you normally teach each year to freshmen?_____, sophomores?_____, juniors?_____,seniors?_____
2. How many class periods per year do you devote to the teaching of farm management to freshmen?_____, sophomores?_____juniors?_____, seniors?_____. Length of periods, _____minutes.

3. If suitable farm management teaching units were made available, how many class periods per year do you think should be devoted to such instruction for freshmen?_____, sophomores?_____, juniors?_____, seniors?_____.

4. How many farm management units do you think should be taught each year to freshmen?_____, sophomores?_____, juniors?_____, seniors?_____.

5. How many complete written lesson plans on farm management do you have? _____.

6. References available: Books (please indicate number of copies)

_____a. Farm Management and Marketing, by Hart-Bond-Cunningham

_____b. Farm Economics, by App-Waller

_____c. Elements of Farm Management, by Hopkins.

_____d. Farm Management and Marketing, by Overton-Robertson

_____e. Farm Management, by Warren

_____f. _____

_____g. _____

_____h. _____

References: Bulletins

_____a. _____

_____b. _____

_____c. _____

_____d. _____

Other references_____

7. What do you consider your one greatest need in teaching farm management?

_____a. Suitable farm management teaching units

_____b. Reference material

_____c. Lesson plans

_____d. Additional technical knowledge

_____e. _____

8. Check the units you think should be taught in your school:

_____a. Purpose of farm management

_____b. A study of farming types

_____c. Determining size of farm business

_____d. Laying out the farmstead

_____e. Planning the farm layout

_____f. Balancing the farm business

_____g. Keeping farm records

_____h. Analyzing the farm business

_____i. Financing the farm business

_____j. Insuring farm buildings

_____k. Insuring crops and livestock

_____l. Setting up production goals

_____m. Maintaining soil fertility

_____n. Farm fencing

_____o. Farm buildings

_____p. Planning rotations

_____q. Using farm labor

_____r. Farm machinery and equipment

_____s. Choosing and buying a farm

_____t. Drawing up contracts and agreements

_____u. Marketing farm products.

9. List any other units you think should be taught:

a. _____

b. _____

c. _____

d. _____

Name _____ School_____

Experience in teaching agriculture_____years.