STATE OF IOWA

1940

Course of Study for High Schools

AGRICULTURE

Non-Vocational Course
for Grades 9 and 10

Issued by the Department of Public Instruction
JESSIE M. PARKER, *Superintendent*

Published by
THE STATE OF IOWA
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FOREWORD

This course of study in General Agriculture is intended for non-vocational classes in the ninth and tenth grades. It has been prepared under the general supervision of a statewide committee consisting of Dr. Barton Morgan, Chairman, Mr. R. A. Griffin, Supt. Chester L. Hartman, Dr. John A. Hopkins, Supt. W. W. Molsberry, Supt. O. F. Moore, Mr. Norman Norland, Supt. Chas. H. Obye, Dr. Winfield Scott, and Dr. T. E. Sexauer.

The preparation of these units was the direct responsibility of Dr. T. E. Sexauer of Iowa State College. Prof. Byron T. Virtue of the Agriculture Engineering Department, Dr. C. S. Dorchester, Dr. J. C. Eldredge, Prof. B. J. Firkins, and Prof. H. D. Hughes of the Agronomy Department, Prof. A. L. Anderson and Mr. Leslie Johnson of the Animal Husbandry Department, Prof. C. A. Iverson, head, and Prof. E. N. Hansen of the Dairy Department, Dr. John A. Hopkins, Dr. Margaret G. Reid, Dr. G. S. Shepard, and Dr. Walter Wilcox of the Economics Department, Prof. H. W. Richey and Dr. J. C. Schilletter of the Horticulture Department, Prof. R. R. Rothacker of the Landscape Department, Dr. H. L. Wilcke of the Poultry Department, and Dr. Ray E. Wakeley of the Department of Sociology have assisted.

This course is planned on the unit basis and is designed to cover a full year's work. Teachers may select those units best suited to their situations and communities. They are worked out largely as problems. Each problem is accompanied with a list of questions upon which the student may spend his preparation time. Teachers will find these questions invaluable in bringing out the important points of the lesson, and helpful in preparing for recitations which should be conducted on the discussion plan.

Short lists of references are attached, most of which can be secured free of charge. These references have been selected from lists which are as up-to-date as possible, and should be continually supplemented by more recent publications.

JESSIE M. PARKER
Superintendent of Public Instruction.

GENERAL PURPOSE

The purpose of this course is to give high school boys and girls an understanding of agriculture; an understanding of the more crucial problems of rural life; and an appreciation of the important part that the agricultural industry plays in the social and economic affairs of Iowa and of the nation.

UNIT I

Agriculture as our basic industry

UNIT I

AGRICULTURE AS OUR BASIC INDUSTRY

I. INTRODUCTION

WHAT IS AGRICULTURE? Agriculture is the production of plants and animals that are useful to man. It is the fundamental occupation upon which all manufacturing and commerce depend. Agriculture is essential for any civilization; it is a combination of science, art, and business.

THE IMPORTANCE OF AGRICULTURE. Agriculture is our greatest single industry. It is the industry that has been most characteristic of America and upon which American invention and discovery have made their greatest impress. Along with inventions and discovery have come doubled and tripled production, with a reduction in the expenditure of energy, revolutionizing farming and overshadowing the drudgery typical of the farm life of the yesteryears. These stepped-up farm practices have meant shorter hours with higher wages for farm families.

"Civilization began and civilization will end with the plow."—O. M. Roberts. The economic life of America is so interwoven into the fabric of agriculture that any attempt to alter its basic principles will destroy the pattern of American life.

In the occupations related to agriculture frequent strikes occur taking the terminology of "Walk Outs", "Shut Downs", and "Sit Down Strikes". Many of these organized strikes impair transportation, production, and commerce in general, but some way, some how, under subnormal conditions business continues, although greatly handicapped. What do you think would be the situation and how would it affect the American people if the farmers of this country should decide on a Sit Down Strike? They produce the staple commodities of the nation.

UNITS AND SUB-ABILITIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Abilities:

A. The ability to determine our basic industry.
B. The ability to define agriculture meaningfully.
C. The ability to evaluate the importance of agriculture in community life.
D. The ability to determine the economics of agriculture in food, clothing, and shelter.
E. Knowledge and ability to appreciate the meaning of agriculture in our civilization.
F. The ability to compare American agriculture with agriculture in other countries.
G. The ability to understand the regional development of various agricultural products.
H. The ability to determine agricultural resources.
I. The ability to understand human wants as a factor in the consumption of agricultural goods.
J. The ability to analyze the menace of erosion to agricultural stability.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY.

Ability A. The ability to determine our basic industry.

INDUCTIVE PROBLEM

In the early colonial period when the colonists first came to settle on the New England coast, what was the first industry they started? Why? There were no cities nor railways in those days. Today we have many cities and railways. How did it so happen that the other enterprises became established when we had only the farming enterprise with which to start?

JUDGMENT PROBLEM

There are many people who say that farming or agriculture is not necessarily the basic industry; they hold that had not the blacksmith and the carpenter come along with the gristmill manager the farming business would have collapsed. Others hold that the farming enterprise is basic and would have survived the hardships of colonial life. With which side do you agree? Why?

CREATIVE PROBLEM

Draw a small map of the Atlantic coast showing the sites of the early settlers and indicating the type of farming carried on in that area.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability B. The ability to define agriculture meaningfully.

INDUCTIVE PROBLEM

Most of you have observed the planting of crops; the cultivation, and harvesting of them. You have seen the manufactured products from the crops grown on the farms. From your observation give a definition of agriculture.

JUDGMENT PROBLEM

Agriculture is the planting and the harvesting of crops. Agriculture is the carrying to completion of an enterprise in its natural setting on the farm. With which of these definitions do you agree? Why? Is it possible to carry on agriculture out of its natural setting? In what way can this be done.

CREATIVE PROBLEM

Make an outline of the crops grown on the average farm of today; then make a large map of a typical farm in a rural community. Now divide the farm into sections for the various crops that are grown on the farms. Make provision for the livestock and other accessories of the modern farm. Indicate the divisions as the garden, house site, barn, front and back yards. The drawing should be made to a scale and colored to identify the various divisions of the farm.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability C. The ability to evaluate the importance of agriculture in community life.

INDUCTIVE PROBLEM

We have heard of the nationally famous Sit Down Strike. Before its advent there were many other kinds of strikes. What do you suppose would happen if the farmers should go on a strike? Possibly we could do without them. Do you think so? Explain how we could do without them.

JUDGMENT PROBLEM

In case by some misfortune we should lose our agricultural resources, could we survive as a nation? In case we should lose our industrial enterprises other than agriculture, could we survive? Which one do you think we could afford to lose? Why?

CREATIVE PROBLEM

Make a vertical-line graph and show the annual production of the staple foods produced by the American people. Now make another graph of the same kind showing the amount of staple food products consumed annually by the Americans.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability D. The ability to determine the economics of agriculture in food, clothing, and shelter.

INDUCTIVE PROBLEM

Most people of today are thinking about war and the horrors and slaughter that accompany it. Who won the last war anyway? Who will win this present war between Germany and the British? Explain the statement that is often made that the farmers won the war.

JUDGMENT PROBLEM

The generals and the leaders in the great wars declare that food is of great importance in winning any war. They place more importance on food than on ammunition. We all know that ammunition is essential, but if you could have only one of the two in war which one would you choose? Give your reasons.

CREATIVE PROBLEM

Make a tabulation of the foods required to keep an army of two million fighting on the front in time of war, and the amount needed for home use also. Indicate in what regions you would store this amount and give consideration to accessibility to rail and waterways.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability E. Knowledge and ability to appreciate the meaning of agriculture in our civilization.

INDUCTIVE PROBLEM

Thinking in terms of the millions of people now employed in agricultural enterprises and of the millions employed in the related enterprises of agriculture, then again, the millions of direct consumers of agricultural products, do you think agriculture has and is yet playing an important role in our

drama of life? Explain how the radio and the automobile are the indirect products of agriculture.

JUDGMENT PROBLEM

The Germans attempted what they termed a type of economic production—"self-sufficiency". When they want cloth they make it from wood. If they want gasoline for their planes and tanks they make it from coal. We know that the elements in plants are derived from the soil. Do you believe that we may some day get elements direct from the soil instead of through plants? Which?

CREATIVE PROBLEM

Make a chart showing the elements that we get from the plants and those we get from the soil.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability F. The ability to compare American agriculture with agriculture in other countries.

INDUCTIVE PROBLEM

The American farmer has in the past had privileges that were foreign to farmers in many other countries. He has had excellent markets, available credit, and millions of acres of fertile soil for extensive farming. This has not been always true in the case of the European farmers—many times his markets were poor; he could obtain little credit and was forced to do intensive farming. What indicates that we are drifting into the European situation?

JUDGMENT PROBLEM

You understand the type of farming done in the European countries. You also know the American type of farming. Which one do you prefer? Why?

CREATIVE PROBLEM

Make a scrap book and among other things include pictures of the products of the European and the American farm. Collect as much descriptive information relative to the products as possible.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability G. The ability to understand the regional development of various agricultural products.

INDUCTIVE PROBLEM

It so happens that the crops that are grown in the United States are scattered over a wide area reaching from the Gulf of Mexico to Canada and from the Atlantic to the Pacific. The crops grown in one section are totally unlike the crops grown in the other. How do you account for this difference? What are the factors that enter into the distribution of crops?

JUDGMENT PROBLEM

Some people think that by scientific methods a crop can be grown as profitably in one section of the country as it can be in another. This belief

is not held by some of the older farmers. With which one of these groups do you agree? State your reasons for agreeing with the group you prefer.

CREATIVE PROBLEM

Use a highway map outline of the United States. Now indicate the crops according to states grown in the northern and the southern sections. List the crops that may be grown fairly well in both the North and the South.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability H. The ability to determine agricultural resources.

INDUCTIVE PROBLEM

There are many things in this life that are very necessary for wholesome and comfortable living. Name as many items as you can, having their source in agriculture, that contribute to a wholesome life. Name as many items as you can that may be dispensed with that are derived from agriculture. Do you think we have a resource in agriculture?

JUDGMENT PROBLEM

It is commonly stated that it is an easy matter to overrun a country that has no mechanical resources. Which would be the easiest country to invade —one that has an agricultural resource and no mechanical resource, or one that hás a mechanical resource and no agricultural resource?

CREATIVE PROBLEM

Suppose you are entering the grocery business. Make a list of the different articles that you would include in your stock. Make a list of the ones that come from an agricultural source. Compare the latter with those that come from other sources.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability I. The ability to understand human wants as a factor in the consumption of agricultural goods.

INDUCTIVE PROBLEM

In the good old days the people were satisfied with the common or ordinary conveniences of life. Their homes were modest, and the furnishings in them were not elaborate. The farm equipment was not of the expensive type. They enjoyed that life and had good bank accounts. What are some of the reasons that they have abandoned the good life? Will they return to it?

JUDGMENT PROBLEM

The population of this country is dominated by the middle class. Will it be better for them to return to the modest life, using only the necessities and having a good bank account from their earnings, or will it be better for them to live the high life with elaborate luxuries but with no bank account from their earnings?

CREATIVE PROBLEM

Make a drawing of the crude ox-drawn plow of the colonial period; also draw a modern tractor-drawn plow and calculate the cost per day to operate either type.

PROBLEM SERIES

UNIT I. AGRICULTURE AS OUR BASIC INDUSTRY

Ability J. The ability to analyze the menace of erosion to agricultural stability.

INDUCTIVE PROBLEM

Erosion is entering into the economic aspect of agriculture more than is generally realized, so we are told by some of our leading agriculturists. They state that in some parts of this country, so far as the soil is concerned, we are only seven inches from starvation. How did this happen, or what do they mean? Will it continue? How will it affect agriculture? The people? What is the remedy?

JUDGMENT PROBLEM

The optimist says what is the use of worrying; this world has stood for thousands of years, and there is much fertile soil yet upon it; nature will take care of itself. The pessimist says we can not wait for nature; it works slowly and is uncertain. We must get busy and prevent erosion. With whom do you agree? Why?

CREATIVE PROBLEM

Construct a farm level and a terrace drag. Run terrace lines for the construction of terraces on farm lands.

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UNIT II

Economic aspects of agriculture

UNIT II

ECONOMIC ASPECTS OF AGRICULTURE

SECTION 1

AGRICULTURAL ECONOMICS

John Smith and Sarah Jones have both been reared on the farm. They are finishing high school this year and want to decide whether they should plan to farm or follow another vocation. During the past four years certain questions and problems have been raised.

PROBLEM I

During 1921-29 many farm boys and girls moved to the cities, but during 1930-33 this trend was stopped and many people returned to the farm. On what basis do you explain these opposite trends during the two periods? Should these young people be encouraged to become farmers or follow some other vocation?

Questions

1. Is farming an essential occupation in our national welfare?
2. Is agriculture likely to become relatively more important or less important in our national economy? Why?
3. What has been the trend in population and the percentage of national income going to agriculture?
4. Is farming a business with satisfactory financial rewards? Get rich quick and retire?
5. Does the farmer need as much cash income as the salaried man in the city? Why?
6. What are the economics advantages of city life? Of farm life?
7. What are the social advantages of city life? Of rural life?
8. Are there rural slums in our county? In Iowa? In the U. S.? Give evidences.
9. How do rural slums differ from city clums?

PROBLEM II

Many farmers quit the farm and move to town. Other families leave the town to live on the farm. In some cases this is due to financial failure, and in other cases to dissatisfaction of members of the family with living conditions. Do we have the necessary qualifications to be successful farmers or farmers' wives?

Questions

1. What are the qualifications of a successful farmer or a farmer's wife?
2. In what way do these qualifications differ from those of a successful

merchant? Teacher? Salesman? Stenographer? Industrial leader? Banker? Teacher?

3. What is meant by a "Master Farmer"? "Master Homemaker"? Are any such located in your county?
4. Is the amount of land accumulated during a lifetime a good indication of how successful a farmer has been? Why, or why not?
5. What changes are taking place in rural living which tend to make the farm a more desirable place to live?
6. Is a college education a help or a hindrance in farming?
7. Should one plan to farm unless he can inherit a farm?

PROBLEM III

Iowa is known as the "leading agricultural state", the "Corn-Hog" state, and the state where the "Tall Corn Grows". What are the facts upon which these statements are based?

Questions

1. Is Iowa a good state in which to plan to farm? Why?
2. What are the ten main sources of income to Iowa farmers? Which is the largest single source of income?
3. On the basis of acreage, what are the four leading crops produced?
4. Why is corn instead of cotton one of our leading crops? Tobacco? Wheat? Apples?
5. Although corn is one of our most important crops, why do we market most of it through hogs, beef cattle and dairy products instead of selling it for cash?
6. In what part of the state do we produce the most of our dairy products? Why?
7. In what parts of the state do we produce relatively more grass and less corn? Why?
8. In what area of the state do we produce more corn than is necessary to feed the stock in that area and consequently ship a portion of the corn crop out of the area? Why?
9. In what areas of the state do we ship in large numbers of cattle to feed out on corn and hay produced? Why?

PROBLEM IV

The statement has been made that "There is no use trying to farm unless you are a farm owner". Do you think this is true? Give reasons.

Questions

1. What are the advantages to the farmer and his wife of owning a farm to operate?
2. Can every farmer own the land he operates? Why?
3. What are the advantages of renting a farm?
4. What types of renting or farm leases are used in your neighborhood? Which do you think is best? Why?

5. If young Smith had only $2000 to start farming should he buy a farm or rent one?
6. What percentage of the farms in your county is operated by owners? Cash renters? Crop share renters?
7. How does this recent percentage of owner-operated farms in your county compare with the percentage in 1900? What are some of the causes of this change?
8. Is it cheaper to own or to rent a farm? What information is needed for comparison?

PROBLEM V

"Credit is the bane of the farmer." Do you believe this? Why?

Questions

1. Does a farmer or farmer's wife ever need credit? For what uses?
2. What is the difference between long-time, intermediate and short-term credit? What types of collateral are usually furnished by farmers for each?
3. What sources of each kind of credit are available to a farmer today?
4. What are the annual interest rates charged in your community for (a) land mortgage, (b) chattel mortgage on feeder cattle, (c) unsecured loan at bank, (d) installment loan on automobile, (e) finance company personal loan, (f) grocery store bill?
5. For how long a period do each of these loans run?
6. What three things determine the eligibility of a borrower for a loan?
7. What items are listed in a capital collateral showing the borrower's net worth? Make a net worth statement for yourself.
8. What are some of the chief items making up a farmer's net income statement which would show his capacity or ability to pay?
9. Is "good" character more important for young men than for old men in making them eligible for loans?

PROBLEM VI

Young Smith has heard that taxes are a tremendous burden on farmers. Do you believe this?

Questions

1. Why do we have taxes?
2. How is the local school supported? Police Department? Fire Department? Churches? City water? Country Club? Roads? R. F. D.?
3. Why are different methods of financial support used?
4. What proportion of the local property tax (farm or city) goes for support of the local school?
5. Would it be cheaper or "better" to support schools in the same way as churches are supported? Why?
6. What other kinds of taxes besides property taxes do farmers pay?
7. What kinds of taxes does a bank clerk have to pay? City property owner?

8. What kinds of taxes do farmers pay toward the support of the State Government? National Government?
9. What various services does the farmer secure for his tax money from each of the local, state and national governments?
10. What is the purpose of the so-called "Homestead Tax Exemption"?

PROBLEM VII

Young Smith has heard a great deal about the farmer's being regulated as to how much he can produce. He finds that many farmers believe the agricultural problem will be solved best by less governmental interference. He also finds a larger group who feels that many problems in agriculture cannot be solved except through governmental regulation or development of national agricultural policies. What do you think?

Questions

1. With which of the following problems do you feel the individual farmer needs group action or governmental assistance? If so, what assistance?
   a. The choice of using a tractor or horses
   b. The choice of planting oats or barley
   c. The number of acres of corn to plant
   d. The number of cows to milk
   e. The determination of the price of corn
   f. The best market for his hogs
   g. The conservation of soil fertility for future generations
   h. The terracing of rolling land
   i. The use of short (30 day) leases
   j. The control of noxious weeds
   k. The determination of interest rates
   l. The approval or disapproval of tariffs on wool, corn and cattle
   m. Inflexible prices for manufactured goods in depression periods
   n. The regulation of stockyards
2. Have the reciprocal trade treaties benefited the farmer?
3. Should special funds be made available to find new industrial uses for agricultural products?

PROBLEM VIII

Young Smith has heard of so many grades of different products and so many markets in which to buy his produce that he is wondering how he can possibly determine what his products are worth. What would you suggest?

Questions

1 What different markets for hogs are available to your farm? Cattle? Corn? Eggs? Butterfat?
2. Through what agency could you sell each product?
3. Who determines the grade of each product sold?
4. In which agency do you have the greatest confidence? Why?
5. What types of cooperative buying or selling agencies are located in your community? Why were they organized?

6. Have any cooperative marketing agencies quit business in your community? Why?

PROBLEM IX

Miss Jones hates to think of living on an isolated farm where she will have so little contact with other folks. She thinks it would be more pleasant to live in a large city. What do you think?

Questions

1. What changes are taking place in rural transportation which make the farm a more desirable place to live?
2. What different types of transportation for marketing various types of products are available? Hogs? Butter? Eggs?
3. What are the advantages of shipping by truck? Shipping by rail? By water, where possible?
4. Is there any difference in the relative advantage of these methods for long distance or short distance hauling?
5. What effect are good roads having upon the trade areas of small towns and large cities in regard to different commodities? Furniture? Groceries? Clothing? Machine repairs?

PROBLEM X

"The farmer is the greatest gambler on earth. He gambles with the weather on how much of a crop he will have and gambles on the price he will get when he sells it." Is there anything he can do to lessen the gamble in farming?

Questions

1. How can the farmer reduce the risk from weather?
2. How can he reduce the risk from insects and pests?
3. How can he reduce the risk from livestock diseases? In hogs? Poultry? Cattle?
4. How can he reduce price risks?
5. How can he reduce the risks from accidents? Death? Fire?
6. In what way can a farmer reduce the risk of becoming physically unfit to farm?

PROBLEM XI

"The farmer takes whatever price he can get for his products and pays the business man what he asks for the things he buys." This statement has young Smith feeling that the farmer is in a hopeless and helpless price situation. What do you think?

Questions

1. Does the farmer have anything to say about the price of the things he sells? How?
2. What is the usual seasonal trend of hog prices? Choice fat cattle?

Butter? Eggs? During what months of the year are eggs highest in price? Lowest?

3. How do prices of farm products usually respond during a war? Grains versus livestock?
4. Is there any relation between the prices of farm commodities and land values? Cash rents?
5. In general, do salaries or cost of living tend to rise first?

PROBLEM XII

The farm business is very complex and the manager has many points to consider when organizing it for profit. What four factors of production are included in the organization of the farm business?

Questions

1. Is land, labor, capital or kind of management the most important reason for wide differences in profits between farms?
2. Do large farms (240 acres and over) make more money than small farms (under 140 acres)? Why? Which lose the most money?
3. What effect does the trend of prices have on profits or losses?
4. Do large farms have a higher machinery, equipment and labor cost per acre than do small farms? In total? Why?
5. What crops in your community tend to give higher returns per acre?
6. Do differences in crop yields per acre affect the farm profits?

PROBLEM XIII

Less than ten per cent of Iowa farmers keep books. Why?

Questions

1. For what purposes should a farmer keep farm accounts?
2. What kind of records should a farmer keep?
3. In what ways may a complete farm inventory be used? Make an inventory statement for your home farm?
4. What farm receipts should be listed?
5. What farm expenses should be entered in the record?
6. Of what use is a crop production record?
7. In what way can a livestock birth and death record be of assistance to the farmer?
8. Is a farm record of any help unless summarized and analyzed? Why?
9. Should the farm business be credited with food and fuel furnished to the household?

PROBLEM XIV

There is much discussion as to what it costs to live on a farm. Some contend that the difference between farm and town money incomes is more than made up by the food, fuel and house rent that the farmer gets without paying for it. Others hold that relatively few farmers really do have time to raise a good garden or get much benefit from farm produce if they do a good job at farming. Which group is right?

Questions

1. How much would it have cost to buy the fruits and vegetables which your family raised this year in the home garden and consumed fresh, canned or stored? How does the record for your family compare with that of other families in your community? Make this comparison separately for farm and town families and then compare these two groups.
2. Select the family in your community (either farm or village) with the best home garden and the one with the poorest. Compare the diets of the families. Which seems to compare more favorably with that recommended for good nutrition?
3. Compare the milk consumption of children of farm with that of village families in your community.
4. Estimate the cost of purchasing other foods used by your family from the farm. Compare with the records from other farms in your community.
5. Do the same for village families.
6. Outline the conditions under which you think families in your community might well produce more of their own food supply. Outline the conditions under which you think they might well produce less.
7. Study the reports of expenditures for farm family living which are published every year by the Iowa Extension Service. Get information on the expenditures of your family and compare it with the reports. How would you explain the outstanding differences which occur?
8. Compare the recreation expenditures of the farm and village families in your community.

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UNIT II

ECONOMIC ASPECTS OF AGRICULTURE

SECTION 2

PROBLEMS ON FARM POWER AND EQUIPMENT

PROBLEM I

It is said that mechanization of farms has driven many thousands of families off the land and has permitted one farmer to till the land that formerly supported two or more families. What should be our policy toward farm mechanization?

Questions

1. Do you know of any farmers who now operate land that previously constituted two or more farms?
2. To what extent has the number of farms in Iowa actually decreased from decade to decade? Refer to U. S. Census for figures from 1900 to 1940.
3. In what parts of the United States have the numbers of farmers been declining since 1920? Where have these people gone?
4. How much decline has actually occurred since 1910 in the number of hours required to produce an acre of corn? An acre of wheat?
5. Do you believe there has been a proportionate decline in labor requirements on livestock?
6. Has increased efficiency in other industries been greater or less than that in agriculture?
7. What improvements in farm methods other than mechanization have also tended to increase output per man?
8. List benefits and harmful effects that have resulted from adoption of labor-saving methods on farms.

PROBLEM II

A breeder of pure-bred horses and an implement dealer are arguing the question whether farmers should use horse or tractor power. The implement dealer claims that tractors have saved the farmer millions of dollars, while the horse breeder believes that farmers have saved but little in operating costs and further that displacement of horses has reduced the demand for feed crops and has therefore been one of the principal causes of the agricultural depression. What do you think?

Questions

1. How great has been the decline in farm horses since tractor adoption began about 1910? How much of this was attributable to tractors?
2. How much demand for corn, oats, and hay was lost by this reduction in horses?

3. What is now done with the feed crops that have been "saved" in this manner?
4. How much has farm labor been reduced by tractor adoption?
5. Was there any corresponding increase in employment elsewhere?
6. Is it actually cheaper to operate a farm with a tractor rather than with horses? Were there any other reasons for tractor adoption?
7. How large a farm is needed for a tractor to prove an economical investment?

PROBLEM III

A young man is just starting to farm on 180 acres of land. He will have 70 acres of corn, 35 acres of oats, and 35 acres of hay. He is undecided whether to buy a tractor outfit and keep two horses for light work or get six horses and no tractor. What would you advise?

Questions

1. Would the horse or the tractor outfit require the larger investment—counting crop implements and power units?
2. How much difference would there be in labor requirements on crops?
3. Would the tractor or the horse outfit be cheaper insofar as power cost is concerned?

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UNIT II

ECONOMIC ASPECTS OF AGRICULTURE

SECTION 3

MARKETING FARM PRODUCTS

PROBLEM I

Many farmers complain that they get too little for what they sell. Many consumers complain that they pay too much for what they buy. Why do both groups complain? What are the causes for the difference in prices received for eggs by farmers and prices paid for the same eggs by city consumers?

Questions

1. How much of the consumer's dollar goes to the various agencies between the farmer and the consumer?
2. Where are the greatest costs incurred—in the local, the wholesale, or the retail market?
3. Why does it cost so much? Too many middlemen? Large profits? Inefficiency? Monopoly? Localization of production? Too many brands of the same goods? High advertising costs?
4. What can be done about it? (answers suggested by study of sub-questions under 3)

PROBLEM II

Because of the weather the size of the corn, wheat, and cotton crops varies widely from year to year. During some years the farmer has more corn than he can feed and the price is low. In other years he does not raise enough corn to feed the livestock, and the price is high. Is there some method by which he might be encouraged to carry over a portion of his surplus corn crop into years when the weather is unfavorable? Is it a practical plan?

Questions

1. What is the ever-normal granary?
2. How does it work for corn?
3. Has it stabilized (a) corn prices, (b) hog prices? How?
4. Has it raised prices to farmers? To consumers?
5. Has it reduced the volume of trade in (a) cash grain, (b) future contracts?

PROBLEM III

Many farmers argue that it is better to send their livestock to a terminal market through the regular market channels, while others prefer to sell their

livestock direct to the packer. What are the reasons for this difference of opinion?

Questions

1. What is "direct marketing"?
2. What percentages of (a) our hogs, (b) our cattle, (c) our sheep are marketed direct in Iowa and in the United States?
3. Why has direct marketing increased recently?
4. Does it raise or depress prices to the farmer or to the consumer?
5. Does it affect business at the terminal markets?

PROBLEM IV

John Jones, who markets his hogs at Chicago, Illinois, finds that he is paid by the hundred weight (live weight) according to whether they grade good to choice, or medium, or common. A farmer friend of his in Canada says that the final grade of his hogs is not determined until they are slaughtered, and then they are paid for according to their carcass weight and grade. What are the advantages of each system?

Questions

1. When did Canada adopt the carcass system? Why?
2. What are its advantages and its shortcomings to the farmer? The packer? The consumer?
3. How much does it cost?

PROBLEM V

Much surplus corn has been accumulated on midwest farms in 1931-33 and 1938-40. One suggested use for this surplus has been to manufacture power alcohol from corn. Would this solve the corn surplus problem?

Questions

1. Is power alcohol a good fuel?
2. How much does it cost to make?
3. How much is it worth?
4. Should it be subsidized by the state or federal government?

PROBLEM VI

One group of twelve Iowa retail dairymen received an average of $291 for each $100 worth of feed fed to their dairy cows. A second group of 150 farmers sold butterfat to creameries at a price which enabled them to receive $155 for each $100 worth of feed fed to their dairy cows. Do these figures indicate that the price of milk is too high? Why or why not?

Questions

1. What is the price of milk per quart in your town? Who sets the price?
2. What price does the farmer get per 100 pounds? How much is that per quart?
3. Why does the farmer get less than half of what the consumer pays?

PROBLEM VII

Medical records indicate that there are many low-income families in every city who have under-nourished children. At the same time there are large surpluses of corn, pork and wheat. Would it be desirable to sell food products from these commodities to low-income families at a price lower than the regular price for such food products to high-income families? What are the advantages and the disadvantages of this two-price system?

Questions

1. What is the two-price plan?
2. How does it help the consumer? The farmer? The storekeeper? How much does it cost the government?
3. How undernourished are our low-income groups?

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UNIT III

State and national problems and policies for agriculture

UNIT III

STATE AND NATIONAL PROBLEMS AND POLICIES FOR AGRICULTURE

PROBLEM I

A Paradox—Agricultural Surpluses and Millions of Undernourished People.

Most people say, carelessly, that all our trouble started with World War No. 1. There are those, of course, who even more carelessly place all the blame on the Republicans, the Democrats, the Socialists, the Capitalists, the Monopolists, or any one of a dozen other groups which may have entered into public discussions during the past two decades. But the answer is not as simple as all that.

The problem, however, is obvious enough. On the one hand, during the darkest days of depression nearly 14 million people were out of work, without purchasing power, underfed, inadequately clothed. On the other hand, during the same period, there were millions of bushels of wheat, millions of pounds of pork, vast warehouses full of cotton, for all of which there was no market at a price which would return to the producer enough to cover his costs. And while the unemployed laborer tightened his belt still further, the milk producer, unable to sell his product at a reasonable price, poured it out in anger along the highways. The farmer needed the products which those unemployed men could have produced. The unemployed needed just as badly the wealth which the farmer had brought forth from the earth. Between these two classes of producers, each of whom are consumers of the other's products, there was no bridge. Somehow the gears of our economic machinery failed to mesh; and although no one knew exactly what to do, or how to remedy the situation, it became increasingly necessary to do something about it.

The following problems will attempt to present something of what was done and why. But, in the meantime, there are a lot of unanswered questions.

Questions

1. Why, if farmers were willing to trade the produce of their land for the products which the unemployed laborer might produce, could not business men hire the labor and sell the products of labor to the farmer in exchange for farm commodities?
2. If the World War was to such a large extent responsible for depression conditions, why was not the depression anticipated in the ten years before it began and steps taken to correct it?
3. Some people say that depression is caused by a lack of balance in economic production, that we are simply producing an over-supply of some things and an under-supply of others, and that the solution to the entire problem is merely one of putting people to work in the right proportions producing the things we want. If this contention is true, what things should we have been producing in 1932? What could the unemployed have been working at so that they would have had purchasing power to buy farm commodities, so that the farmers would

have had purchasing power to buy manufactured goods? You won't get the answer to this one. Neither did anyone else, a situation that probably caused the depression.

PROBLEM II

Agricultural Adjustment

A Comparison Between the Prices Farmers Pay and the Prices They Receive for Their Products

We can't answer all of the questions arising because of a disturbance in economic conditions. We can only hope to study small sections of our economy and attempt to arrive at some sensible policy to pursue in order to overcome our difficulties. Consequently we will need to understand something of the background of conditions surrounding that segment of our economy called "agriculture", so that we can understand what has been done and why it was done that way.

We have all heard, again and again, the phrase "the farm problem". Newspapers, magazines, politicians, economists, and businessmen all use that phrase loosely without ever elaborating as to what, precisely, they are talking about. What is the farm problem?

Like most problems, the farm problem is merely one grand summation of a multitude of smaller problems. There is no **Farm Problem.** There are a multutude of **farm problems,** each of them complex in itself and probably arising from different causes than any other. One of the most widely discussed ones is the problem of "parity" price.

Now, parity price is another expression frequently used but all too frequently not understood. What does it mean? When the farm program was just beginning to be developed, the question arose with increasing frequency as to what income these programs should attempt to attain for farm people. How much income, as compared with other portions of the economy, should farmers receive? Those who were faced with the necessity for answering this question began to look backwards in an attempt to find a time when they thought farmers were getting a fair share of the national income, and they chose the four-year period from 1910 to 1914. During those four years, when a farmer hauled a load of corn to town and sold it and bought groceries and clothing and machinery with the money which he received from his corn, presumably he was able to buy as much clothing and machinery and groceries as he was really entitled to—that is to say, he received a fair price for his corn.

Now suppose that we forget the prices were actually paid and actually received during those four years, and say that the farmer received a dollar for the product which he sold and paid one dollar for the product which he purchased. Then in the following table you can see what happened to the prices he paid and the prices he received since that time at five-year intervals:

Year	Prices Received by Farmer	Prices Paid by Farmer
1912	$1.00	$1.00
1917	1.75	1.49
1922	1.32	1.49
1927	1.39	1.53
1932	0.65	1.07
1937	1.21	1.30

Let us see what the above figures indicate.

Questions

1. Take a sheet of paper which has been lined horizontally and vertically and make a chart, marking the years along the base and the prices along the left-hand margin in intervals of ten. Then locate the changes indicated in the table above by years and draw lines connecting successive years of prices paid and of prices received. What happens to the spread between prices paid and prices received in 1932? Judging from these figures, how much better off do you think farmers are now than they were in 1932?
2. Compared to 1914, if a farmer hauled a load of produce to town in 1932, how much less machinery, groceries, clothing, picture shows, and chewing gum could he buy in 1932 than he could in 1914?
3. Is it really possible to compare the prices of things farmers buy now with the prices of things which they bought in 1914? What different things do farmers buy now generally than they bought in 1914? Would you really be entirely fair if you compared the price of a 1938 model Ford with a 1914 model Ford without taking into consideration other factors? In the same sense, have not other products which the farmers buy changed also?
4. Is not the thing in which farmers are most interested a "parity income", rather than a "parity price"? Could farmers get a parity income without a parity price? How does the present volume of agricultural production compare with that of 1914?
5. What reason is there for assuming that farmers should get the same share of the national income now which they received in 1914? What share of the national income should farmers receive? You won't be able to answer that question either, but it is a question worth thinking about.

PROBLEM III

Agricultural Adjustments

Population Changes and Unemployment

You have heard a great deal during the past few years of the desirability of keeping young people on the farm. Leaders of farm organizations maintain that agricultural communities are losing their most talented young people and that community organization and agricultural leadership suffer

as a consequence. This problem is a very real one and should not be overlooked, but perhaps there is another side to the question.

Before the rise of our industrial era the population of the United States was largely rural, the first census indicating that between 75 and 80 per cent of our people depended upon farming for their livelihood. The 1930 census indicates that only 43 per cent of our population now depends upon farming as a source of livelihood. But farm families have always been considerably larger on the average than city families. This decrease means that since the beginning of the industrial era large numbers of farm people have moved from the farm to the city in response to increasing opportunity for employment there. The 1930 census indicates such a movement in that year, unfavorable as it was to urban employment, of nearly a third of a million people. But during the depression this movement not only stopped, but went the other way. Let us see what this reversal means in terms of agricultural adjustment.

Questions

1. If the proportion of farm population increased and the proportion of farm income decreased, what would be the result in terms of income per person?
2. We are told that during the depression there were 14 million unemployed people. Strangely enough, nearly all of these people were reported in cities. Why was there very little unemployment on the farm?
3. The city business man reduced his expenses by firing labor which he could not utilize profitably. Why didn't the farmer fire his labor also, thereby maintaining his profits?
4. If farm income is not adequate to support the people who are on farms, does not that fact suggest that one solution to the problem is the expansion of urban employment?
5. Discuss the proposition that one solution to the farm problem is to employ farm youths in the city. What type of training should farm boys and girls have if they are to receive city employment?
6. Discuss the proposition that farm boys and girls should be discouraged from leaving the farm as long as there is unemployment in the city.

PROBLEM IV

Agricultural Surpluses

We have often heard it said on the one hand that it is impossible ever to have too much of the things people desire, and on the other hand that our economy is burdened by agricultural surpluses. Now we are back once more to our original problem: How can there be an over abundance of agricultural products in the midst of an underfed population?

The two points of view are not necessarily contradictory; we simply need to understand what we mean when we speak of agricultural surpluses. The word "surplus" is somewhat misleading, for in reality there are no surpluses of most of the basic commodities in excess of the needs of people. Specialists in the problems of nutrition and health have estimated that if all the people in the United States were adequately clothed, fed, and housed

(adequate from the point of view of maintenance of health) agricultural production would need to be increased far beyond the present capacity of the land to produce. For example, they estimate the necessary increase of 76% in dairy products, 43% in beef cattle, 22% in hogs, 204% in vegetable and truck crops, 51% in citrus, and 112% in other tree crops, if the American people are to have an adequate supply of the essential commodities for the maintenance of health.

The problem is one of balance of production so that flooding the market with proportionately too much of one commodity does not completely destroy the price for that commodity, thereby curtailing the income of the producers in that field. That is to say, farmers cannot produce all their wheat in one year, all their pork in another year, all their dairy products still in a third. They must plan their production so that the products reach the market in the proportions desired by consumers. Otherwise the agricultural market will be characterized by extremely great fluctuations in agricultural prices, and the high points in those fluctuations never seem to compensate for the loss of the same at the low price. And not only is it necessary to produce in the correct proportion for the market, it is also necessary to produce in such volume that the price which the consumer pays for the farm products will compensate the producer at least sufficiently to cover his cost and maintain a comparable standard of living with urban people.

Such a statement is easily enough made; the problem of accomplishing the desired results is not so easy.

Questions

1. Do surpluses of manufactured goods—radios, automobiles, clothing, gasoline—cause the same sort of trouble as farm surpluses?
2. Were farmers a century or so ago bothered by surpluses? If not, why not? If so, what did they do about it?
3. If we produce a surplus of corn, why is it such a misfortune? If the crop were twice as much as necessary, why could not the farmer simply fail to produce anything in the second year, that is to say, why should he not simply rest for a year?
4. Many farmers will tell you that what we need is more money, that all the products that we need—eggs, potatoes, pork—are plentiful if people can have the money to buy them. If it's as simple as that, why could not Congress simply vote a thousand dollars for every worker?
5. Is it possible to maintain a balance of production without government control of agriculture?
6. When the farm machinery manufacturer is faced with a declining demand for his product, he curtails his production in order to maintain his price. Why cannot the farmers do likewise? Approximately how many farmers are there who grow corn and hogs for the markets? How does this compare with the number of those who produce farm machinery?
7. When the price of corn falls below a level which farmers believe is fair, why does not the farmer reduce his output?
8. If the farmer receives more for his products when he produces less, that means that someone is paying him more money and getting less for it.

Who pays the bill? What groups in our society benefit from this policy? What groups do not benefit?

9. If production is to be controlled, what should determine the level of output?
10. Has the agricultural conservation program been successful in controlling production?

PROBLEM V

Agricultural Adjustment

Land Value, Contract of Debt, and the Effect of Price Fluctuations

As you can see from the table in Problem II, the prices which farmers receive for their products during and immediately after World War No. 1 were exceedingly high compared to prices both before and up to that time. For example, in April 1920, farmers received $2.42 per bushel for wheat, $1.64 for corn and 38c per pound for cotton. In 1912 these prices were, respectively, 81c, 55c, and 11c. As a consequence of this tremendous price rise, the dollars rolled into the farmer's pocket; and because of the increased ability of the land to produce income of this kind, the price of land rose by leaps and bounds as farmers attempted to enlarge their holdings. Since it is almost impossible to pay for a farm all at once, farmers mortgaged their land in order to buy more land, paying in some cases as high as four and five hundred dollars an acre for land which in normal times sells at one hundred dollars or less. They expected the high prices for farm products to continue, and they expected to pay for the land out of the increased profits which arose from those high prices. In 1921 the price of corn dropped to 52c. In 1931 the price of corn averaged 32c. Corresponding drops accurred in most other farm products, and although there were higher prices generally between 1921 and 1931 they never reached the peak attained during the World War.

Questions

1 In 1920 Farmer Jones paid $250 per acre for his farm. It was a good farm, and he thought he was getting a bargain because, he said, he could raise enough corn upon an acre of land in four years to pay for that acre of land. He paid 30% of the purchase price, and agreed to pay the remainder at the end of five years with interest at 7%. How many bushels of corn would he have had to raise in order to pay for the land in four years at prices received in 1921? In 1932?

2. At the price which he received in 1921, how many bushels of corn would Farmer Jones have had to sell in order to pay the interest?
3. Farmer Jones, needless to say, did not pay for the remainder of his farm at the end of five years. His mortgage was renewed, but the continually increasing spread between the prices which he had to pay for that which he bought and the prices which he received for his products took more and more of his total income for his living expenses. He was managing to pay the interest and taxes most of the time, but in 1930 when he tried to renew his mortgage again what do you suppose happened?
4. If you have a series of Iowa Agricultural Yearbooks, see if you can find

what happened to the proportion of Iowa farmers who were tenants between 1920 and 1935.

5. Discuss the difference in results had Farmer Jones purchased a farm in 1932 at prices which prevailed at that time. Why did not more farmers purchase land when prices were low?

PROBLEM VI

Agricultural Adjustment and Agricultural Credit

We have said very little, thus far, about the problems of short term credit for farmers. The farmer, as any other business man, occasionally needs to borrow money in order to buy the things which he needs to produce a crop. For example, a beef cattle feeder could not very well be expected to keep enough cash on hand to buy a carload of beef cattle. Consequently it is necessary for him to borrow the money from someone, paying interest on it, and promising to pay it back when the beef cattle are marketed. In the same way, particularly in those sections of the country where farmers do not make enough above their necessary living expenses to save up any money, farmers may need to borrow in order to buy a herd of cattle, feed out a bunch of hogs, or even to harvest a crop if the harvest calls for large outlays of cash.

Needless to say, during the war time when farm prices were far, far above normal the farmer had no difficulty in obtaining as much credit as he needed —if not more. But when agricultural prices hit the bottom in the early years of the depression, and even during the twenties before the rest of the economy began to experience hard times at all, the uncertainty of agricultural prices made it more and more risky for bankers to loan money to farmers, and the sources of short term credit disappeared. The disappearance was aided by the tremendous number of bank failures in rural areas in the early thirties. Consequently, farmers who had a large supply of corn and wanted to buy beef cattle to feed it to, found it very difficult to borrow money to buy the cattle. And beef cattle feeders are only one example of what happened throughout the agricultural economy.

Questions

1. If you were a banker, and Farmer Jones came to you to borrow money in order to put in a crop of corn, what things would you have to consider before you loaned him the money?
2. Would you be any more likely to loan the money to him if you knew that the price of corn would not be below 50c in the fall?
3. Would it make any difference to you whether Farmer Jones were a tenant or a landowner?
4. Many farmers believe that many worthy farmers cannot obtain necessary credit for the operation of their business. When should a farmer be able to obtain credit and how much credit should he be able to obtain?
5. Many people advocate that the laws which regulate the extension of credit be revised so that credit is more easy to obtain. How would you vote on such a question if you were a farmer? If you were a banker? A depositor in a bank?

PROBLEM VII

The Problem of Inelastic Demand for Food

We have discussed agricultural surpluses and the hard times for farmers which have resulted from an expansion of agricultural production at length. But we haven't said anything about the real reason for the difficulty. The real reason is the inelasticity of demand for food.

I know that statement sounds very difficult, but it really is not as difficult as you think. This expression means simply that the consuming public pays less for an abundance of food than it would pay for a more limited supply.

Let's take an easy example. How much would you pay for enough water to take a cool bath on a hot summer day? Not very much. Why? Well, because there is more water in most places than anyone needs. The ocean is full of it, the rivers are made of it, and it falls plentifully in most seasons without the effort of men. But suppose you were in the middle of the Sahara Desert. How much would you pay for a small cupful of water? More than you would have paid for a bathtub full, you may be sure.

Now we can state in general what we mean by an inelastic demand. If consumers are willing to pay less for a given amount of a commodity than they will pay for a somewhat smaller amount, then we say that the demand for that commodity is inelastic. Let us take a specific example. In 1936, farmers harvested nearly 1,354,000,000 bushels of corn, and they received for it approximately $1,574,000,000. One year later the harvest was 2,315,000,000 bushels and the total returns were $1,380,000,000.

What is true of corn is also true of nearly all other farm commodities. Can you see why production control seems so important to agricultural people?

Questions

1. If farmers receive more for their products when they reduce production, that must mean that someone is paying them more money for less produce. Who pays the bill? What groups in our society would benefit from a production-control program? What groups do not benefit?
2. What do you suppose would be the demand for agricultural produce if all unemployed people were to be employed? What particular commodities would be most affected?
3. Some people suggest that a solution to the problem of inelastic demand is to charge high prices to those who are able to pay high prices and sell at lower prices to those who are poor. What do you think of this idea? Do you know of any cases where this is being done?
4. If production is to be controlled, what should determine the level of output? Should we attempt to increase farm income, or should we attempt to provide enough food for an adequate supply for all our people?

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UNIT IV

Conservation of our land and other natural resources

UNIT IV

CONSERVATION OF OUR LAND AND OTHER NATURAL RESOURCES

PROBLEM I

Various farm organizations disagree as to the causes of distress among farmers. Some believe they are due to failure to conserve our land resources, while others think they are due to overproduction, underconsumption, or poor distribution. Which group do you think is right?

Questions

1. Do you think our soils are declining in fertility?
2. Do we have any assurance that conditions would be better if we maintained our soil fertility, since we are already producing a surplus?
3. What would be the effect of obtaining a higher production per acre on fewer acres?
4. How are unemployment and diets related to the problem of consumption?
5. How has the reduction in export demand affected the surplus problem in this country?
6. Which would be better business—to produce 2.0 billion bushels of corn from 50 million acres at 60c per bushel or 2.45 billion bushels from 70 million acres at 40c?

PROBLEM II

During the last presidential campaign one of the political talking points was unbalanced agricultural production, the lack of balance between supply and demand for farm products. What do we mean by a lack of balance? Do we have a lack of balance?

Questions

1. Does this difficulty really exist?
2. How has it affected the farmer?
3. What are some of the signs of a lack of balance?
4. Do we have balance in the industrial field?
5. How is it brought about?
6. Can balanced production be handled as successfully on farm products as in the industries?
7. How did the drought affect this balance during 1934 and 1936?
8. How did the AAA program affect balanced production?
9. Should the city folks be interested in controlled production?
10. Are they interested? How do they show it?

PROBLEM III

Some people think the solution to the agricultural surplus problem is to permit our soils to decline in yield to lower levels and not try to conserve them and maintain their fertility. Do you think such a policy would be in the best interests of society? Why?

Questions

1. Why is the maintenance of soil fertility so important to the people of this country?
2. To what extent is the soil being run down in your community by poor systems of farming?
3. Do you think the future will show an increase or a decrease in the average crop yields in the United States? Why?
4. Why has the young farmer as good opportunities for the future as had his father?
5. What evidences do you see of poor handling of the soil on farms in your community?

PROBLEM IV

In some sections of the country we find soils made up largely of very fine clay and silt particles. In others we find soils classed as loams, fine sandy loams, coarse sandy loams or even gravelly and stony loams. Which of these would you say has the best texture? Why?

Questions

1. To what does texture refer?
2. Is it of any importance in crop growth? Why? Why not?
3. How is texture related to the moisture-holding capacity of the soil?
4. How is soil texture related to erosion?
5. How does texture affect the retention of plant food?
6. Can the texture of the soil be modified by cultivation?
7. What is meant by a drouthy soil?
8. What causes clay soils to crack?
9. Why do loam soils have better tilth than clay soils?

PROBLEM V

Are county soil survey reports valuable in developing a land-use program?

Questions

1. Can marginal land in a county be estimated from the soil survey?
2. What land should be considered "marginal" and to what use should it be put?
3. Would our overproduction be materially relieved by removing from production these marginal acres? Where is the marginal land in Iowa?
4. What use of soil surveys should county AAA planning committees make?
5. What means are available in determining land productivity on a county-wide basis?
6. What crops are being produced in surplus quantities?
7. Can diversification relieve overproduction?

PROBLEM VI

Farmer Jones has a 40-acre field with a three-acre spot in the center that has to be left until the latter part of May or first of June before he can

begin field operation on this spot. What adjustment in field operation should be made by Jones?

Questions

1. What would be the appearance of corn on the above spot as compared to the rest of the field?
2. Would you suggest tiling for a remedy of the above problem?
3. Relatively speaking, would the improvement increase the value of the farm?
4. Would the crop return be large enough to justify the cost of improving the low spot?
5. What effect would hot weather have on the low area?
6. Would the rate of maturity of corn and other crops be the same on this spot as compared to the rest of the farm?
7. Would you suggest the use of commercial fertilizer on this spot? Why?

PROBLEM VII

A gardener was asked what he regarded as the best textured soil, and he replied, "A loam." What did he mean?

Questions

1. What are the three general groups of particles found in soils?
2. Which soils are ordinarily well granulated and have the best tilth?
3. Which soils puddle easily and form clods?
4. Under what conditions would "claypan" form most readily?
5. Which soil has more pore space—a sandy soil or a clay?
6. What textured soils have the best drainage and aeration?
7. To what textural classes do the soils of your home farm belong?

PROBLEM VIII

Much of the flat land in northern Iowa purchased from the government for less than $3 per acre required from $30 to $50 per acre to drain and make it productive. Why are drained soils more productive?

Questions

1. Are the root systems in well-drained soils more extensive than in wet soils? Why?
2. What relation has good drainage to soil aeration?
3. Why does permanent flooding of bottomland kill the trees growing there?
4. What is meant by a high water table?
5. Does water pass through the sides of a clay tile or enter at the joints between the tiles?
6. What lands in your community need drainage and why?

PROBLEM IX

Present day appraisers for loaning agencies examine the land much more thoroughly than used to be the practice before recommending a loan. Why?

Questions

1. Which is more important in judging the value of land—the color of the surface soil or the character of the subsoil?
2. What soil colors generally indicate fertility? Infertility?
3. What time of year would you as a prospective buyer prefer to examine a farm?
4. What are peat soils? Are they as productive as prairie soils?
5. What are the most fertile soils with which you are familiar?
6. Which factors do you think contribute most to high land values?

PROBLEM X

What are some of the reasons why listing is the conventional method of planting corn in western Iowa on the Missouri bottom where gumbo is the main type of soils dealt with?

Questions

1. Would it be best to fall plow to prepare corn seedbed? If so, why?
2. What are the advantages of fall plowing over spring plowing, or vice versa, in preparing field for corn?
3. Would you recommend listing in fall and busting back in the spring when planting the corn?
4. Is it more economical to drill or check corn in listing? Why?
5. What would be the difference in the effect on the texture and on the structure of this gumbo when listing and surface planting?
6. What is listing? What are some of its advantages, and in what type soil and topography is it best suited?
7. Is it easier to keep corn clean when listed?
8. Is moisture control more easily handled this way?
9. When would be the best time to apply manure fertilizer for corn?
10. Would the equipment be cheaper for listing or for surface planting?

PROBLEM XI

A good soil management program includes crop rotation as one of the important features. Is this important in soil fertility maintenance? Why?

Questions

1. What are some important benefits of crop rotation?
2. Mention some examples of the benefits of rotation observed in your community.
3. Why have Iowa farmers neglected to follow systematic rotation of crops?
4. Starting with four fields in grass at present, show how they can most readily be brought into a rotation of corn, oats, wheat, and clover.
5. Why should a good rotation include an inoculated legume?

PROBLEM XII

One man stated that soil fertility referred to the supply of plant food in

the soil, while another said it meant the crop-producing power of the soil. With which one do you agree?

Questions

1. List all the factors you can think of that affect crop production.
2. What is meant by the term "available plant food"?
3. How do plants feed?
4. Underscore the materials lost when cornstalks are burned: nitrogen, phosphorus, calcium, organic matter, potash, magnesium.
5. What plant food element is closely associated with the green color and vegetative growth of plants?
6. What element is associated with the maturity and the quality of grain?

PROBLEM XIII

Farmer B told the county agent he had heard that growing hybrid corn was harder on the land than open-pollinated. What did he mean?

Questions

1. What do you understand to be the distinction between hybrid and open-pollinated corn?
2. What do you understand by high and low levels of fertility of soils?
3. Does hybrid corn show the greater percentage increase over open-pollinated corn at high or low levels of fertility?
4. If larger yields per acre extract more plant nutrients from soils, what should a farmer do to maintain the fertility of his land?
5. Do you see any conflict between growing hybrid corn and good farm management? Why?

PROBLEM XIV

Two farmers, A and B, bought adjoining farms very nearly identical in fertility, soil type, drainage, and typography. Farmer A used a good crop rotation, including legumes for plowing under, along with other good management practices. Farmer B did not follow a good crop rotation; he removed crop residues and did not use any legumes. After ten years the average yield of corn on farm A was 15 bushels per acre more than on farm B. What was the main reason for this difference in yield?

Questions

1. What is the effect of growing legumes on the nitrogen content of the soil?
2. Which farm would have the highest content of organic matter?
3. What effect would this organic matter have on the physical condition of the soil?
4. How would this organic matter affect the water-holding capacity of the soil?
5. What practices could farmer B follow to attempt to bring his farm back to a level with A in an economical manner?

PROBLEM XV

A farmer finds that his yields of corn are decreasing yearly. He is approached by a salesman representing a commercial fertilizer firm. The salesman urges the farmer to buy a certain brand of fertilizer.

Questions

1. How can the farmer determine what plant nutrients are lacking in his soil? Where can the farmer get such information?
2. Will this particular fertilizer supply the necessary elements?
3. What will be the cost of using commercial fertilizer in contrast to using lime or barnyard manure?
4. What will be the immediate effect on the soil?
5. What will be the accumulative effect on the soil?
6. If the soil is found to be lacking in only one nutrient, should he buy fertilizer containing all three?
7. Are the nutrients in the fertilizer in available form?
8. Is there any difference in the quality of commercial fertilizers having the same analysis?
9. Should a farmer obtain a complete analysis before buying?

PROBLEM XVI

Mr. Smith's county agent says he would receive a lot of benefit from plowing under a green manure crop on a certain piece of land.

Questions

1. What does he mean by green manure?
2. What effect does organic matter have on soil?
3. What are some good crops to use for this?
4. What conditions bring about rapid decomposition of organic matter?
5. Give the advantages or disadvantages of using legumes or non-legumes for green manure.

PROBLEM XVII

A dairy farmer in a hilly section usually has less of his land in cultivation but obtains high production of feed crops through the use of farm and green manures. Is this better than buying commercial fertilizers? Why?

Questions

1. What percentage of the nitrogen, phosphorus and potassium in the feed consumed by animals is recovered in the manure?
2. What elements are most easily lost from manure by exposure to rain? Why?
3. How can fermentation of manure best be controlled?
4. What methods of storing manure are used in your neighborhood?
5. Why is reenforcement of manure with phosphates usually good practice?
6. What is meant by green manuring?
7. Why are legumes better than non-legumes for green manuring?

PROBLEM XVIII

For several years Farmer Jones has been planting rape in his oats field. He would let the rape grow up to ten to twelve inches after the oats were harvested and then plow the green rape under for green manure. Mr. Jones has not been able to grow as big crops after the green rape has been turned under as has his neighbor, Mr. Smith, who plants sweet clover and turns that under in the spring as green manure.

Questions

1. Does rape make as good a green manure crop as sweet clover? Why?
2. Does rape have nodules on the roots?
3. Does sweet clover have nodules on the roots?
4. Would inoculation help the rape store nitrogen on its roots?
5. Would inoculation help the sweet clover store nitrogen in its roots?
6. Where does the rape get its nitrogen?
7. Where does the sweet clover get its nitrogen?

PROBLEM XIX

A farmer in northwest Iowa has trouble in obtaining stands of alfalfa and red clover. He thinks his soil needs lime.

Questions

1. How can he determine the lime requirement of his soil?
2. What time of the year shall he apply the lime?
3. Where can he purchase the lime?
4. How will the lime affect the fertility of the soil? What is its value to the farm?
5. What other causes could there be in his failure to obtain a stand? Could the soil be too low in phosphorus or organic matter in general?
6. Does lack of organic matter affect the water-holding capacity of the soil?
7. Once the farmer has overcome this trouble, will his ability to grow these legumes be of any value to him and his farm?

PROBLEM XX

A farmer was advised by the county agent to lime his soil. The lime was to be applied on the preceding grain crop. If you were the farmer, what kind of lime would you apply and what factors would you take into consideration? Explain.

Total cost on the field
Distance
Ease of spreading
Neutralizing value
Availability
Fineness
Storing
Other elements in limestone
Effect of liming

Questions

1. Why did the county agent recommend liming?
2. Why did the county agent recommend the lime on the preceding grain crop?
3. Is lime a fertilizer?

PROBLEM XXI

John Brown stopped to chat with Fred Smith who was preparing to put in some soybeans. John Brown asked Farmer Smith, "Are you going to inoculate for your soybeans, Fred?"

Fred replied, "I have already inoculated. I had alfalfa on this field five years ago."

Questions

1. What is meant by inoculation?
2. What does inoculation do?
3. Does inoculation for one legume work for all others? For any others?
4. How long does inoculation last after the first inoculation?
5. What is the effect of inoculation on the nutrients in the soil?
6. Is it always necessary to inoculate for legume crops? Why? Why not?
7. Does it pay to inoculate for soybeans? For alfalfa? For sweet clover? For red clover?
8. Would Fred Smith get a crop without inoculating? Why?
9. Is Fred's reasoning valid?

PROBLEM XXII

Are soybeans adapted to all Iowa farms?

Questions

1. Where would you discourage the cultivation of soybeans? Why?
2. What is the relationship between this problem and the recent trend toward timothy, especially in areas where erosion is a serious problem?
3. Is proximity to a processing plant an important factor?
4. How do you account for the fact that soybeans have not been grown as intensively in Iowa as say, Illinois?
5. Many farmers contend that soybeans add fertility to the soil. When is this proposition true? Could you think of a case where they would remove more fertility from the soil than corn or small grain?
6. What are the economic implications of the use of soybeans as (1) a substitute for small grain as feed for Iowa farms and its effect on the AAA program, (2) an industrial product?

PROBLEM XXIII

Farmer A has recently moved to a new farm. In one part of the farm he has a 40-acre field of corn in which there are four or five spots where

the corn fails to grow to much height and in some cases fails to grow at all. In the spring, before planting, he noticed that most of these spots appeared in low sections and had a rather definite whitish color. Can you explain this condition to the farmer? What can this farmer do about this condition?

Questions

1. Why do crops fail to grow upon these spots?
2. What causes such a condition to take place?
3. Why is this condition confined to low spots?
4. Would some crops grow better than corn upon this alkali soil?
5. Would you advise applying fertilizer to this soil?
6. Is it possible that this farmer needs to investigate his drainage conditions?
7. Can this farmer afford to remedy this condition? Will it pay?

PROBLEM XXIV

Results of carefully controlled experiments by experiment stations and the Soil Conservation Service have shown that cultivation up and down hills increases the removal of soil by erosion and contributes to the formation of gullies. How can this situation be corrected?

Questions

1. What types of erosion are there? Underscore the more serious type.
2. What factors contribute to erosion?
3. What is meant by farming on the contour?
4. What is meant by strip cropping?
5. What percentage does a 45° slope represent?
6. What are the purposes of terracing?
7. Which requires more power—cultivation across the slope or up and down hill?

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UNIT V

Efficient production of quality farm products

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 1

HORSES AND MULES

PROBLEM I

In recent years the horse has met a powerful competitor—the gas motor. Is the horse doomed to be relegated to national and city parks or has it a permanent role to play in future civilization? (Get facts for this question.)

Questions

1. How has the horse population changed since 1900?
2. What causes the population of horses to fluctuate?
3. Are there as many horses used in your locality as formerly? Why?
4. Are there any jobs where the horse has no substitute? Name them.
5. What are the advantages of horses as a source of power on the farm?
6. Are horses increasing or decreasing in your community? What are the reasons?
7. In your locality are pleasure horses increasing or decreasing? Why?

PROBLEM II

With the horse as with other farm animals, man has not been satisfied to accept and use him as found in nature. To meet man's needs the horse has been specialized into types and breeds, and even one hybrid (the mule) has been developed. What are the types of horses found in the mid-west? Describe the common breeds of each type, also the one hybrid.

Questions

1. What was one of the first breeds of horses developed, and what was it used for?
2. The war horse was the forerunner of the draft horse. How do you explain this transition?
3. Type refers to a general usefulness, such as draft type, saddle type, et cetera. What types of horses are found in your community? What types would you likely see at the State Fair?
4. In general, what is the form of a draft horse and of a saddle horse?
5. What are the common breeds of draft horses in Iowa, also in your community?
6. How are the hybrids (mules) produced? Do the horse and the ass belong to the same species?
7. What is the extent of the use of ponies in your community?

PROBLEM III

A horse is a hardy animal, but does need good feed, care and management. What type of housing do horses need in this climate? What is a good ration for a 1600-lb. draft horse at medium work? What place does pasture have in the feeding of the horse?

Questions

1. What sort of shelter do horses need in your section?
2. What feeds are commonly used for horses in your community?
3. Which of the above feeds are home grown? What is the origin of the purchased feed?
4. To what extent are pastures used for horses?
5. What would be an ideal pasture for horses?
6. Does the feeding of grass affect the horse's ability to work? Explain.

PROBLEM IV

Many men who use horses are not equipped to produce them. This inability necessitates the marketing of many animals. How can horses and mules be marketed, and where are the large markets located?

Questions

1. Where are the surplus producing areas of horses?
2. In what sections is there an adequate supply of home-raised horses?
3. Where are large horse and mule markets located? Name several.
4. What happens to old worn-out or crippled horses?
5. If you wanted to buy a team of draft horses, where would you go?
6. Where might light horses be purchased in your vicinity?
7. Should a farmer produce enough horses for his own replacement needs? Explain.

PROBLEM V

To use and care for a machine properly one should know something of its parts and construction. This fact is likewise true for animals, especially the horse which is really a power machine. Compare the skeletal and the digestive systems of the horse with those of man, and of farm animals which you have studied.

Questions

1. How does the bony framework of the limb of the horse compare to that of man?
2. Horses in evolution have decreased the number of toes. Is this an advantage or disadvantage?
3. How is it that the horse with a simple stomach like that of a man can digest large quantities of roughage, such as hay and straw, whereas a man cannot?

PROBLEM VI

The horse has one of the most interesting and best known histories of any of our farm animals. During the 50 million years that the horse has inhabited the earth, great changes have occurred in his form and usefulness. Since domestication the horse has been a constant servant of man in his struggle for advancement. What is known of the domestication of the horse?

Questions

1. What was the first use that man made of horses?
2. What are several different uses that man has made of horses?
3. What are the uses of horses in our present civilization?
4. How were horses used in warfare?
5. In what ways did horses enter into the Crusades?
6. What evidence is there in the horse that he has evolved from other forms?
7. Where was the horse first domesticated, and how did he get to America?
8. What use did the American Indian make of the horse?
9. Evolution is slow change. In what ways has the horse changed?
10. In what way does the use of the horse affect you?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 2

BEEF CATTLE

PROBLEM I

Cattle have been developed in this country into two specialized types—dairy and beef—and one intermediate type called dual purpose cattle. Breeders have selected and developed the distinct types to enable the animals to produce a specific product as economically as possible. What body conformation does the beef breeder select as his goal? What is the relationship between the desired type of beef-animal and high-priced cuts of beef?

Questions

1. What do we mean by type?
2. How have we arrived at the type which we have accepted for beef cattle?
3. What is the relationship between the type desired in the live animal and the high-priced cuts of the carcass as sold over the block?
4. Describe a good type beef animal.
5. How do beef, dairy, and dual purpose animals differ in desired type?

PROBLEM II

Man has specialized the different types of cattle into breeds as he has done with other types of farm animals. List the common breeds of beef cattle in the United States, their origin, and the chief characteristics that distinguish them from one another.

Questions

1. What are the common breeds of beef cattle in this community? In the United States?
2. Why have breeds of cattle been developed?
3. Where did our breeds of cattle originate? When?
4. What is a purebred animal?
5. What are the chief characteristics that enable one to distinguish the different breeds?
6. Make a table giving breeds of beef cattle, their origin, and distinguishing characteristics.

PROBLEM III

With the development of large industrial centers and suitable transportation facilities for cattle and beef, the production of beef in the United States has developed into a large specialized industry. Into what phases has the beef cattle industry specialized in this country? Why?

Questions

1. Where are the majority of our feeder steers produced in the United States? Why?
2. Where are most of our feeder steers fattened? Why?
3. Where is the purebred breeding industry located? Why?
4. What part is played by the railroad in this specialized industry?
5. Is it desirable from the consumer's standpoint to have the beef industry spread out over such a large territory? From the producer's standpoint?

PROBLEM IV

With the specialization that we have in beef production, cattle are often marketed several times before being slaughtered, and are then transported long distances before being consumed. Trace the route that a steer which was born in Colorado would probably follow before T-bone steaks from his carcass would be served at Sunday dinner to a banker in New York. (Do not omit central markets that would probably be encountered.)

Questions

1. At what age or ages do beef cattle leave the range for the feed lots?
2. What are the sources of the steers that fill our local feed lots?
3. Where might our local farmers purchase feeder cattle?
4. How long do feeder steers stay in the feed lots?
5. Where are the large fat cattle markets?
6. Do the small packing plants that have recently moved into Iowa slaughter many steers? What grade of steer do they demand?
7. Where is our high quality beef consumed? Low quality?

PROBLEM V

The importance of any farm animal to mankind can be roughly judged by its numbers and spread throughout the world. Where do we find cattle concentrated in the world, and how do they serve man in the different countries?

Questions

1. In what countries of the world do we find cattle concentrated?
2. What is the ratio of cattle population to human population?
3. What is the total cattle population of the world? The United States? Iowa?
4. What are the different uses of cattle to man?
5. What countries export cattle products? Import cattle products?
6. List the different cattle products that you have used thus far today.

PROBLEM VI

Cattle belong to the class of animals called ruminants. Their anatomy fits them to utilize certain types of feeds. How does the digestive system

of cattle differ from that of other farm animals, and what are the advantages and disadvantages of cattle raising in comparison to that of other farm animals?

Questions

1. Describe briefly the digestive system of a cow.
2. How does this system affect the dietary habits of the cow and what advantages does it give her?
3. How does the cow fit in with our national conservation program? Would it be practical without her?
4. How could we utilize our vast range lands and the large amounts of roughage in our intensive farming areas if beef cattle were suddenly exterminated?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 3

HOGS

PROBLEM I

The raising of hogs on Iowa farms is a common enterprise. The majority of the farms in your locality raise hogs. Hogs contribute a substantial portion of the farm income in the Middle West. What proportion of the hogs of the United States are raised in the cornbelt states? How many are raised each year in Iowa? What part of the Iowa farm income comes from hogs?

Questions

1. Why are so many hogs raised in Iowa?
2. Where are most of the hogs raised on Iowa farms marketed?
3. Hogs raised in your area can be marketed at what different places?
4. Name several large pork packing plants in Iowa.
5. What central markets receive hogs raised in Iowa?
6. Why is it generally profitable in Iowa to market the corn crop by feeding it to hogs?
7. How does the income from hogs compare with that from other livestock in your section?
8. On what proportion of the farms in your area is hog production a major enterprise?
9. Are there farms on which general agriculture is practiced where hogs are not raised?

PROBLEM II

Hogs are quite widely distributed through the entire world. In places of the world where corn is extensively grown, hogs are numerous. They are also numerous in other areas where cheap concentrated feeds are available. What are some of the leading countries in hog numbers? Are hogs as numerous as other farm animals in the world? Why is the hog population continually changing?

Questions

1. Were hogs domesticated in America? Do hogs have any uses other than as a source of human food?
2. Why are hogs not raised extensively in tropical regions?
3. What people do not consume pork?
4. Name several countries in which pork consumption is relatively high.
5. Why does the hog population not remain constant?

PROBLEM III

Most of the counties of the United States have some hogs. They are raised on about 60 percent of the farms in the United States. In what areas is the hog population very low? Where would the reverse condition prevail? Where are the large hog markets located?

Questions

1. Where in this country are but very few hogs raised? Why?
2. What are the reasons that hogs are numerous in some areas and entirely lacking in other areas?
3. Explain why hogs rank second to cattle as food-producing animals in the United States.
4. Why are hogs numerous in dairy areas?
5. What happens to hog prices when hog numbers increase?
6. Is garbage widely used as a feed for hogs?

PROBLEM IV

One problem continually confronting farmers is the maintenance of soil fertility. How do hogs enter into the situation of fertility control? Each pig marketed represents from 17 to 25 bushels of corn plus other feed. Why not sell the corn direct? What are the advantages of marketing corn through hogs?

Questions

1. How does the selling of corn rather than hogs cause a greater drain on soil fertility?
2. What sort of fences are needed for hogs?
3. What are the common diseases of hogs in your section?
4. What causes the returns from hog production to vary?

PROBLEM V

Hogs have a digestive tract similar to that of humans. They are adapted for the conversion of concentrated feed into gains in weight. What feeds are commonly used for hogs? Why can the pig use only limited amounts of roughage and pasture?

Questions

1. Even though pigs have but a limited capacity for feed, why is the raising of pigs on pasture usually advantageous?
2. Other than corn what are the feeds consumed by pigs?
3. How are pigs self-fed?
4. How fast do pigs gain?
5. What breeds of hogs are raised in your section?

PROBLEM VI

Hogs yield, when slaughtered, meat (pork), such as loins, shoulders, pork chops, and cuts that are cured, such as ham and bacon. The fat from hog

carcasses is rendered into lard. Over a long period of years the average person in the United States has consumed about 64 pounds of pork and 13 pounds of lard. Does the consumption of pork and lard remain the same each year? Why do some pork cuts sell for more than others?

Questions

1. Which of the pork cuts are in the greatest demand?
2. Is the squeal of the pig the only thing that is lost during the dressing?
3. Why is home slaughter greater in hogs than in any other kind of livestock?
4. What are the by-products from the slaughter of hogs?
5. What are the good properties of lard?
6. What are the uses of lard?
7. Our consumption of pork is quite variable. What is the explanation?
8. Why do factory payrolls and hog prices tend to move together?
9. Describe the type of market pig that sells for the top market price.
10. What disease may be communicated to man from pork that is improperly cooked?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 4

SHEEP

PROBLEM I

There are certain regions in the United States where sheep raising is concentrated. These sections have forage and other feeds available, suitable for sheep feeding. How numerous are the sheep in the various geographical divisions of the United States: North Atlantic, South Atlantic, North Central, South Central, Far Western? What are the leading states in the production of sheep? Are the farms in your locality raising sheep?

Questions

1. In your locality on what proportion of the farms are sheep raised? Is sheep raising on the farms in your county a major or a minor enterprise?
2. Are sheep raising methods the same in Iowa as in Wyoming or Texas? In what respects are they different?
3. How does the number of sheep on farms in your county compare with the number of hogs and cattle?
4. Are the sheep in your county raised locally, or are they feeder sheep brought in from the western range country?
5. How do farmers attempt to use sheep in regions where feed is plentiful?
6. Should all farmers raise sheep?
7. In regions where vegetation is scant sheep are raised. Give instances where this is true in the United States and in various other parts of the world.

PROBLEM II

Several countries have a larger sheep population than has the United States. There is a widespread demand for wool, and there is a demand also for mutton and lamb. What countries of the world have large sheep population?

Questions

1. Are there any restrictions (religious or other) with regard to consumption of lamb or mutton as there are with pork that influence the world distribution of sheep?
2. Why were sheep domesticated by man?
3. Why can sheep be used for grazing at high elevations?
4. How is sheep production influenced by the climate and the topography of a country? Why?

PROBLEM III

Sheep have certain adaptabilities over other kind of livestock because of the feeds they consume and the general management of a sheep flock. What feeds do sheep consume? At what time during the year do sheep require the most attention? Give some other advantages of raising sheep on a farm. What are some of the disadvantages?

Questions

1. What type of digestive tract do sheep have and what are its advantages?
2. Will sheep gain faster on good pasture than on weeds? Why?
3. What are the feeds that are suitable for sheep? Which of these are used in your locality?
4. How does sheep raising in your section compare to that of the western range country?
5. Why is it that sheep should be provided shade and be kept dry?
6. What are the two sources of income from sheep raising?
7. Sheep death losses at times may be high. What are the common causes?

PROBLEM IV

Most of the mutton and lamb eaten in the United States is consumed along the eastern seaboard. Considering the center of sheep production and the location of meat packing plants, what problems in marketing do you think are caused by this demand? Why are lamb and mutton consumed in smaller quantities than beef or pork?

Questions

1. Is lamb consumed regularly in your family? If not, why?
2. Why is most of the lamb consumed in the large cities?
3. Where are the large central sheep markets located? Name several.
4. Where are sheep slaughtered? Name and locate several large packing plants.
5. What is the difference between lamb and mutton? Is there a marked difference in the eating qualities and cost? Explain.
6. Are there cured meats derived from mutton and lamb the same as from pork?

PROBLEM V

We import each year about one-third of the wool used in the United States. About five pounds of wool per person is used each year. What are the main uses of wool? What are some of the fibers that compete with wool? Why are all wools not the same value? What determines the value of a fleece?

Questions

1. What are the general uses of wool?
2. Of the clothing you are wearing what is made wholly or in part of wool?

3. How is clothing made of wool different today from that of our grandparents?
4. What are the substitutes for wool?
5. There is a duty on imported wool. What is the purpose of this duty?
6. Where is the large wool market of the country?
7. What are the features in which wool from different sheep vary?
8. Are all fleeces the same in the oil and dirt content?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 5

POULTRY

PROBLEM I

In the past it has been the common practice to withhold feed from chicks until they were from 24 to 48 hours old. What is the present practice, and what is the basis for it? What are the conditions that should be fulfilled?

Questions

1. Will chicks eat as soon as they are hatched?
2. Do chicks lose weight when they are not fed soon after hatching?
3. Is there any advantage in allowing chicks to lose weight?
4. Is there any relationship between time of feeding and rate of mortality?
5. What are the effects of litter-eating?
6. How may litter-eating be reduced?
7. What is the best time to begin feeding chicks to keep down the death loss?

PROBLEM II

There are several methods of feeding poultry: (1) The all-mash method; (2) the mash and grain method; (3) the free-choice method, using concentrates and grain. Describe each method and decide which you would use. What is the basis for this choice?

Questions

1. What is a mash in poultry feeding?
2. Which type of feeding is the most expensive from the standpoint of actual feed cost? Why?
3. Which type of feeding is the most expensive from the standpoint of labor? Why?
4. Which type of feeding is most economical considering both labor and cost of feed?
5. Is there any difference in egg production due to the method of feeding?
6. What proportion of grain and mash should be consumed when a 26 percent protein concentrate is used?
7. How may the proportion of grain and mash be controlled in free-choice feeding?

PROBLEM III

Twenty-five years ago the turkey industry was practically wiped out in Iowa because most of the young turkeys died before they were ready for

market. At present we are growing about 1,500,000 turkeys in Iowa each year with a death loss of about 15 per cent. What is the reason for this change, and how has it been accomplished?

Questions

1. What is the fundamental principle of turkey production?
2. What is clean range for turkeys?
3. How are turkeys kept on uninfected ground?
4. Why has turkey production increased in Iowa?
5. What type of equipment is used in turkey production?
6. Why should turkeys and chickens not be raised together?
7. Why should turkey poults not be hatched with chicken hens?

PROBLEM IV

In some records kept by farmers in Iowa it was found that those who bought their chicks from hatcheries or hatched them in incubators, brooded the chicks with brooders and ranged them on clean range had an average mortality of 11 per cent. Those who hatched the chicks in incubators, brooded them with brooders, but allowed them to range with the old flock had an average mortality of 23 percent, while those who hatched and brooded with hens had an average mortality of 34 percent. What were the reasons for these differences?

Questions

1. What is clean range for chickens?
2. Why is the death loss higher when chicks are hatched with hens?
3. Why is the death loss lower when chicks are hatched with incubators and brooded with brooders?
4. Why is it uneconomical to hatch chicks with hens?
5. What is an economical brooding unit?

PROBLEM V

On some farms a peck of ear corn or chopped ear corn and a gallon of milk is the only feed given to a laying flock of 100 birds. On others, the flock has free access to a complete laying mash in self feeders and also shelled corn and oats, wheat or barley, with the milk to drink also. Which flock is the most profitable?

Questions

1. What is a complete laying mash?
2. What is a complete scratch feed?
3. Why is a laying mash fed?
4. How can you tell whether the hens are eating the proper proportion of grain and mash?
5. What is the place of corn in the ration of the laying hen?
6. How much grain should each 100 laying hens be fed each day?
7. Do laying hens need minerals? Which is required in the greatest quantity?

8. Is water important for chickens? Why?
9. What substitutes may be used for green feed in the winter month?
10. Why is it important to feed a laying mash to laying hens?

PROBLEM VI

Ten years ago Iowa was ranked thirty-first among the states in turkey production. Now she ranks fourth. What is the reason for this change in the relative number of turkeys produced in Iowa as compared with that of other states?

Questions

1. What is the biggest single item of cost in turkey production?
2. What is the place of corn and small grains in the turkey ration?
3. How may the feed requirements of the turkey be reduced?
4. What crops are suitable for range for turkeys?

PROBLEM VII

The conditions under which eggs are kept and the manner in which they are handled previous to incubation may influence greatly the number of chicks which are hatched. What are the important considerations with respect to the selection and care of eggs for hatching?

Questions

1. How long may eggs be held before placing in the incubator?
2. At what temperature should the eggs be held?
3. Should dirty eggs be washed before incubation?
4. Should the eggs be turned during the holding period?
5. Does the size or shape of the egg have any relation to hatchability?

PROBLEM VIII

In artificial incubation the incubator, with proper management, does the work of the hen. To have success in this respect it is necessary that the incubator provide the correct conditions. What are the main essential conditions in artificial incubation?

Questions

1 What is the usual operating temperature in (1) a still-air machine and (2) a forced draft machine?
2. What provision is made to avoid too high a loss of water from egg?
3. Is ventilation in the incubator necessary? Why?

PROBLEM IX

An incubator is a machine which must be given careful attention by the operator to insure the essential conditions are provided. What other factors in handling the eggs may affect the hatch?

Questions

1. In what position should the egg be kept during incubation?
2. Why is it necessary to turn the eggs? How often should they be turned?
3. What is meant by testing the eggs? What are the particular reasons for doing this?

PROBLEM X

Although there are many breeds and varieties of fowl these may be grouped on the basis of their economic value. Aside from personal preference and local popularity, the choice of a breed usually is determined by its economic value. Make a list of the common breeds under the following headings: Egg breeds, meat breeds and dual purpose breeds.

Questions

1. Can the surplus birds of the egg breeds be sold advantageously as meat at any time?
2. Do the eggs of the meat breeds hatch well?
3. Why are some strains of the dual purpose breeds no longer dual purpose?

PROBLEM XI

Even though the average production of laying hens in Iowa is approximately 80 eggs per bird, there are many flocks that average 150 eggs or better per year. What can a poultryman do to eliminate the poor producing birds?

Questions

1. What is the purpose of the culling practices?
2. Should culling be done throughout the year? Why?
3. What season of the year is best suited for intensive culling work? Why?
4. What characteristics shown by a bird will help a poultryman to separate the good from the poor producing birds?

PROBLEM XII

There are several different characters that must be considered of equal importance in the culling work. What are these characters, and how are they of value to the culling program?

Questions

1. How does feeding affect the culling program, that is, does it affect the number of eggs a flock will lay?
2. How would you tell a laying from a non-laying hen?
3. What is the meaning of the term "molt"? What is the meaning of the terms (1) rapid and slow molting, (2) early and late molting? How is this determined?
4. What is an abnormal molt and what causes it?

PROBLEM XIII

The season of the highest egg prices is in the late fall and winter months. What can a poultryman do to have his flock in better production in winter, and what characteristics are helpful in distinguishing the winter layers?

Questions

1. Will feeding affect the amount of pigment a hen shows? Why?
2. Is the comb of much value in aiding a poultryman to separate a good producer from a poor producer? Why?
3. What are some of the reasons why a hen does not lay in the wintertime? How may each of these conditions be corrected?

PROBLEM XIV

Oftentimes the results obtained from a poultry project are directly influenced by the housing conditions. What features should be considered on this point?

Questions

1. List several things that would influence a certain area's being well suited for a new poultry house. Why are these things important?
2. How many square feet of floor space should be allowed for Leghorns? For Plymouth Rocks, Rhode Island Reds and Wyandottes? For Jersey Giants and Orpingtons?

PROBLEM XV

The Iowa Straw Loft House is very well suited to the climatic conditions of the state. What are the important features that should be considered in building a laying house?

Questions

1. Why is the construction of the poultry house floor so important? Of the walls?
2. Why is ventilation important in the chicken house?
3. What are the advantages of a straw loft house?

PROBLEM XVI

Many people have come to believe that the loss of many chicks is inevitable the first few weeks of brooding? What control measures will greatly reduce this early mortality?

Questions

1. Name two common diseases of the chick.
2. At what ages are these most likely to strike?
3. What are pullorum-tested flocks?
4. Can these diseases be cured?
5. How does the disease pass from one chick to another?

6. How effective is disinfecting the drinking water?
7. Who is competent to diagnose chick diseases?

PROBLEM XVII

In recent years careful records kept on hens in laying houses have shown a regular increase in mortality the first laying year. What disease is the primary reason for this fact? How may a flock owner prevent these losses?

Questions

1. What is another name for leucosis?
2. What parts of the body is affected in this disease?
3. Is it infectious?
4. How profitable is a hen that lays only a month and then dies?
5. What is meant by resistant strain?
6. Why are "grey eyed" birds to be watched?

PROBLEM XVIII

It has been shown that sanitation in housing, range management, etc., will markedly reduce mortality with the average farm flock. Explain what is meant by sanitation as applied to housing and management.

Questions

1. Describe a thorough-going cleaning procedure for getting a house in shape to receive some new pullets?
2. How long can a range harbor an infection?
3. Why does cropping a range after use improve the sanitary condition of the soil?
4. Turkeys are often moved to clean ground every ten days. Would this be of value to chickens?
5. Draw a plan for a sanitary watering device?

PROBLEM XIX

Everyone hates to handle birds which are infested with lice and mites. Do these pests harm the birds? Is it worth the poultryman's time to eradicate them?

Questions

1. What is nicotine sulfate?
2. Why is the application of this material to the roosts effective in the control of lice?
3. When is the best time to dip birds in a water solution of sodium fluoride?
4. What are scaly legs?
5. What is the pinch method?
6. What does the mite feed on?

PROBLEM XX

It has been said that worms can be found in 90 per cent of the birds in all farm flocks. What are the common worm pests of poultry, and what damage do they do?

Questions

1. What is a round worm?
2. How does a tapeworm reproduce?
3. Is a given remedy usually effective on both these worms?
4. What chemical is helpful in expelling round worms?
5. Why is sanitation effective in controlling worm infestations?
6. How is a tapeworm able to remain in the intestine so firmly?

PROBLEM XXI

Many persons believe that all eggs regardless of size, shape or color are acceptable to consumers in consuming centers. What are some of the likes and the dislikes of the consumers with reference to egg quality?

Questions

1. What factors are considered in grading eggs?
2. What are current receipts?
3. Should dirty eggs be cleaned?
4. Do white eggs have any advantages over brown eggs?
5. What makes yolk color vary?
6. What are some simple ways to keep eggs cool on the farm?

PROBLEM XXII

It has been reliably stated that New York City received 23 per cent fewer shell eggs from the Middlewest in 1934 than in 1922 in spite of an increase of 26 per cent in population. Why are we shipping fewer shell eggs East? Can we regain part of this loss?

Questions

1. Did Iowa produce more eggs in 1934 than in 1922?
2. Why have more Pacific Coast eggs been going to New York City while fewer Iowa eggs?
3. What do a constant supply of eggs and a uniform quality of eggs have to do with their acceptability in the market?
4. What does the small flock size have to do with the Midwestern problem of selling eggs in the East for good prices?
5. Is Iowa at a disadvantage when it comes to natural conditions for producing eggs?

PROBLEM XXIII

Few people realize that a large percentage of Iowa's spring eggs are separated from the shell and further into yolks and whites, the latter frozen

and stored in cans for future use. Who uses frozen eggs? How recent is this large production?

Questions

1. What percentage of all eggs stored are frozen?
2. What are frozen whites used for?
3. Name some large centers for breaking and freezing eggs?
4. Why don't mayonnaise manufacturers use shell eggs?
5. In what farms are frozen eggs put up?

PROBLEM XXIV

Because of the seasonal nature of eggs and poultry a large amount of the crop is stored for months before being sold to consumers. How are eggs and poultry prepared for storage? What conditions are maintained?

Questions

1. Where are the large storage warehouses?
2. At what temperature are shell eggs stored?
3. What months are most favorable for storing eggs?
4. How long may eggs be stored and still retain good quality?
5. What is New York Dressed Poultry?
6. Is poultry stored frozen?
7. What is fully drawn poultry?

PROBLEM XXV

Consumers are notably critical of the quality in poultry bought at stores. What are the things a housewife looks for in poultry at the market?

Questions

1. What has fatness to do with quality?
2. What is a blister breast?
3. Why are pin feathers objectionable?
4. What is the desirable shape for a good quality chicken?
5. Name the various classes of poultry?

PROBLEM XXVI

Buying poultry and eggs on grade from producers has long been advocated by progressive people interested in our poultry industry. Why is this method any better than buying "mine run"?

Questions

1. What is a U. S. Extra?
2. Who buys most Iowa eggs from farmers?
3. Why buy eggs on Grade?
4. Why are some people skeptical of graded buying?
5. What eggs are classed as inedible?

PROBLEM XXVII

A producer has equipment and facilities to produce poultry for marketing at the seasons of best prices, as either broilers (under 3 pounds alive) fryers (3 to 4 pounds), roasters (4 pounds and over) or capons. When should he sell his poultry to secure the greatest price returns? When to secure greatest net returns (production costs considered)?

Questions

1. What is the most practical time of the year for producers to market their poultry? Eggs?

PROBLEM XXVIII

The producer is marketing uniform quality poultry and eggs but lacks a local market which will pay for them on a quality grade basis. What alternatives should he use: (a) Seek to have local buyers adopt methods of grading and handling which will provide satisfactory returns and incentives for producing quality? (b) Forming or using established cooperatives for marketing? (c) Shipping direct to receivers in the large markets? (d) Selling direct to consumers?

Questions

1. What market agencies within the marketing area for this community are best equipped to preserve egg quality, and market efficiently?
2. What grade of eggs is most commonly marketed from Iowa to the New York market? Chicago Market?

PROBLEM XXIX

Since it costs less per pound to produce broilers (under 3 pounds alive), should Iowa producers sell young birds of this size, or will it be most profitable to produce birds of fryer and roaster sizes in view of (a) reasonable feed and other costs to grow to heavier weights? (b) competition from specialized broiler areas? (c) lower marketing costs per pound for roasters than broilers?

PROBLEM XXX

Market egg quality is determined by production conditions as well as by the handling given eggs by market agencies. What farm care and holding conditions (temperatures, humidity, time from nest to market, protection from jarring and shock, grading, and so forth) are desirable to give the consumer a uniform quality product?

Questions

1. What are the U. S. grades of eggs? Poultry?
2. What are grades and weight requirements upon which eggs are sold in this community?
3. Is color of eggs as important as uniformity of color?

PROBLEM XXXI

Egg prices paid in Iowa during a part of the year (October to December) are often as high as, or higher than prices in consumers' markets because of highly seasonal marketings, and are very low in the spring months when over 60 per cent of the eggs are produced. When should producers aim to have eggs on the market in the fall months to secure best prices, and what is their best outlet in local Iowa communities at that time?

Questions

1. How often should eggs be gathered from the nest and marketed at each season of the year?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 6

DAIRY PRODUCTION

PROBLEM I

Does dairying fit in with a plan of permanent agriculture? There has been considerable depletion of our soil and farms in the past. Is permanence of agriculture, through the productiveness of the soil, of importance to the farmer and to the nation?

Questions

1. In dairy farming, is it practical to grow as much of the feed on the farm as possible?
2. How does the cow rank as a user of roughage? Is this important to the farmer?
3. When the feed-stuffs are fed to the cattle, of what value is the manure obtained in maintaining or increasing soil fertility?
4. If butterfat is sold, how much of the soil fertility factors are removed from the farm?
5. How does dairy farming encourage a plan of crop rotation on the farm?
6. Is the dairy cow an economical producer of human food?
7. What per cent of the productive value of the feed is returned for human use, by the dairy cow?

PROBLEM II

What kind of feeds are best in winter feeding of dairy cows? What kinds of dry roughages are best? Is a succulent roughage important? Should the grain mixture be adapted to the kind of roughages available? Should minerals be fed?

Questions

1. For the dry roughages, would you recommend legume hay, non-legume hay, or mixed hay (as clover-timothy) for dairy cows?
2. How much feed can a cow obtain from cornstalks, corn stover, shredded corn stover, straw?
3. Why is succulent feed important for a dairy cow? Why is the amount of water given a dairy cow, both as to the amount drunk and that contained in her feed, of importance?
4. Should the amount of digestible protein in the grain mixture be varied according to the kind of hay that is fed? How much digestible protein should the grain contain for different roughages?
5. Why is variety of importance in the grain mixture?
6. Which minerals are most likely to be needed by the dairy cow?
7. How may these minerals be supplied?

PROBLEM III

How would you prepare feeds for the dairy cow? Should the hay be chopped? Should the grain be ground? Would you feed the grain dry or mixed with molasses, water, or wet beet pulp? Are not bran mashes a good feed at certain times? Is cooking feed of any advantage?

Questions

1. Name advantages and disadvantages of chopping hay, including points as: palatability, digestibility, coarse hay wasted, storage and handling, dust, and the danger of combustion if green.
2. Does grinding grain for dairy cows increase the palatability? The digestibility? If whole grains were fed, about how much would pass through the alimentary tract of a well-fed dairy cow?
3. Is wet feeding of grain advisable for a general farmer? Is it advisable for test cows or for show cows? Explain.
4. Does mixing grain with molasses-water increase the cow's appetite for it? May poor quality feeds thus be made more palatable? What are some of the dangers of such a practice?
5. Why is it important to keep cows on full feed?
6. When would bran mashes be of an advantage?

PROBLEM IV

What amount of feed, as to dry roughage, succulent roughage and grain, should be given a dairy cow? How does the amount vary with the size of the cow? With the richness of the milk? With the amount of milk?

Questions

1. Which of the feeds are fed according to the size of the cow and which according to her production: dry roughages, succulent roughages or grain?
2. Give the practical rules as to the amount of the above three feeds that should be given during winter feeding.
3. How should the amount of feed be varied for cows giving rich, medium, or low-test milk?
4. How soon after freshening should a good cow be brought to full grain feed?
5. What causes a cow to go "off feed" and is it a slight or a serious condition? Why?

PROBLEM V

Why is the matter of good pasture of importance? At what time in the spring should cows be turned on pasture? Are there a succession of pasture crops that can be raised? Should grain be fed dairy cows on pasture? How about supplementing dry or poor pastures?

Questions

1. How does the price of land affect pastures?
2. How do pastures fit in with a plan of permanent agriculture?

3. Give some pasture mixtures and the time and method of planting.
4. How does the turning of cows on grass too early in the spring affect the pastures?
5. Give a plan of pasture crops to assure best pastures from spring to late fall.
6. When should grain be fed to dairy cows on pasture, and how much grain should be fed?
7. What kind of grain mixtures should be fed to cows on pasture?
8. Which is the most satisfactory to supplement dry pastures such as we often have in July and August: summer silage or soiling crops? Why?
9. How can alfalfa or other legume silage fit in in supplementing dry pastures?

PROBLEM VI

Why should a dairy cow be allowed a dry period? Is it difficult to dry-off a good milking cow? Should dry cows be fed grain? Minerals?

Questions

1. Why does a high producing dairy cow need a dry (or rest) period?
2. Give a method of drying off a dairy cow.
3. How long a dry period should be given?
4. What is the importance of breeding records in setting the dry period?
5. Which minerals are most likely to be depleted in the body of a high-producing cow?
6. Some farmers consider it wasteful to feed grain to a dry cow. Do you agree with this? Give your reasons.
7. What kind and amount of feed should be given a dry cow?

PROBLEM VII

Is it important that a cow be given proper feed and care at calving time? Should the farmer know symptoms of mastitis and milk fever, so prompt treatment can be given? What is colostrum? How long should the calf be left with the cow?

Questions

1. What is a "cooling ration", and when should it be fed to a dry cow?
2. Are wet feeds or mashes beneficial? If so, what kind?
3. When should the dry cow be put into a box stall?
4. How should the box stall be prepared?
5. Should the cow be assisted at calving time?
6. When may milk fever affect an animal and what are the symptoms?
7. What are some precautions against milk fever?
8. Should a cow be milked out before calving? Explain.
9. What treatment should be given the new-born calf?
10. How long should the calf be left with her dam?

PROBLEM VIII

Why is calf raising an important part of dairying? Can calves be raised successfully under different methods of feed and care? What methods does a dairyman have of marketing his products? Should he adjust the calf-raising to fit in with his type of marketing?

Questions

1. Approximately how many heifer calves are necessary for each ten cows, to provide replacements just for maintaining a herd?
2. Why is it better to raise the replacements, rather than purchase them?
3. Name several methods the dairyman may have of marketing his dairy products, such as separating and selling butterfat, etc.
4. Show how he can adjust his method of calf raising to each of these kinds of markets.
5. Why is the colostrum milk important to the calf?
6. Is hay and grain important to the calf? Why? When should you start feeding it?
7. How long should skim-milk or skim-milk substitutes be fed?
8. Why should the grain mixture contain more protein after the calf has been weaned?
9. Are minerals and vitamins important to the calf? How may they be fed?
10. Name several precautions in avoiding digestive scours.
11. Are calves born in the fall more economical to raise than those born in the spring?

PROBLEM IX

How should yearling heifers be fed and managed? Is it important to get full growth or size on heifers? Why? About how much money is invested in a dairy heifer from birth to twenty-four months of age? At what age should heifers freshen?

Questions

1. Why do many farmers tend to neglect the yearling heifers?
2. What are some of the bad effects of such neglect?
3. How important is it to have dairy heifers well-grown?
4. Name a satisfactory ration for heifers that are on pasture.
5. Name a satisfactory winter ration.
6. What minerals and vitamins may need to be supplied? How can you supply them?
7. What can be done to prevent sucking in yearling heifers?
8. Should the heifers be kept by themselves or allowed to run with the milk cows?
9. At what age should heifers be bred?
10. How long before calving should you increase the grain feeding, and what kind of grain should be fed?

PROBLEM X

What are the different methods of establishing a dairy herd and the con-

ditions in which each is best adapted? How important is the matter of selection of breed? How about the kind of animals within the breed? Name several factors to consider in the choice of a breed.

Questions

1. Name three methods of establishing a dairy herd.
2. Under what conditions would you advise each of the above methods?
3. How important is the matter of training and experience in dairy husbandry?
4. Name several factors to consider in the selection of a breed.
5. Which factors are the most important?
6. How important is personal preference?
7. Is the kind of breed as important as the kind of animals within a breed? Explain.
8. Is there much variation between the different breeds in their ability to:
   (a) Digest feeds.
   (b) Consume roughages.
   (c) Produce milk and butterfat.
9. Is there a difference in:
   (a) Breeding qualities.
   (b) Beef and veal value.
10. How important are beef and veal value to the dairyman?
11. Are small breeds not adapted to cold climates, as in the northern states?

PROBLEM XI

Does dairying adapt itself to the keeping of various kinds of records? Do records make a work more interesting and profitable?

Questions

1. Name several important records which should be kept on a pure-bred dairy herd.
2. Why are breeding records very important?
3. Why do breed associations encourage the registration of calves at an early age?
4. Name several kinds of production records. Are some of these considered more authentic than others? Why?
5. What is the value of production records?
6. Could a definite system be used in the naming of purebred cattle?
7. What is a "Herd Prefix and Herd Suffix"?

PROBLEM XII

How important is the matter of the herd sire? How about the purchase of young sires versus proved sires? Are feeding and management of importance in the efficiency of the sire?

Questions

1. Why is the herd sire a long-time investment?
2. Explain the oft-given statement, "The sire is half the herd."
3. Name five or six important factors in the selection of a sire.

4. How important is the element of **cost** of the sire?
5. What is a "proved sire"?
6. At what age may a young bull be used for service?
7. Give a ration for a growing dairy bull.
8. Give a ration for a mature bull.
9. Name some disadvantages of allowing a sire to run with the herd.
10. What is the best method of handling the sire?

PROBLEM XIII

Is a knowledge of type important for the average dairy farmer? May the conformation of his cattle affect their usefulness and their longevity? May it affect the dairy farmer's interest in his herd and enterprise?

Questions

1. What is the ideal type or form of a dairy cow?
2. Do these points of conformation usually go with a high-producing cow? How?
3. Is proper form of udder correlated with a sound udder capable of a long period of usefulness? Explain your answer.
4. Why should cows be up to the average size or larger for the breed?
5. Is desirable type in a bull important when considering his resale?
6. Is it natural that a dairyman would be more interested in working with animals of good appearance or type? How important is this?
7. Would you advise a breeder to exhibit any of his cattle at a District, Parish, Canton, County, or State Fair? What are the advantages and the disadvantages?

PROBLEM XIV

Is there a large turn-over of dairy cows in a herd? What is the average age of the milking cows in a typical herd? What becomes of the cows? What factors affect their length of productiveness?

Questions

1. Is the productive life of the average dairy cow comparatively long or short?
2. What is the average age of the cows in the Iowa Dairy Herd Improvement Associations? In the Iowa State College herd?
3. What percentage of cows in Dairy Herd Improvement Associations were removed from members' herds?
4. What were the principal reasons for their removal?
5. Will this turn-over of cows probably be increased or decreased in future years? Why?

PROBLEM XV

Is the structure and arrangement of the dairy barn of importance? How does it affect the cost, the health of the herd, and the economy of labor? Since milk and dairy products are important human foods, should not the

barn in which they are produced be as clean and sanitary as a kitchen? What barn and milk house equipment would be satisfactory?

Questions

1. Need a dairy barn be expensive to be satisfactory?
2. Give an arrangement of the floor plan for a dairy barn, having two rows of cows.
3. Give advantages and disadvantages of cows facing in and facing out.
4. What kind of barn floor would you recommend? Why?
5. How many windows, and what kind, would you suggest?
6. Give a satisfactory type of ventilating system.
7. What are the advantages and disadvantages of a basement barn?
8. What kind of silos would you suggest, and where should they be located?
9. Where should the milk-house be located?
10. What is the necessary equipment for a milk-house?
11. What are the advantages and disadvantages of a milking machine?
12. Is there merit in having a "loafing shed" for the milk cows, and then a small building where they are fed grain and milked in relays?

PROBLEM XVI

What are the items in the cost of milk production? How important is feed, labor and the efficiency of the cow? Why do some dairy farmers make a profit when others, selling on the same market, lose money?

Questions

1. Name some of the major items in the cost of milk production.
2. What amount of grain, silage, hay and man labor is required, on an average, to produce 100 pounds of milk?
3. Should a dairy farmer turn his principal attention toward getting a higher price for his product or toward more economical production?
4. What are some of the economic disadvantages associated with a high price of dairy products?
5. Name some ways in which a farmer can lower his cost of producing milk.
6. How important is the yield per cow in the cost of milk production? Why?
7. What were the differences in feeding practices between the high herds and the low herds of the Iowa Dairy Herd Improvement Associations?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 7

DAIRY INDUSTRY

PROBLEM I

In some sections of the state there is much discussion among the farmers as to profits made in different types of farming. Farmer A maintains that beef production is the most profitable type of farming in Iowa; Farmer B believes that dairy farming is more profitable. Should Iowa farmers go into dairying? Why? Why not?

Questions

1. What returns can I get from a bushel of corn when fed to hogs? to beef cattle? to the dairy cow?
2. What effect will the "government program" have on dairying?
3. What effect will dairying have on soil fertility?
4. How much per hour does a man make milking cows?
5. What is the effect of dairying on the people?
6. Is Iowa land not too good for dairying?

PROBLEM II

Farmers now agree generally that there is a great difference in the profits made from various cows. Some say they can go into a herd and select the profitable cows; others say that it is necessary that some testing be done. How can you best select the profitable ones?

Questions

1. What is the most satisfactory test for butter fat in milk?
2. Where may testing equipment be secured?
3. What is meant by a Dairy Herd Improvement Association?
4. Should a farmer test his own cows or belong to an association?
5. Will the Association tester bring the farmer information?
6. Will the tester test the skim milk?

PROBLEM III

Mr. Henderson is living twelve miles from Des Moines near a concrete road. He is milking 25 cows and seems to be able to maintain a rather constant milk production. He is growing hogs and raises the calves from his dairy herd. He is trying to maintain his soil fertilizer through careful crop rotations. Will it pay him to sell milk or cream?

Questions

1. If you skim 100 pounds of milk, how much cream will there be? How much skim milk?
2. If the feeding value of 100 pounds of skim milk is considered to be equal to a half bushel of corn, what is the value of the skim milk in 100 pounds of whole milk?
3. Are there any uses to which skim milk can be put where the value will be greater than this?
4. What are the hauling costs for milk?
5. Is it less "bother" to sell milk than it is to sell cream?

PROBLEM IV

In some states, especially Wisconsin, Cheese factories and condenseries are quite numerous. It is quite common to find cheese factories at many road crossings. Why are they not more common in Iowa?

Questions

1. Do we have any cheese factories or condenseries in Iowa?
2. Is the climate in Iowa favorable to the production of good cheese and evaporated milk?
3. Do the farmers of Iowa place a greater value on skim milk than do the farmers of other states?
4. Will cheese factories or condenseries pay the most for milk?
5. If butter is manufactured in a cooperative creamery, and the skim milk and buttermilk fed to hogs in one instance, and in the other instance milk is made into cheese in a cooperative factory, which procedure will be able to return the farmer the most money?

PROBLEM V

Mr. Henry has a farm near the edge of town. He is milking fifteen cows and wants to sell bottled raw milk. His cows are housed in stanchions in the barn where horses are kept and hay is being handled for them. His facilities for cooling the milk quickly are not very good. His equipment for sterilizing and washing bottles is somewhat out of date. Will he find it difficult to produce and sell raw milk that is safe?

Questions

1. If milk comes from T. B. tested cows, is the milk safe?
2. What is the most important disease transmitted through milk?
3. What diseases may be transmitted from man to man through milk? What diseases from cow to man?
4. Water is a greater source of disease transmission than is milk. Do we stop using it? What do we do?
5. How can the milk supply be made safe?

PROBLEM VI

Mr. Johnson living near Ames sells his milk to a dairy plant which distributes bottled milk. His milk check shows that he was paid at the rate of $2 per hundred pounds of 3.6% milk for 55% of what he sold, but for 45% of the milk he was paid at the rate of only 30 cents per pound of butterfat. Why the lower price for part of his milk? It was just as high in quality.

Questions

1. Can all the milk produced be sold in the fluid form?
2. Why will the price for milk sold in the fluid form be higher than that used for manufacturing dairy products?
3. Why is the price for butter and cheese not influenced a great deal by local conditions?
4. What is the term usually applied to milk sold for use in the fluid form?
5. What term is used for milk which is used for manufacturing purposes?

PROBLEM VII

Several years ago the farmers in some sections of Iowa were dissatisfied with the price they received for market milk. On various occasions they came together and either threw the milk into the river, or refused to sell it. What could they have done about it? Why is it not possible for farmers to form a cooperative which would distribute milk and thus eliminate the middleman who is now getting all the profit? Or is there another method which will involve less risk to the farmer and yet insure his getting his fair share of what the consumer pays for bottled milk, as well as protecting him against having an undue proportion of his milk sell as "surplus" and therefore in the lower price class?

Questions

1. Could farmers organize to bargain collectively in regard to prices paid for market milk?
2. How much money would be required before such an organization could function?
3. Would such an organization be able to answer satisfactorily the criticism that the milk dealer was buying milk as "surplus" milk and selling it as "market" milk?
4. What would it cost the farmers to build and get into operation a plant to handle "surplus" milk so that they could sell only "market" milk to the dealers?
5. Why will there have to be a monopoly on the part of the farmers over the milk supply in any community before surplus plant systems will be successful?
6. Why have efforts on the part of cooperatives to go into the actual business of distributing milk been largely unsuccessful?

PROBLEM VIII

With the discovery that butter contains large quantities of Vitamin A there has been a tendency for the dairy people to advertise the vitamin

content of butter and ignore any other values that butter might have. With the increase of knowledge in regard to vitamins it is conceivably possible that the margarine manufacturers may be able to place even more Vitamin A in oleomargarine than is present in butter.

Questions

1. How important is butter as a dairy product?
2. How important is the price of butter in determining the price of other dairy products?
3. What vitamins does butter contain?
4. How many fats are present in butterfat?
5. How many fats are present in the butter substitutes?
6. To what is the flavor of butter due?
7. Is butter fat as a fat superior to other fats?

PROBLEM IX

When the dairy farmer sells cream he gets paid only for the butterfat which is in the cream and therefore gives away the skim milk which is in the cream. The creamery does not want the additional skim milk which is in low-testing cream. The producer is therefore in a quandary to know what test cream should be skimmed, for delivery to a creamery making butter.

Questions

1. What does the farmer get paid for when he sells cream? What does he give away?
2. If 100 pounds of skim milk is equal in value to a half bushel of corn for feeding to mature hogs, what is the value of the skim milk which is given away in selling 100 pounds of butter fat in cream testing 40%? In cream testing 25%?
3. If the creamery gets the skim milk in the cream without paying for it, why do they not want a low testing cream?
4. Cream separators can be equipped with devices so that cream testing 75% to 80% butter fat can be skimmed. Why not sell butter fat in that form to the creamery?

PROBLEM X

Some farmers still argue that the price of centrifugal separators is too high and that the old method of using the gravity separation is satisfactory. Consider this problem from the standpoints of cost, quality of product, convenience in handling, and so forth.

Questions

1. What was the first system used for separating cream from milk?
2. Why was the "shallow pan" system of separating cream objectionable?
3. Why did the "deep setting" method of separating cream produce skim milk with a lower percentage of butter fat than the "shallow pan" method?

4. Why was the quality of the cream usually good with the deep setting method?
5. Why was the quality of cream frequently poorer when the change was made from the deep setting method to the centrifugal method?
6. Why did people assume that the butter fat loss would be reduced if the milk was diluted with water?
7. What was the source of water used to dilute the milk in the water dilution method?
8. Why did this water frequently add "off" flavors and undesirable bacteria?
9. If a gravity method of separation is used, which one is preferable?

PROBLEM XI

Mr. James has a new separator. After the milk has been separated for some time he finds some cream on top of it. How can this loss of butter fat in the skim milk be kept at a minimum?

Questions

1. If cold milk is a cause of excessive loss of butter fat in skim milk, how can the loss from this cause be avoided?
2. What is the approximate life of a centrifugal cream separator?
3. If from 100 pounds of 4% milk there result ninety pounds of skim milk, testing .02%, what is the percentage of the total butter fat in the milk which is recovered in the cream?
4. With such a high expectancy of recovery, can the machine be out of order mechanically and still obtain this percentage?
5. Why will turning the cream separator at slow speed increase the loss of the butter fat in the skim milk?
6. What will washing the cream separator only once a day do to the sanitary quality of the cream?
7. Why will washing the separator only once a day increase the loss of butter fat?

PROBLEM XII

The price which the creamery gets for its butter and which therefore determines the price which can be paid for butter fat is determined by the flavor of the cream delivered. A clean-flavored sweet cream is most desired. Occasionally when cream is delivered the creameryman says, "The cream is off-flavored." What does he mean, and how did it get that way?

Questions

1. What is the relationship between the flavor of the cream and the flavor of the butter?
2. What items make up the score card for butter?
3. How many points are given for flavor?
4. What grades of butter are sold?
5. What is the principal point on which the grade of butter is determined?
6. What is meant by an absorbed flavor?

7. What flavors or odors will milk and cream absorb?
8. What feeds will influence the flavor of milk and cream?
9. What feeds will produce objectionable flavors in milk and cream?
10. If the milk from "stripper cows" contains considerable lipase, what flavor will be produced in the milk and cream on standing?

PROBLEM XIII

More care is required to produce a clean-flavored sweet cream from which can be manufactured a high quality butter than off-flavored sour cream which will produce butter with an inferior flavor. The reason why so much poor cream is sold is that no premium is paid for a high quality product. Should we have a cream grading law?

Questions

1. What was the first state to have a cream grading law?
2. Why will paying the same price for all cream result in low grade cream?
3. Why will paying more for good cream result in the improvement in the quality of cream?
4. If a cream grading law is not enforced, what difficulties does it lead to?
5. In the calendar year following the inauguration of the Iowa Cream Grading Law it is reported that the number of cream buying stations was reduced from 2500 to 1300. Why?
6. Why is the acidity test a fairly good measure of cream quality?
7. Under what conditions will sweet cream be objectionable from a flavor standpoint?

PROBLEM XIV

Creameries, particularly when butter is fairly high, frequently pay the farmer more per pound butterfat than the butter is sold for per pound. This is due to "overrun" secured in buttermaking. Why is the farmer interested in the overrun secured in butter manufacture?

Questions

1. What is overrun?
2. If butter contains 80% butter fat, what is the overrun?
3. Why will it be necessary to manufacture butter with somewhat more than 80% butter fat?
4. The creamery pays for the butter fat in the cream. Why cannot all this butter fat be recovered in the butter?
5. Which is more efficient in recovering butter fat from milk, skimming with a centrifugal separator or churning?
6. If butter contains 80.5% butter fat, what overrun would be obtained on the basis of the butter fat in the butter?
7. The state law provides for a maximum of 24.5% overrun. Can this be obtained with the normal percentage of fat in the butter and normal butter fat losses in buttermilk and other losses?
8. If a creamery board requires that the creamery operator secure an overrun of approximately 24.5%, what is the board encouraging?

PROBLEM XV

It is not uncommon to find some farmers buying oleo when they order groceries. Can the farmer expect other people to buy his products when he does not use them himself? Why should the Iowa dairy farmer be a good consumer of his own dairy products?

Questions

1. What groups of food constituents does milk contain?
2. Why did 50% of the children, and all children under 2 years, who came over on the Mayflower die the first year?
3. Why is milk considered to be "the most nearly perfect food"?
4. What is meant by the term "vitamins"?
5. Why does Krause say, "It is the general concensus of opinion that the natural foods rich in the various vitamins are the best sources. In other words, plan an adequate diet. The American people have become exceedingly diet conscious. This is especially true regarding the vitamins. Clever advertising through the radio, the press, drug store windows, and the mails has done much to convince the public that it needs to buy at high prices products which could actually be supplied from ordinary foodstuffs at little additional costs"?
6. How important are "minerals" in the human diet? Where do they come from?

PROBLEM XVI

Each year beginning in 1939 the creamery deducted from my check a cent for every pound of butterfat delivered during the first two weeks in May. They said it went to the Iowa Dairy Industry Commission. Is it fair for them to make this deduction without permission?

Questions

1. What is the Iowa Dairy Commission?
2. What is the purpose of the Commission?
3. Who constitutes the membership of the Commission?
4. What is the purpose of limiting to $100 the salary each member may draw in one year?
5. Approximately how much money was collected by the Commission last year?
6. What per cent, approximately, of the butter fat produced in Iowa goes into creamery butter?
7. What per cent, approximately, of the creamery butter produced in Iowa is sold outside the state?
8. Can the Iowa Dairy Commission cooperate with like groups from other states along this line?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 8

HORTICULTURE

HORTICULTURE

Horticultural products contribute to the health, wealth and beauty of farm homes. When a generous supply of fresh fruits and vegetables is available for the gathering, more will be used, and the health of the family improved because of a better and more varied diet. The average farm family can easily avoid paying out $150 in cash each year by producing fruits and vegetables at home. The growing of flowers and other ornamental plants certainly helps to make the farm a place on which to live, as well as a place on which to make a living.

The horticulturist is faced with many problems which are involved in the growing of fruits, vegetables and ornamental plants, and he generally associates the problem with a horticultural practice. The principal horticultural practices may be grouped as follows: planning, planting, propagation, pruning, spraying, soil management, harvesting, storage.

The problems which follow attempt to cover a few of the principles which relate to the aforementioned horticultural practices.

PROBLEM I

Planting the Flower Garden for Cut Flowers

Bouquets of colorful flowers are always ready if the flower garden is carefully planned to provide a succession of bloom from spring until frost. Cut flowers should be used freely in all parts of the home. Your sister Mary and your mother have been trying to decide which plants to use in the cutting garden. Mary decides to use zinnias, marigolds, cosmos and cornflower. Mary's mother wants to use iris, tulips, delphinium, chrysanthemum. Who has made the better selection? Why?

Questions

1. What is an annual herbaceous flower?
2. What is a perennial herbaceous flower?
3. Are zinnias annual herbaceous flowers?

PROBLEM II

The Home Vegetable Garden

The home vegetable garden is a satisfactory and economical source of fresh vegetables for the family table. The Jones family consists of the father, mother and three children 15, 12 and 9 years of age respectively. During the winter they plan a kitchen garden for next year.

Questions

1. What should influence the kind of vegetable selected?
2. What should influence the amount of each kind selected?
3. How could they plan to use a limited amount of land to its fullest capacity?
4. Would they plant only seeds, plants, or both seeds and plants?
5. Would they plant all kinds of vegetables at the same time?
6. Name 10 vegetables that you would suggest they have in their garden.

PROBLEM III

The Home Fruit Garden

Mr. Jones has just purchased a farm about thirty miles south of Des Moines, on which he wishes to plant plums, sour cherries and apples suitable for the family needs of five people.

Questions

1. What should be the chief purpose of such a planting?
2. Can such fruits be grown successfully in his locality?
3. Where can Mr. Jones obtain reliable information that will assist him in selecting suitable varieties?
4. How far apart should the trees be planted?

PROBLEM IV

Obtaining Horticultural Plants for the Home

Satisfactory horticultural plants for the home can be obtained from native plantings, as gifts from friends and neighbors, and from plant nurseries. You have decided to purchase an American elm as a shade tree for your home.

Questions

1. Give the name and location of the nursery from which you would purchase this tree.
2. State the height of the tree purchased.
3. State the price of the tree purchased.
4. What time of the year would you order the tree?
5. What time of year would you plant the tree?
6. Would the tree be delivered by parcel post, freight, express or truck?

PROBLEM V

Planting the Lawn

Mrs. B desires to plant a new lawn area 100 ft. x 150 ft. Nine per cent of this area is occupied by buildings, walks, drives. Mrs. B thinks that the new lawn area should be seeded to pure bluegrass, but Mrs. A says that one should use a mixture of several kinds of grasses. Who is right? Why?

Questions

1. If you used a mixture of grasses for seeding the lawn area, what kind of grass would constitute the greatest percentage of the mixture?
2. At what time of the year would you seed a new lawn area?
3. How many pounds of grass seeds would you use for the area that Mrs. B desires to plant?

PROBLEM VI

Planting a Woody Plant

The American elm tree which you ordered in Problem III has arrived, and you prepare to plant it in the location selected.

Questions

1. How deep should you dig the hole?
2. How wide should you dig the hole in relation to the size of the root system?
3. Should the hole be scooped out clean to firm soil, or should some loose soil be left in the hole?
4. Should the soil when placed back into the hole be lumpy and cloddy or finely pulverized?
5. Should the soil be packed firmly about the roots or left loose?
6. If water is added when should it be added?
7. What are two advantages of adding water when planting the tree?

PROBLEM VII

Planting an Evergreen

Mr. A has just received a five-foot Blue Spruce which has been balled and burlapped (ball of earth attached to roots and wrapped with burlapped sack). He is not sure whether he should remove the burlap sack before setting the tree. Advise him.

Questions

1. Why should evergreens be balled and burlapped?
2. Do evergreens give off moisture during the winter?
3. When should evergreens that are balled and burlapped be planted?

PROBLEM VIII

Season of the Year for Planting Woody Horticultural Plants in Iowa

At some place in the world every day in the year is a suitable day to set woody horticultural plants. Variations in climatic conditions, however, make it more favorable to set plants in specific localities at particular seasons of of the year. In those regions, such as Iowa, where there is danger of winter injury to newly set, and consequently not well established, plants, it is best to set such plants as early in the spring as soil conditions will permit planting.

Questions

1. In Iowa should you set the American elm tree ordered in Problem III in early April or in October?
2. Does a newly planted tree, without leaves, give off any moisture?
3. Does the newly set tree have any root hairs to absorb water from the soil?
4. What will happen to the fall set tree if the fall weather has been too cold to permit the growth of a good water-absorbing root system?

PROBLEM IX

Propagating Strawberries

A supply of strawberries is desirable in most farm homes for fresh fruit, shortcake, jams and for frozen fruit. You wish to plant an area of sufficient size to supply your family, but do not have the money to buy the plants. Mr. B tells you that you may get the plants from a bed that he is going to plow under. You and your father go over to Mr. B's to get the plants. Your father thinks that the strongest plants should be selected and then dug, separating them with a trowel. You think that a clump of the plants should be dug with a spading fork and the most vigorous plants selected from the clump which was dug. Which method is better, your father's or yours? Why?

Questions

1. How are strawberries propagated?
2. When are strawberry plants propagated?

PROBLEM X

Propagating Roses

Roses may be propagated by seeds, suckers, layers, cuttings and graftage. You have a Dorothy Perkins climbing rose, and you desire a few more plants of this variety. Mr. A insists that the easiest method for the amateur to use is to plant seed; Mr. B insists on making cuttings; Mr. C says that layerage is the simplest method for the amateur. What is your conclusion?

Questions

1. At what time of the year should layerage be done?
2. How are plants layered?
3. Name three different methods of layerage.

PROBLEM XI

Propagating Iris

Mrs. A has a four-year-old bed of German Iris. She desires to plant a new bed of the same variety in another area on the home grounds. Mrs. A wants to know whether she can secure a sufficient number of plants from the old bed or whether she had better buy plants from a nursery in order to plant the new bed. Advise.

Questions

1. How are iris propagated?
2. When should iris be planted?
3. How far apart should iris be planted?

PROBLEM XII

Propagating

Mrs. B wants to propagate a geranium plant from an old plant that she has in the kitchen. Tell her how to proceed.

Questions

1. How are geraniums propagated?
2. Will geranium cuttings form roots if placed in water?
3. Should a geranium cutting be 3 inches or 6 inches long?

PROBLEM XIII

Pruning a Newly Planted Two-year-old Apple Tree

The newly set Jonathan apple tree, purchased in Problem III, should be pruned to develop a structurally strong tree with the branches spaced in such fashion as to permit satisfactory penetration of sunlight and the spraying of materials throughout the tree and to make the picking of the fruit easy.

Questions

1. Should a newly set two-year-old Jonathan apple tree 5 to 7 feet high, with a leader and seven primary lateral branches each 24 or more inches long, be pruned?
2. How far should the first branch be above the surface of the ground?
3. Will this distance become any greater as the tree becomes older and larger?
4. How far apart should the lateral branches be on the main trunk?
5. How should they be spaced around the trunk—all on one side, on two sides, or divided above the circular area equally?
6. Should you select the lateral branches that form narrow or wide crotches with the main trunk?
7. Should the leader branch (top one) be left shorter, longer, or the same length as the laterals below it?

PROBLEM XIV

Pruning a Newly Planted Deciduous Horticultural Shrub

Most shrubs should have several main stems arising from the crown, with lateral branches arising from the main stems close to the surface of the soil. Assume that you have just planted on April 2, a Polish Privet plant that has four unbranched stems each 30 or more inches long.

Questions

1. Should any of the top of this plant be cut off?
2. Should part of each stem be cut off?
3. Where will the lateral branches form on these stems in relation to the cuts made?
4. How low to the ground do you want the lateral branches to form on the four main stems?
5. How low to the ground will you cut back the four main stems?

PROBLEM XV

Pruning the Newly Planted One-year-old Grape Vine

Your newly planted one-year-old grape vine has two canes, one arising at the surface of the soil and the other an inch or two above the surface of the soil. These are both strong, vigorous canes, each with seven or eight buds (eyes).

Questions

1. Should this vine be pruned at all?
2. Should one cane be removed entirely?
3. Should one cane be removed entirely and the other cane cut back to six buds?
4. Should both canes be cut back to six buds?
5. Should one cane be removed entirely and the other cut back to two buds?
6. Should both canes be cut back to two buds?

PROBLEM XVI

Controlling Apple Scab

Apple scab is destructive to the health of apple trees and often makes the apples from a home orchard almost worthless. Your father insists that spraying with arsenate of lead will control this disease, but your mother insists that the county agent said to use lime sulphur. Who is correct?

Questions

1. Is apple scab an insect or a disease?
2. What part or parts of an apple tree does apple scab attack?
3. Is apple scab more prevalent in damp or in dry weather?

PROBLEM XVII

Controlling the Codling Moth in Apples

Upon opening a Jonathan apple in December you found within it in a tunnel near the core a dark-headed creamish-pink worm about one-half inch long and nearly one-eighth inch in diameter.

Questions

1. What type of insect is this?
2. How did it get into the apple?
3. What could you use to control this insect?

PROBLEM XVIII

Controlling the Rose Slug

Mrs. A has discovered an insect that is eating a part of the leaves on her rose bushes. Someone has identified the pest as rose slug. She wants to know whether she should use arsenate of lead or bordeaux mixture to control this pest. Advise her.

Questions

1. Would you say that the insect that Mrs. A discovered on her rose bushes was chewing or sucking?
2. How does arsenate of lead control chewing insects?

PROBLEM XIX

Controlling Aphids

During the growing season you discovered little green bugs or lice near the tips of shoots and on the under surfaces of leaves that are curled to a greater or less degree.

Questions

1. What type of insect is this?
2. How does it injure the plant?
3. What would you use to control it?

PROBLEM XX

Controlling Rabbits

Mr. A discovered that rabbits ate some of the bark from the apple trees that he set last spring. He plans to set more trees this spring and wishes to avoid rabbit injury. Mr. B advises him to use rabbit traps as the best method of control; Mr. C recommends poisoned bait; Mr. D advises the use of one-quarter inch mesh hardware cloth which can be cut to 24-inch squares and then bent in a cylinder about the trunk of the tree. Who has made the best suggestion? Why?

Questions

1. At what time of the year would you place wraps around the trunks of trees?
2. Would you remove the wire guards each year or allow them to remain until the trees are eight to ten years of age?
3. Are there other kinds of wraps than hardware cloth that might be used?

PROBLEM XXI

Fertilizing the Established Lawn

There is some discussion in your community relative to the kind of commercial fertilizer that one should use on an old lawn. One group insists that a complete commercial fertilizer should be used; another group insists that only a fertilizer high in nitrogen should be used. Which group is correct?

Questions

1. Name two kinds of commercial fertilizer high in quickly-available nitrogen.
2. What are the advantages and the disadvantages of using well-rotted manure on an old lawn?

PROBLEM XXII

Mulching Strawberries

Mr. A says that it pays to put a mulch of straw on strawberries in November because it will prevent damage to the plants in the spring, due to alternate freezing and thawing, and also that it will keep the berries clean. Mr. B says that strawberries are hardy and do not need a mulch. Who is correct?

Questions

1. When should strawberries be mulched?
2. What kind of material would you use for a mulch?
3. What should be the depth of the mulch added to a strawberry planting?

PROBLEM XXIII

Harvesting Cut Flowers

Mrs. A says that one should cut zinnias to use as cut flowers after the flowers are fully opened and before ten o'clock in the morning. Mrs. B says that you should cut zinnias before the flowers are fully opened, and that it makes no difference as to the time of day when you cut them. Who is right?

Questions

1. Should flower stems be removed from the plant with a slanting cut?
2. Will flower stems have more water in them at eight o'clock in the morning of a bright sunny day or at noon?

PROBLEM XXIV

Harvesting Asparagus

Mrs. A has a ten-year-old planting of asparagus. Each year after the second year she has continued the cutting of spears until July 15. She notices that the production of spears is less each year during the past few

years. Mrs. A says that cutting asparagus spears up to July 15 gives the roots a better chance to develop because not as much moisture is required for the tops. Is she correct?

Questions

1. Is asparagus an annual or a perennial?
2. How late in the season would you cut asparagus?

PROBLEM XXV

Storing the Irish Potato

Mr. A has some potatoes that were allowed to remain in the ground until after they were injured by frost. He plans to sort these potatoes with the idea of putting the sound ones into storage. Mr. B insists that it is impossible to sort frozen potatoes from sound potatoes. What is your advise?

Questions

1. What is the best temperature for storing Irish potatoes?
2. What kind of package would you use to store Irish potatoes?
3. Would you store Irish potatoes in sacks next to a concrete or an earthen floor?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 9

CORN

PROBLEM I

Over two-thirds of the corn of the world is produced in the United States, and Iowa grows more acres with larger acreage yields than any other state. Consider the factors, as you see them operating here in Iowa, which may be responsible for this distribution.

Questions

1. What is the average acre yield of corn in Iowa for a ten-year period?
2. How does this yield compare with that in Illinois, in Missouri, in Minnesota, in Indiana, and in Kansas for the same years?
3. What is the average rainfall for a period of years in the different states mentioned above?
4. What is the average number of days in the growing season from frost to frost as recorded by the United States Weather Bureau for these different states?
5. What is the mean annual rainfall in the different states for the growing season, April to August inclusive?
6. What other countries of the world are important corn producing countries?
7. How does the temperature and annual rainfall of these countries compare to that of the United States?
8. What states constitute the area often referred to as "the corn belt"?
9. What is the relative productivity of the soil found in the corn belt as compared with other parts of the United States?
10. How do you account for the greater productivity of the soil of this area as compared with the soil of the South Atlantic states?

PROBLEM II

A corn grower in Monroe County, southeast central Iowa, visits a friend in Cerro Gordo County who has a variety of corn that he boasts is the most productive variety he has ever known. He offers to supply his friend from Monroe County with seed. Would you advise him to accept the offer? Why?

Questions

1. Name as many different varieties of corn as you can.
2. Give a brief history of the origin of the more important varieties. Where, how, who, when?

3. What is the most widely grown open-pollinated variety of corn in the corn belt?
4. A strain of Reid Yellow Dent obtained from a grower in extreme northern Iowa and planted beside a strain of the same variety grown for a period of years in central Iowa matured much earlier and made a smaller growth. How do you account for this difference?
5. To what extent is corn naturally self-pollinated, and to what extent cross pollinated?
6. Is cross-pollination of corn the result of pollen carried by the wind, or are insects an important factor?

PROBLEM III

A few years ago Iowa farmers saved their own seed corn, growing the variety their experience had shown them was best for their particular conditions and locality. Today Iowa farmers are planting hybrid corn, purchasing their seed. Account for this revolutionary change.

Questions

1. When was hybrid corn first made commercially available to Iowa farmers?
2. What is the meaning of the term hybrid corn as contrasted to open-pollinated corn?
3. What per cent of the corn acreage is estimated to be planted with hybrid seed?
4. Does a particular strain of hybrid corn have as wide adaptation as open-pollinated corn?
5. Is it feasible for a corn grower to produce his own hybrid seed corn? Give reasons for your answer.
6. What is the effect of cross-pollination on the vigor and productivity of the corn plant?
7. How are inbred lines of corn produced?
8. What proportion of the inbred lines produced have value in producing hybrid seed?
9. What is the relative productivity of commercial hybrid corn available to Iowa growers and of the better open-pollinated varieties?
10. What characteristics other than yield interest Iowa farmers in the use of hybrid seed?
11. How many inbreds are involved in most of the hybrid corns available commercially?
12. When a corn grower has purchased hybrid seed corn is it feasible for him to save seed from his own field for the crop of the next year? Why?

PROBLEM IV

A corn grower in your locality has a rather fertile, level field to be planted into corn. Will it be advisable to drill the crop or to check it? Another field is rather steeply rolling, and yet it seems desirable to plant it to corn for a year. How would your recommendations for the planting of this field differ from that of the first, and why?

Questions

1. On a very fertile soil will the largest yield be obtained from a rate of planting that is thicker than the average rate, or should the rate of seeding be decreased?
2. Why is most of the corn in the corn belt check planted rather than drilled?
3. On soil free of weeds would you expect a greater yield from a drilled planting or from a check planting?
4. What is considered the standard width between corn hills in your locality?
5. If three kernels per hill will give maximum yield on an average soil in central Iowa, would you expect to get the maximum yield in the extreme northern part of the state from the same rate of planting?
6. On the Missouri river bottom a great deal of corn is planted in the bottom of furrows. This is called "listing". Why is this method not used generally over the state? What are its advantages where used?
7. Why is the soil where the surface is steeply rolling markedly less fertile on the average than where the surface is level?
8. When steeply rolling land is planted to corn every precaution should be taken to reduce erosion to the minimum? Farmers are advised to leave grassed strips in natural drainage ways. Why?
9. What is meant by the term "'strip cropping"?
10. Is it feasible to terrace land to be planted to rowed crops like corn?
11. What is meant by the term "contour farming"?

PROBLEM V

On two adjoining farms are two fields of corn on soil to all appearances of the same type. On one field there is a vigorous, heavy yielding crop of corn, but on the other plants are relatively small and weak and will give a low yield. Suggest the different factors which may be responsible for the differences noted.

Questions

1. Name sóme of the more important soil types found in Iowa.
2. Rate these different soil types as best you can on the basis of relative productivity.
3. How many pounds of phosphorus are removed from an acre of land in the grain of a sixty bushel corn crop? How many pounds of potassium are removed?
4. Of the plant food elements, phosphorus, potassium, calcium, and nitrogen, which are most likely to be deficient in Iowa soils? Which are found in great abundance in most Iowa soils?
5. Is the yield of corn often limited in Iowa by an insufficient supply of water at critical periods during the growing season? Explain.
6. How many pounds of water have been found to be required for the production of each pound of dry matter in the corn plant?
7. How is water lost by the soil?
8. By what type or means can a corn grower influence the amount of water available in the soil to the corn crop?

9. What crops, used in Iowa rotations, have value in increasing soil productivity?
10. How is it possible to increase the nitrogen content of the soil by growing these crops?

PROBLEM VI

Mr. Brown, who has lived in town, has bought a farm and is growing his first crop of corn. He is anxious to produce the best crop possible on the soil that he has and asks for instructions in fitting the best possible seedbed. Give him specific directions.

Questions

1. With a ten-acre field that is to be planted to corn, and eighty tons of stable manure available, would you advise applying eight tons per acre over the entire field, or would you make a heavier application on a part of the field? Why?
2. When is manure best applied to the soil in preparation for a corn crop?
3. Under what conditions would you advise fall plowing for corn?
4. Under what conditions would you advise against fall plowing? Why?
5. When corn is to follow on land which was in corn the previous year, why do we plow in preparing the seedbed rather than disc as when preparing for an oat crop?
6. Why is it considered particularly objectionable to burn corn stalks rather than plow them under?
7. The average depth of plowing on most corn land is about 5½ inches. Do you think that it would be profitable to plow more deeply? Explain.
8. Would you advise plowing immediately before planting in preference to plowing some time in advance of planting? Why? What is the effect of discing in preparing the corn seed bed?
9. Why do many of the best corn growers prefer that the surface soil shall not be too finely pulverized?

PROBLEM VII

A corn grower in Story County reports that the yield of his corn has often been limited by the amount of water available at critical times during the summer. He is anxious to conserve as much of the rainfall as possible for his crop. What can he do in seedbed preparation, in planting, and especially in cultivation to conserve as much water for the corn crop as possible?

Questions

1. What is the average annual rainfall for Iowa in inches?
2. During what month do we have the heaviest rainfall?
3. During what month is there the least rainfall?
4. Will a given number of inches of rainfall be more effective or less effective in influencing plant growth in central Iowa than in central Nebraska? Explain. What is the difference between the average number

of inches of rainfall in southeast Iowa, considering the average for a period of years, and that of southeast Nebraska?

5. Comparing corn with other crops generally grown in Iowa, do you consider corn economical in its use of water?
6. Assuming an average production of six pounds of dry matter per hill of corn, with corn hills spaced 42 inches apart each way, approximately how many tons of water do you calculate would be required per acre by the corn crop, disregarding run-off and water lost by evaporation from the surface of the soil?
7. Considering water conservation, what do you think is the advantage of fall plowing as compared to spring plowing? Why?
8. When land is fall-plowed is there an advantage in leaving the ground surface as rough as possible? Why?
9. Will a soil high in organic matter hold more or less water than a soil low in organic matter?
10. Classify in order of water-holding capacity from the highest to the lowest the following soils: coarse sand, clay, peat, fine sand, loam, and sandy loam.
11. What relation is there between the burning of cornstalks and the water-holding capacity of the soil?
12. What is the primary object of cultivation?
13. What do we mean by the term "capillary water", "hydroscopic water", and "gravitational water"?
14. Of these three, which is available to the corn plant?
15. After water has penetrated the soil to a depth of a few inches below the surface, how is it removed from the soil? Is any appreciable amount of water lost from the soil surface by evaporation? Explain.
16. On rolling land what effect does contour planting and cultivation have on the availability of moisture to the corn plant?

PROBLEM VIII

You have a variety of yellow corn from which you want to save seed. Your neighbor's field on the west has a white variety. How could you be certain in saving seed ears that the seed has not become mixed?

Questions

1. In what part of the kernel are the yellow pigments of a yellow variety of corn found?
2. In what part of the kernel of a red variety of corn are the red pigments found?
3. What is the color of the endosperm in a red variety?
4. If a simple kernel of yellow corn were planted in the middle of a field of white corn, what percentage of the kernels produced on the plant would you expect to have a deep yellow color at the crown? How far is corn pollen usually carried in considerable quantity by the wind? How much isolation is usually considered necessary to prevent an appreciable amount of fertilization from foreign pollen?
5. Does a pollen silk protrude from the husk at the pit of the ear for each and every kernel on the ear? What is the generally accepted botannical name for the corn silk?

6. Does the tassel usually begin to shed pollen before the silk appears on the same plant, or afterwards?

PROBLEM IX

The Iowa Agricultural Yearbook reports data showing that in some parts of the state practically the whole crop is harvested from the standing stalk, while in other parts a considerable acreage is cut for fodder, is put in the silo, or is hogged down. Prepare a map showing these differences in different parts of the state, and account for the differences.

Questions

1. Considering the state as a whole, calculate what percentage of the crop is shucked from the standing stalk?
2. In what part of the state is the largest percentage of the crop shucked from the standing stalk? How do you account for this fact?
3. In what part of the state is the greatest percentage of the corn crop cut for silage? How high is this percentage in the four leading counties? Account for the large percentage of corn put in the silo in these counties?
4. Are there parts of the state in which the percentage of corn cut for silage is increasing and other parts of the state where it is decreasing? If so, where? Explain.
5. Consider variations in the percentage of the corn crop cut for forage annually through a period of years. Account for the wide range observed in different years and in various parts of the state.
6. Do hogs use corn as efficiently when the crop is hogged down as when harvested, stored, and hand-fed?
7. What is the relative cost of picking corn by hand as compared with the cost when harvested with mechanical pickers? What other advantages and disadvantages are associated with each method of picking?

PROBLEM X

Popcorn purchased in a grocery store failed to pop satisfactorily. What is the probable cause? Can the difficulty be remedied, and if so, how?

Questions

1. What is the leading popcorn state in the Union, and what other states produce important commercial quantities?
2. There are two types of popcorn—pearl and rice. What is the difference in the general appearance of the kernel of the two types?
3. What is the most apparent characteristic of the ear of the Japanese Hulless variety?
4. What happens when popcorn pops?
5. Make a brief, concise statement covering the best methods of popping corn.
6. Why does popcorn pop when field corn or sweet corn treated in the same way will not pop?
7. Why is it that popcorn sold from a bulk supply in grocery stores usually pops very poorly?

8. When popcorn pops poorly, is there any treatment by which it can be made to pop satisfactorily? Explain.
9. What is the moisture content of popcorn when it pops best?
10. Name as many different varieties of popcorn as you can, stating some of the best characteristics and the poorest of each.

PROBLEM XI

The average Iowa corn crop is said to be in the neighborhood of 400 million bushels, and the world production is four billion bushels. Consider all the possible uses of the corn crop, getting as accurate information as you can on the proportion of the crop used in each way.

Questions

1. What is the approximate percentage in the Iowa corn crop that is sold off the farms where produced, considering the average for a period of years?
2. What percentage of the United States corn crop is exported to foreign countries? How does this compare with the percentage exported in previous years?
3. What is the approximate percentage of the United States corn crop fed to beef cattle? To dairy cattle? To hogs? To horses? To chickens?
4. What important food products are made from corn?
5. List as many products as you can that are made from the corn kernel.
6. List as many commercial products as you can that are made from the cornstalk.

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UNIT V.

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 10

SMALL GRAIN

PROBLEM I

Comparative Returns from the Small Grains

Farmers often complain that oats are not a profitable crop. They say that after deducting the cost of raising a crop of oats there is little left for profit except the straw. Perhaps farmers might substitute some other small grain crop. Make a comparison of the different small grains as to acre yield, cost of growing and price per bushel and draw conclusions as to which small grain would be the most profitable to grow. Make a table showing the acreage of each in Iowa, the yield per acre, the price per bushel and the total cash value of an acre of each.

Questions

1. What are the six most important small grains grown in the United States?
2. Which one is not raised in Iowa?
3. What is the approximate acreage of each in Iowa?
4. Why is the acreage of oats so much greater than the acreage of wheat and barley in Iowa?
5. Which items of cost of production would be greater for wheat than for oats?
6. Is there greater risk in growing either barley or winter or spring wheat than in growing oats? Explain fully.
7. Do oats fit into the average Iowa rotation better than the other small grains do? If so, how?
8. Is it easier or more pleasant to harvest and thresh oats than barley or wheat? If so, in what way?

PROBLEM II

When asked why they grow oats instead of barley farmers often reply that oats make excellent feed and give larger yields than barley. Let us examine all the facts and see if such an idea is sound. To do this we must have some facts on which to base our conclusions. Make a table or chart which contains the following information: (1) The yield per acre of oats and barley; (2) the pounds per bushel; (3) the total number of pounds per acre; (4) the percentage of hull; and (5) the pounds of grain after the weight of the hulls have been deducted.

Questions

1. Why do farmers compute yield per acre in bushels instead of pounds when grain is always weighed instead of measured?
2. How do oats and barley compare in feeding value for hogs, cattle and poultry?
3. What difficulties are encountered in raising barley instead of oats?
4. How does the price of oats and barley compare?
5. Are oats any easier to grow than barley?
6. Is there any more chance of crop failure with barley than with oats?
7. How can the disadvantage of shocking and threshing bearded barley be partly overcome?
8. Would you recommend beardless barley for Iowa?

PROBLEM III

Farmers who live in fertile areas or who keep considerable livestock and grow clover often complain that they have trouble with their oats and other small grain lodging. Explain all the factors involved and tell what practices a farmer can follow to overcome this tendency for oats to lodge.

Questions

1. What is meant by lodging?
2. Why does fertile soil cause oats to lodge?
3. Which plant nutrient, nitrogen, phosphorus, potash or calcium, causes a large rank growth of stems and leaves? Why?
4. Which of these nutrients is most plentiful in farm manure?
5. Which one is increased by growing and plowing under clover and other legumes? Why?
6. What changes might a farmer make in his rotation and method of farming to help overcome the tendency of his grain to lodge?
7. Is there any difference in lodging due to differences in thickness of planting of oats?
8. Name several oats varieties which have stiff straw and are resistant to lodging.
9. Name some varieties which are tall, grow rank and are more likely to lodge.

PROBLEM IV

In certain seasons oats are chaffy, light weight and low in feeding value. This light weight also results in low yields. Farmers often try to explain this condition by saying that their oats are "running out". By this they mean that their oats are gradually deteriorating in ability to grow and yield well because they have been grown on the same farm too long. They feel that the remedy is to discard their own seed and get new oat seed which is plump and heavy. In seasons when oats are light in weight in Iowa it is usually necessary to get seed which has been grown in the north in order to get heavy seed. Explain what causes oats to be light in weight and what a farmer can do to guard against this difficulty and be reasonably certain of plump heavy oats.

Questions

1. Give the average date when early types of oats, such as Iogold and Iowa 105, ripen.
2. When do late oats, such as Swedish Select, ripen?
3. What kind of weather during the filling and ripening period produces the plumpest and heaviest oats?
4. Is this type of weather likely to occur earlier or later in July in Iowa?
5. Which type of oats, small early or large late, will ordinarily ripen at the most favorable time?
6. What advice would you give a farmer regarding the type of oats best adapted to Iowa conditions?

PROBLEM V

The Seedbed and Seeding of Small Grains

The spring-sown small grains are usually seeded on land which has previously been in corn. The corn stalks are left standing in the field until spring, so the farmer is confronted with the problem of getting this ground ready for seeding. He also has to decide how he is going to sow the grain, whether with a drill or broadcast seeder, how early it should be seeded, and how much seed to use per acre. Explain fully how to prepare the seedbed for small grain, the time the seed should be sown, the method to employ, the amount of seed per acre and the method of covering the seed after it is sown.

Questions

1. Why are small grains usually seeded on ground which was in corn the previous year?
2. Why are the cornstalks usually left standing in the field over winter?
3. How can the farmer dispose of these cornstalks when preparing a seedbed?
4. What objections can you give to burning them?
5. Why is early seeding of grain desirable?
6. List the advantages of plowing for spring-sown small grain.
7. List the disadvantages.
8. Can a satisfactory seedbed be obtained with the disk?
9. Give the advantages and the disadvantages of preparing a seedbed with a disk.
10. List the advantages of using a drill for seeding.
11. List the disadvantages of using a drill for seeding.
12. What are the advantages and disadvantages of the broadcast seeder?
13. Make a table showing the amount of seed to use per acre of oats, wheat, barley and flax and the approximate cost per acre of seed of each crop.

PROBLEM VI

The Place of Winter Wheat in Iowa

In Problem I you made a table showing the acreage and acre value of winter wheat, oats and other small grains in Iowa. This table should

have shown that there is a much larger acreage of oats than of winter wheat and that winter wheat has a considerably greater acre value than oats. Does it seem logical that farmers would grow a larger average of a less valuable crop? Can it be possible that there are other factors which counterbalance the extra acre value of winter wheat? Compare all the factors involved, such as cost of seed, adaptability with corn, amount of labor involved, types of machinery needed, risk in growing each, use of each on the farm where raised, marketing problems and any other factors you can think of, and see whether you can explain why Iowa has so many oats and so little winter wheat. Tell just how you think a corn and livestock farmer could substitute part of his oat acreage for winter wheat. Compare the yields of winter and spring wheat and discuss the advisability of growing spring wheat instead of winter wheat.

Questions

1. How many acres of oats are there in Iowa for each acre of winter wheat?
2. What is the cash return from an acre of oats using average yields and average price? From an acre of winter wheat?
3. Why do farmers prefer to raise oats instead of winter wheat?
4. In what parts of Iowa is most of the winter wheat grown?
5. Could farmers in other parts of Iowa grow winter wheat successfully?
6. Does growing winter wheat require any different types of machinery than oats?
7. Which crops, oats or winter wheat, follow corn in the rotation most easily? Why?
8. What special arrangements must farmers make in order to seed winter wheat after corn?
9. List the arguments you would use in advising farmers to grow some winter wheat in place of part of their oats.

PROBLEM VII

The Place of Winter Rye in Iowa

There is a relatively small acreage of winter rye in Iowa, yet some farmers grow it, so there must be conditions where rye has an advantage over other small grains. Get what information you can on rye as to soil adaptation, climatic requirements, uses and cash return, and write a brief discussion on "The Place of Winter Rye in Iowa."

Questions

1. What uses can be made of rye on the farm?
2. What are the commercial uses of rye?
3. How does it compare with oats in cash returns? With winter wheat?
4. How early in the fall must winter rye be seeded? Will this permit sowing it on cornstalk ground after the corn is husked?
5. What type of soil do we find in the rye-growing regions of Wisconsin and Michigan?
6. What relation is there between the rye-growing regions in the above states and the fact that they grow a large acreage of rye? Why?

7. Who would be most justified in growing rye, a man on a sandy farm, or one who had only heavy black soil? Why?
8. Is the man with an area of peat ground on his farm justified in growing rye? Why?
9. Can the farmer who is short on pasture and needs some for early pasturage use rye for this purpose? Explain how it can be managed.

PROBLEM VIII

The figures on flax production show that the acre return for flax is higher than for oats in Iowa, yet Iowa farmers grow a limited acreage of flax. What is the reason? Is flax particular about soil conditions? Is the climate of Iowa unsuited to flax? Is it a risky crop to grow, or difficult to handle, or what are the reasons that the flax acreage of Iowa is so small compared with that of some other crops? Summarize the advantages and the disadvantages of growing flax in Iowa and show under what conditions flax might be grown profitably.

Questions

1. What are the soil requirements of flax?
2. What are the climatic requirements of flax?
3. Is flax hard on the land? Explain why many farmers think it is.
4. Does flax do well only on new land or following sod? What factors are involved?
5. What kind of seedbed does flax require? How can this best be obtained?
6. Where does flax fit into the rotation? Are there any difficulties involved in getting the right kind of seedbed?
7. Does the United States produce sufficient flax for our own needs, or must some be imported? What is the tariff on flax?
8. Are there any marketing difficulties with flax? Explain.

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 11

FORAGE CROPS

PROBLEM I

The term "Forage" has a specific meaning, and yet nearly every crop grown on the average general farm can be used for forage purposes. Define the term and give a number of specific examples of the various forage crops and their uses.

Questions

1. Can a crop be used both for forage and for grain? How?
2. What is the meaning of the term "Soiling Crop"?
3. When does a forage crop become a green manure?
4. Of the crops used primarily for forage, which crop occupies the most acres in Iowa?
5. Why is hay such a common and a valuable feed on most farms?
6. What are the important differences in feeding value between hay and straw?
7. Give some examples of forage crops not adapted to Iowa.

PROBLEM II

Alfalfa and red clover are legumes; timothy and Sudan are grasses. What are some of the differences between these two classes of crops? Should farmers use legumes and avoid the use of grasses? Why?

Questions

1. What do you consider the two or three most typical features of legume plants?
2. What do you consider the two or three most typical features of grass plants?
3. What are nodule bacteria? Where are they found? What do they do?
4. Of what value is inoculation?
5. When and for what crops should it be used?
6. Name as many legumes as you can.
7. Name as many grasses as you can.
8. Describe the flowers of some legume plants which you have seen.
9. How do the stalks of timothy resemble the stalks of corn?

PROBLEM III

Alfalfa and sweet clover are now in general use. In what ways and for what purposes are they good crops to use? What are some of the drawbacks of each? In what important respects do they differ?

Questions

1. In choosing a field for the seeding of alfalfa, what features would you consider?
2. In what ways are the soil requirements of sweet clover like those of alfalfa?
3. Compare the blossom colors of the sweet clovers and of alfalfa.
4. Are these crops annual, biennial, or perennial in duration?
5. How can the seed of sweet clover be distinguished from that of alfalfa?
6. In which of these two crops do the green leaves have a distinct bitter taste?
7. Which is primarily suited for use as pasture?
8. Which is the better hay crop?

PROBLEM IV

A field on which Farmer Brown wants to grow alfalfa has been cropped for many years but has never been seeded to alfalfa. Last year it was in soybeans. What procedure will he probably need to follow in order to obtain a successful stand?

Questions

1. Is this field likely to have plenty of lime? Why?
2. How can a possible deficiency of lime be determined?
3. What is meant by the term "acid soil"?
4. If lime is needed, when and how should it be applied?
5. Will soybeans inoculate the soil for alfalfa?
6. To obtain soil for the inoculation of alfalfa will you go to a field of red clover, of sweet clover, or of rape? Why?
7. What time of the year would you seed alfalfa? Why?
8. Would you use a nurse crop? If so, what would you choose?
9. Would you recommend an application of barnyard manure? Why?

PROBLEM V

Last winter Farmer Jones purchased some high quality seed of red clover and sowed it in the spring with oats as a nurse crop. In August, the stand of clover was weak and thin, not worth saving. What are some of the possible reasons for the failure of this seeding?

Questions

1. What are some of the possible reasons for the use of a nurse crop?
2. In your opinion what is the most important reason? Why?
3. Give some examples of crops used for this purpose.
4. What are some of the differences between good and poor nurse crops?
5. Why do so many apparently good stands of clover tend to disappear about the time the grain is harvested?
6. What are some of the ways of preventing such losses?
7. Should the seedbed for red clover be loose, deep, and mellow, or firm, compact, and shallow? Why?
8. What are some of the soil conditions which may cause seedings to fail?

PROBLEM VI

Iowa is now one of the leading states in alfalfa acreage but produces very little seed; consequently Iowa farmers buy alfalfa seed which has been shipped from other areas. What are some of the disadvantages of such a practice? Is it necessary, and why?

Questions

1. Where are some of the important alfalfa seed producing areas of the United States?
2. What are the general climatic conditions in these areas?
3. How do their winters and their summers compare to ours in Iowa?
4. Would you prefer to buy seed from areas having warm winters?
5. Under what growing conditions will an Iowa alfalfa field sometimes produce a fair crop of seed?
6. Describe an alfalfa seed pod.
7. How many years should a stand of alfalfa be expected to survive on good land?
8. What are some of the reasons why good stands of alfalfa may thin out badly after a year or two?

PROBLEM VII

It has been said that there are no bargains in forage crop seed. This fact is probably true. Cheap seed is almost invariably of low quality. In what ways may red clover seed, for example, be of low quality?

Questions

1. What other crop seed are likely to occur in red clover seed? How objectionable are they?
2. Name some kinds of crop seed which often are purposely mixed with red clover for sowing.
3. Why are they used?
4. The purity test on a sample of clovers shows 5 per cent of inert material. Is this adulteration a serious drawback? Why?
5. Name some of the kinds of weeds found on the average farm.
6. In what different ways do farms acquire new weeds?
7. What conditions of harvest and storage are likely to injure the germination of clover seed?

PROBLEM VIII

Noxious weeds are an increasingly serious problem on the farms of the cornbelt. Farmers must be continually on the watch for noxious weeds in their fields and be up-to-date on methods of control. In what ways are weeds objectionable? Why are some kinds much worse than others?

Questions

1. Is there a definite dividing line between weeds and crop plants? Define the term "Weed".

2. What is meant by the term "Noxious weed"? Give some examples.
3. What is meant by the term "Common weed"? Give some examples.
4. Make a list of kinds of weeds frequently found in meadows, and classify them according to duration.
5. Of this list, which ones are considered noxious, and why?
6. Why do some kinds spread slowly in a rather compact but ever-widening irregular patch? Name an example.
7. What methods of control might be practical while such patches are small?
8. Why do some kinds scatter rather quickly over large areas? Give an example.
9. What methods of control would be most practical for this type?

PROBLEM IX

Careful examination of commercial seed samples of alfalfa, red clover, timothy and similar forage crops reveals that the seed of such crops as offered on the market is especially likely to contain noxious and other harmful weed seed. Considering growing conditions in the field, seed cleaning problems, and so forth, can you give some reasons for the frequent occurrence of harmful weeds in forage crop seed?

Questions

1. To what group do most of our worst weeds belong: annuals, biennials, or perennials?
2. How do plants of each of these groups live over from year to year?
3. How do seeds of red clover compare to those of curled dock in size and weight? To those of Canada Thistle? To those of buckhorn?
4. A 50-bushel lot of alsike clover is condemned as unfit for sowing because of its content of noxious weed seed. What other uses can be made of such seed?
5. What is the length of time in years that stands of the following crops will be maintained without artificial reseeding: red clover, alsike clover, timothy, soybeans?
6. What types of weeds compete most successfully with alfalfa, timothy, or alsike clover?

PROBLEM X

Iowa has nearly as many acres in permanent pasture each year as in corn. Much of this pasture is thin and unproductive. Do you think the pasture acreage should be reduced and put into cultivated crops? Why? Can you suggest any methods of improving poor pastures?

Questions

1. Of what kind of grass are our Iowa pastures chiefly composed? Are the stands of this grass mostly artificial or spontaneous?
2. What are some of the signs of a "run-down" pasture?
3. What are some of the causes of this condition?
4. What is meant by "permanent pasture"?

5. What is meant by "supplementary pastures"? Give some examples.
6. At what times of the year do permanent pastures especially need to be supplemented?
7. Should permanent pastures occupy rolling land or level, fertile areas? Why?

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UNIT V

EFFICIENT PRODUCTION OF QUALITY FARM PRODUCTS

SECTION 12

FARM MECHANICS

PROBLEM I

Considerable discussion in the press and elsewhere and many arguments may be noted relative to the influence of farm mechanization on unemployment, on social standards and on economic security of the nation. Do you think general mechanization of farms has caused a general economic insecurity or a general decline in the well being of the nation's population? Why? Why not?

Questions

1. What per cent of this nation's population was required to produce farm commodities (food stuffs, fiber, and so forth) in 1790? in 1850? in 1910? in 1940?
2. How many man hours of labor were required to produce a bushel and how many to produce an acre of wheat in 1790? in 1850? in 1910? in 1940? How many man hours of labor were required to produce a bushel and how many to produce an acre of corn in 1790? in 1850? in 1910? in 1940?
3. What was the cost of producing each unit in each era mentioned in the above question?
4. Have animal and mechanical power been substituted advantageously to replace human muscle energy to any notable degree?
5. In a period when national defense is a very important problem is it desirable that a small percentage of the population be capable of cheaply producing sufficient foodstuff and clothing materials for the nation?

PROBLEM II

Farm machines are only a means of applying power or energy to accomplish cultural practices or to produce farm commodities, and to relieve human labor burden. What sources of power or energy are available to the farmer for this purpose? Do you think that any one of these sources might be accepted universally to the exclusion of all others? Why? Why not?

Questions

1. What was the status of mankind before the application of power to relieve human muscle energy? Why is power and the machine essential to democratic civilization?
2. List four objectives of agriculture.

3. List three primary reasons for the use of machines.
4. About what time did the increased use of machinery in agriculture begin?
5. List five possible benefits which may result from the use of machinery in agriculture.
6. List five problems or difficulties which may result from the increased use of machinery in agriculture.
7. Define speed, work, and power in terms of time, distance, and force.
8. Define horsepower and horsepower hour.
9. If it requires a 1500 pound pull to operate a plow at 2.5 miles per hour what horsepower is required?
10. What is meant by mechanical advantage?
11. What is meant by efficiency?

PROBLEM III

Mr. Jones called in this morning and asked for some information which would help him in deciding whether to buy a tractor equipped with pneumatic rubber tires or steel wheels for his 160 acre river bottom farm. Would you suggest that he buy rubber tire or steel wheel equipment?

Questions

1. How do soil type and condition affect the efficiency of tractive members?
2. What are the characteristics of rubber tires as compared to steel wheels?
3. What do you understand by the term rolling resistance?
4. What are the chief advantages of the rubber tire on the tractor? of the steel wheel?
5. In what way may cultural practices (such as listing, contouring, and so forth) influence choice of wheel type?

PROBLEM IV

Mr. A has been doing considerable custom work. He would like to know how he may arrive at a fair charge for the use of his tractor and farm machines.

Questions

1. What are the approximate maximum and minimum annual costs for the use of farm machines in terms of percentage of first cost?
2. What is the general average life for farm machines in the aggregate?
3. According to your references, what is the annual use in days of all machines?
4. If a machine costs $100.00, has a useful life of ten years, and an average repair rate of 2% of the first cost (the interest rate is 6% and the cost of housing, taxes and insurance is 2% of the first cost), what is the approximate annual cost for its use in dollars?
5. If this machine is used 150 hours per year what is the cost per hour?
6. If this machine is used on 50 acres what is the cost per acre?
7. If, on the average, a week's delay in planting 100 acres of a crop results in decreased returns of $1.50 per acre, approximately how much could be invested in equipment to prevent such a delay?

PROBLEM V

John's father plans to buy a new plow this fall. This plow is to be used on his hill farm, and he is undecided whether to get a heavy-framed plow or a light plow. He is also undecided as to the type of bottom equipment he should specify. What suggestions can you make that will help John and his father in selecting a plow?

Questions

1. List four reasons for plowing.
2. List four characteristics of good plowing.
3. What do you understand the term "Bottom" to mean?
4. Classify plows according to the following:
   a. Type of bottom
   b. Type of power required
   c. Number of bottoms
5. How many bottoms does a gang plow have?
6. How is the size of a mouldboard plow determined?
7. Under what conditions are shares wider than the furrow used? Shares narrower than the furrow?
8. Give two advantages of the broad base plow.
9. Show by sketch two common methods of laying out fields for plowing.
10. Which plow wheel determines the depth of plowing?
11. What is the purpose of the jointer, and why do farmers frequently discard them?
12. How high or how low should the hitch to a tractor be in order to get satisfactory performance of the plow?
13. Which penetrates more readily, a large or small rolling cutter? Which clogs most easily?
14. A 3-14″ bottom plow plowing six inches deep requires a pull of 1880 pounds to maintain a speed of three miles per hour. Determine draft per square inch of furrow slice and draw bar horse power to operate plow.
15. Why are higher plowing speeds, such as five to ten miles per hour, not used?
16. Show by sketch what is meant by vertical and land suction.
17. Show by sketch the forces acting upon a plow.
18. What effect does moving the point of hitch to the right of the true line of draft have upon the performance of the plow? What effect if the point of hitch is moved to the left?
19. Approximately how far from the furrow wall would the true line of draft of a 14 inch gang plow be found?

PROBLEM VI

Mr. Jackson is planning to start farming next spring on his father's farm. This grain farm of 240 acres has mainly a Webster loam soil. Mr. Jackson is in need of some advice to help him in planning an outfit of machinery that he can use effectively and profitably. Should he buy large multiple row equipment or smaller single row equipment? Why?

Questions

1. List the factors affecting the capacity of a field machine?
2. To what items is time lost?
3. Suggest ways of reducing lost time.
4. If the width of a machine is increased what must be done to routine interrupting in order to maintain the same percentage of uninterrupted capacity?
5. If the speed is increased what must be done to routine interruption in order to maintain the same percentage of uninterrupted capacity?
6. What effect have higher capacity machines had on the relative value of stony and otherwise obstructed land?
7. Outline a plan for determining the machine requirements for a farming situation.
8. List at least five major items to be considered in selecting a machine after the size and the general type have been determined.

PROBLEM VII

In some sections of the State combine harvester threshers are used to harvest a large part of the small grain crop. Do you think they would be practical in this locality? Why? Why not?

Questions

1. List three causes for cracked grain when the combine or the thresher is used.
2. Give five reasons for the presence of threshed grain and unthreshed heads in the straw.
3. What might be done to improve cleaning of grain on combine or thresher?
4. List the three most important advantages of the combine harvester over the binder thresher system.
5. List the three most important reasons why combines are not used more widely in Iowa.
6. Which of these reasons do you consider most important and why?
7. Under what conditions and provisions might the combine harvester be used successfully in Iowa?
8. If it were necessary to harvest a crop with a combine and also save the straw, how would the straw be handled?

PROBLEM VIII

A number of years ago the manager of a very large ranch in western Iowa, on which a huge enterprise of grain and livestock farming is carried on, purchased a large number of corn pickers to harvest his corn crop. These machines were used only one season. Do you think the manager was justified in deferring the use of these machines? Why?

Questions

1. What are the approximate minimum and maximum percentages of yield left in the field by a mechanical corn picker-husker?

2. What are the advantages and the disadvantages of mounting a two-row picker on a tractor and pulling the wagon directly behind the tractor?
3. How would you decide whether or not you could afford to buy a picker-husker?
4. If you owned a mechanical picker-husker, how would you determine whether or not you could afford to use it?
5. If a picker leaves twenty-five kernels per hill, how many bushels per acre does it leave?
6. If 3.5 pounds of ear corn are gleaned from fifty hills, how many bushels are being left per acre?

PROBLEM IX

A few days ago one of the leading newspapers of the state carried a story quoting a prominent Iowa farmer to the effect that permanent farm buildings were not justifiable. Do you agree? Why? Why not?

Questions

1. What are the arguments in favor of a combined feed-storage and feeding barn for cattle, over the shelter without feed-storage? What are the arguments in favor of the latter?
2. What are the requirements for a sheep barn?
3. What are the difficulties encountered in housing different kinds of livestock in the same barn?
4. Why are general purpose barns so common today?
5. What are the new conditions that encourage the farmer to store his crops on the farm?
6. Would you recommend centralized or distributed storage for grain on a dairy farm where all the grain raised is fed on the farm?
7. Estimate the necessary investment in machinery-storage building for an average Iowa farm.
8. A farmer desires to raise early spring pigs in central Iowa. What type of housing would you recommend he build for twenty sows? Give reason.
9. How do the housing requirements of beef and dairy cows differ?
10. Estimate the amount of money you would be justified in spending for buildings in any of the common livestock enterprises.

PROBLEM X

Mr. Smith has purchased one of the oldest homesteads in the county, and it will be necessary for him to rebuild all of the buildings on the farmstead within the next few years. What suggestions can you make to him that will help him in satisfactorily planning the new farmstead?

Questions

1. What factors should be kept in mind in locating the dwelling?
2. Outline a plan of procedure in grouping the service buildings.
3. State a general procedure in re-planning a farmstead.

4. What special points should be considered in choosing the location of a horse barn?
5. What influence will field arrangement have on farmstead location and plan, also on general farm operating efficiency?

PROBLEM XI

A new Rural Electrification project has been organized in your locality, and the lines will be installed near your farmstead; the local dealers for both the gasoline engine-driven home light plant and the individual wind-electric plants have assured you that you can produce power with their plants more cheaply and more satisfactorily than it can be purchased from the R. E. A. cooperative. You are planning to make extensive use of electric energy in pumping water, grinding feed, and so forth, in addition to lights. Do you agree with the home plant representatives? Why? Why not?

Questions

1. Define kilowatt.
2. What is the average annual kilowatt (a) consumption per family using electric energy only for lights and very limited appliances? (b) Make a chart showing the distribution of kilowatts consumed by months. (c) What would the anticipated consumption of electric energy be on your farm if you used it to the fullest practical extent as outlined in the problem?
3. What is the annual kilowatt generating capacity of (a) the common wind-electric plant? (b) Make a chart showing kilowatt output by months expected from a wind-electric plant. (c) What has been the average cost per kilowatt hour for energy produced by home light plants. For wind-electric generators? For gasoline-driven generators?
4. What is the maximum capacity appliance that may be connected to the home plant?

PROBLEM XII

Mr. Smith plans to modernize his home and has been advised that a cesspool is more satisfactory than a septic tank. Do you agree? Why?

Questions

1. On what principle is the modern sewage disposal system founded?
2. How does surface or subsurface water reach subterranean veins commonly tapped for animal and human water supply?
3. In what manner is the effluent of a cesspool discharged?
4. Will the bacteria present in sewerage not exposed to oxygen supply completely digest the sewage?
5. On what principle does the septic tank function? Is it ever necessary to clean out a septic tank if it is properly installed?
6. Why are aeration beds used in connection with septic tanks?
7. Why is it not a good policy to discharge raw sewage into a farm drain tile or open ditch?
8. Can a completely satisfactory septic tank be built by farm laborers?

PROBLEM XIII

Mr. Smith is planning to dig a new well and install a water system on his farmstead. What suggestions can you make to help him develop a satisfactory plan?

Questions

1. Which is the most satisfactory system—one that furnishes fresh water or one that requires storage of large quantities of water for long periods of time?
2. What effect will pipe size have on power required to force water to all outlets?
3. What pipe materials are available for use in the distribution system?
4. What precautions may be taken to avoid pollution of well water by surface drainage?
5. How can pumping equipment be protected against freezing temperatures?
6. What sources of power might be used to pump water on the farm?

PROBLEM XIV

Mr. Kennedy reports that he has considerable trouble during the winter months with a heavy accumulation of frost on the ceilings and walls of his dairy barn and has been told that a ventilation system which will relieve this problem can be installed. Do you agree? Why?

Questions

1. Name the three factors involved in ventilation and explain the significance of each. What conditions would you want in a dairy barn if you were to consider it well ventilated?
2. What is the cause of airflow in a ventilation flue?
3. Does a high relative humidity mean an increase or a decrease in the weight of air per cubic foot?
4. Why is it necessary to insulate ventilation flues?
5. Why is moisture removal a problem in animal shelters while there is rarely sufficient moisture present in residences in winter?
6. What is meant by the term "relative humidity"?
7. What relationship does the relative humidity of the air in a room bear to human comfort?
8. How does the heating of air affect its moisture-carrying capacity?

PROBLEM XV

Some individuals say that the use of insulation alone will solve Mr. Kennedy's problem. Do you believe this? Why?

Questions

1. What is the significance of the transfer of heat in the design of farm buildings?
2. How may heat be transferred? Explain.
3. What three qualities should an "ideal" insulation have?

4. If a man found that the application of one layer of insulating board to the walls of his house would save him two tons of coal annually, could he expect another two-ton saving if he added a second layer? Why?
5. Explain added resistance to transmission of heat when walls with several enclosed air spaces are used.
6. Explain collection of ice inside insulated walls.

PROBLEM XVI

During the drouth years of 1934 and 1936 large numbers of temporary silos were used by farmers in the stricken areas to salvage drouth-damaged crops for livestock feed. Since then many of these farmers have decided to build permanent silos because of their experience with silage as feed. Which type of permanent silo would you recommend—a permanent upright, a pit or a permanent trench? Why?

Questions

1. What are the advantages of the upright silo? The pit silo? The trench silo?
2. How do they compare in cost of construction? In cost of maintenance? In permanence? In per ton capacity?
3. Why does silage freeze only in a narrow border on the outside of an upright silo instead of entirely through?
4. Which silo will give greatest capacity per unit of material used in its construction—a silo of small diameter and considerable height, or one of large diameter and relatively low.

PROBLEM XVII

In the past few years green legume and grass silage have become quite popular with many dairy farmers. Why has it been necessary for farmers to follow precautions to reinforce their old corn-silage structures?

Questions

1. What is the difference between designing a water tank and a grain bin?
2. What do you understand by the term "angle of repose"?
3. What do you understand by the term "static pressure"?

PROBLEM XVIII

Mr. Johnson, who had lived on a farm in south central Iowa nearly all his life, purchased a farm in north central Iowa. In securing a deed to this new farm he found that there was a drainage tax lien that had to be satisfied before a clear title to the land could be delivered. Do you think that land drainage is an important problem in Iowa, or is it only a very local problem?

Questions

1. What fractional part of the entire surface of the earth is available for growing cultivated crops?

2. Of the available land how much is too wet in its natural condition (requiring drainage); or too dry (requiring irrigation); or too steep (requiring erosion control)?
3. One-fourth of all Class A land in the United States is located in Iowa. How much of this prime land has been made usable by drainage?
4. Which state ranks first in amount of money spent for outlet drainage?
5. What per cent of this sum is tax delinquent?

PROBLEM XIX

Mr. A, whose farm is located near a city of about 50,000 population in the southern part of the state, decided that he could make his farm profitable by starting a truck crop enterprise. His county agricultural agent recommended that he should install an irrigation system to assure a return on his investment in the truck cropping enterprise. Would you have made a similar recommendation?

Questions

1. How many acres of truck crops in Iowa are provided with water for supplementary irrigation?
2. If each plot averages 10 acres how many plots are irrigated in Iowa?
3. How many acres might profitably be irrigated in Iowa?
4. What are the common methods of irrigation?

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UNIT VI

Making the most of the home grounds

UNIT VI

MAKING THE MOST OF THE HOME GROUNDS

PROBLEM I

Previous to the depression, the farm was said to be a **business** with a home attached. Now the more thoughtful agricultural leaders say the farm is a **home** with a business attached. Explain the difference in attitude expressed by the two thoughts.

Questions

1. What was the most important reason for the demand for agricultural products previous to the World War and up to 1929?
2. Why did so many young people leave the farm during this period? How great was the number of people in the country-to-city movement?
3. Did this cityward movement of farm labor cut down the crop production, or did mechanization of farm operations greatly stimulate crop production?
4. In what way did the "depression of 1929" cause so much unemployment, and in turn what was its effect upon the farm people?
5. Was there a city to country movement of population during the worst depression years? In general, why is "the land" said to be more secure than the city as a place to live?
6. Many farm people took a greater interest in their homes during this period of depression. Can you explain this?

PROBLEM II

Why is so much emphasis placed upon the operator ownership of the farm? The federal government has effected much legislation to promote farm and home ownership. Its concern is the stability of the democratic form of government. Just how does this stability come about?

Questions

1. What is the chief interest of both the landlord and the tenant farmer as far as the average farm is concerned?
2. In what way does tenant operation of a farm bring about loss of soil fertility, soil erosion, depreciation of farm buildings, and a general unkempt appearance of the farmstead?
3. Do people lose interest, pride, and self respect when forced to live under the above circumstances and in such surroundings?
4. Why is it to the advantage of the landlord to have the tenant take pride in the farm?
5. In what ways has the United States government assisted farmers in holding their own farms?
6. Why should all of us be so concerned about the farm problem?

PROBLEM III

In order to operate a farm with greatest profit, one must endeavor to have all units function with efficiency. Certain buildings function together in certain types of farming. On a general farm where grain and livestock both are produced, what buildings and areas should operate as a group? List the buildings in the house group, the barn group, the feed group.

Questions

1. Why does it pay to plan the farmstead?
2. In choosing a site for the location of a farmstead what are the most important things one should consider?
3. How much land should be allowed for the farmstead on a farm of 160 acres?
4. What size and shape should the barnyard be for the above farm?
5. Should the farm buildings project into the farm court or be even with the fence? What exception would you make?
6. If certain buildings, such as the barn and the machine shed, are closely connected in functional use, why not combine them?
7. Explain how the buildings of the house group, the barn group, and the feeding group should be arranged for the economical operation of the farm and yet give a good appearance.

PROBLEM IV

An attractive farm home in a beautiful landscaped setting with well painted barns and other buildings indicates many things about the farmer and his family who live there. What would such a place indicate to you?

Questions

1. In general, why do people place so much importance upon neat lawns, well painted buildings, good fences, et cetera?
2. It is sometimes said that more farms would be landscaped and kept in good repair except for the fact that taxes would be increased because of such improvements. Do you believe this to be the true situation?
3. At what times could the repairing of farmstead fences, the repairing of minor fixtures, and general clean-up work be done best?
4. Do graveled drives and good walks add to or lessen the amount of work of the farm women?
5. Why are you proud of your farm home? What would you do to make it more attractive?

PROBLEM V

Surrounding the farmstead on the west and the north side of a well developed place is a planting of evergreen or deciduous trees. Obviously these have been placed there for practical reasons. Can you give the advantages of such a windbreak?

Questions

1. In what states are windbreaks of real value in aiding farm operations?

2. Tell in what manner a windbreak saves fuel, makes winter chores easier, and produces a greater gain in feeder animals.
3. What is the approximate distance from farm buildings that a windbreak should be planted in order to catch the snowdrifts?
4. What kind of trees are best to use in your vicinity for windbreak purposes? Deciduous or evergreen?
5. Make a diagram showing the kinds of trees, the spacing, and the number of rows that are to be planted in a proposed windbreak for your farm home.
6. Why should red cedar (Juniperus virginiana) and buckthorn (Rhamnus cathartica) not be generally used in farming country where apples and oats are grown?

PROBLEM VI

In the location of a new farmstead there are several factors to be considered. Some of them are as follows: Operating convenience; public convenience; water supply; drainage; wind protection; outlook. Where you live what factors of the above list are most important? Do other factors need to be considered?

Questions

1. Why should a farmstead be located and arranged for operating efficiency?
2. The term, farm-to-market roads, implies that roads are constructed only for the purpose of hauling produce to market. What other reasons make good roads desirable?
3. Should utility companies be allowed to mutilate trees along the highway? Have you seen highways where this problem has been solved?
4. Do rural people like sunsets and beautiful views, or do they place their farm homes just anywhere without thought to the "offscape"?
5. In naming the farm, do farm owners give the landscape much consideration?
6. From your observation of the new roadside improvement would you say that it promotes safety, controls erosion, lowers maintenance costs, as well as makes the road pleasanter upon which to travel?

PROBLEM VII

Observe that the farm home is located in front of the other farm buildings and is surrounded by a large lawn. The lawn on some farmsteads seems to be a perfect setting for the house, while on others it detracts from the good appearance. Can you tell what should be done to improve a poor lawn?

Questions

1. Is there truth in the statement that "the lawn is the canvas upon which the landscape picture is painted"?
2. What are some of the things to be considered in grading the lawn?
3. Is it a good plan to save the top soil when digging the basement for a house so that it can be used again for the finished grade? Why?

4. If grass on the lawn is considered as a long-time crop, that is to produce grass for 100 years, what is the proper preparation of the soil?
5. Does the usual preparation of spreading out the yellow clay soil and dusting it with a little fertilizer suffice? Why?
6. What is a good lawn mixture of grass seed for your locality? When and how should it be sown?
7. How often should grass be mowed and how short should it be cut in spring? In summer?
8. Explain how to fertilize a lawn.
9. Do leaves or other covering make a beneficial mulch for the lawn during the winter?
10. How can a lawn be kept free from weeds?

PROBLEM VIII

What kind of trees are there about your home? Trees are very important along the country road and about the farm home. Do all trees look alike? How much is a good tree worth?

Questions

1. Are there more evergreen than deciduous trees where you live? Why?
2. Which trees are best to use about our homes—the quick-growing kinds, as the box-elder, the poplars and willows, or the slow-growing kinds, as the elms, maples, and the oaks?
3. Notice the shape and the branching of the various trees. How do trees compare in these respects?
4. Can you name ten kinds of flowering trees that grow in the woods and about the farm home?
5. Give the fall color of ten different kinds of trees. Which do you like best?
6. In planting trees about the farm home, what are the reasons for choosing particular ones to fit definite places?
7. Do some trees grow better in wet places than in dry places? Do some thrive better in poor soil than in rich soil?
8. Why are native trees best to use about the farm yard when one is uncertain about exotic kinds?
9. Why is it best to plant the trees first?
10. Should animals have shade while on summer pasture?

PROBLEM IX

Shrubs are usually placed about the farm home and the lawn and are very important in completing the landscape picture. Just what function do they fulfill and what points should be considered in their selection?

Questions

1. Name at least ten flowering shrubs that are planted about farm homes and school grounds in your vicinity.
2. Why do Japanese barberry, certain types of roses, and hawthorne make good hedge material?

3. Should osage orange, common buckthorn, and common barberry be planted in your area? Why?
4. Are some shrubs bright in color during the winter as well as during the flowering time in spring?
5. Where should shrubs be planted about the farm?
6. Low shrubs ought to be used at the entrance drive from the highway and also between the farm court and the rear lawn. What are the reasons?
7. Should berried or fruiting shrubs be used in the shrub border?
8. In planting a tree or shrub what points must one remember?
9. What are specimen, facer, filler, and accent shrubs?
10. Tell how to arrange shrubs to make a shrub border.

PROBLEM X

Annual and perennial flowers add color, beauty and joy to nearly every home. Where should flowers be used about the farm home?

Questions

1. Do you really know any individuals who do not like flowers? Are they normal individuals?
2. What is the difference between an annual and a perennial flower? Give examples of each.
3. What different kinds of flowers are grown in a rock garden? A wild garden? A cutting garden? A flower border? A formal flower garden?
4. Name some bulbs planted in the fall. Some planted in the spring.
5. Why do some people prefer annual flowers?
6. Why do others prefer perennial flowers?
7. In making a flower border for the farm home grounds why use hardy, dependable kinds?
8. Does the color of flowers lend gaiety to the landscape?
9. State a few simple rules for making a successful flower garden.

PROBLEM XI

In what manner is one able to obtain plants for planting about the farmstead? The cost of a sufficient quantity of plant materials to landscape the average farm home should not exceed that of one painting of the farm buildings, yet the benefits will last for several generations. Inventory the plant materials of a well planted farm home and from this, estimate their replacement value.

Questions

1. What are the advantages of nursery grown stock as compared to those of native collected plants?
2. Just what are the advantages of having a definite plan for farm planting insofar as the plant materials are concerned?
3. Could one do a little planting at a time if a definite plan were followed?
4. Why is it best to deal directly with an established reputable nursery than to buy from a door-to-door agent?

5. When an order is sent what do the words "no substitutions as to variety" mean when written on the order blank?
6. Why are large evergreens and hard-to-grow deciduous plants sent B. B. (balled and burlaped) from the nursery?
7. Is it advantageous to order from a local or a distant nursery? Why?
8. Just what is guaranteed by the nurseryman, and what is meant by "Plant Insurance"?
9. In general, why are medium-sized plants a better size to buy than large or very small ones?

PROBLEM XII

Every farm boy and girl should know how to plant trees, shrubs, and flowers properly. List all the necessary steps in the ordinary planting procedure.

Questions

1. What care should be given nursery stock when it is received from the nursery?
2. Which is better—a plant with a large root system and a small top, or a plant with a large top and only a few roots? Why?
3. Why set a plant in a hole sufficiently large to spread out the roots? Should it be set only as deep as it grew in the nursery?
4. Should plants be set close to foundations and under overhanging eaves?
5. Does the planting-distance formula of spacing plants one-half their mature height apart always work? Mention several exceptions.
6. Is the burlap covering on B. B. stock removed or planted with the ball of earth?
7. Why cut all strings and remove all wire labels from about the main stems?
8. What is meant by balancing the top with the roots?
9. How often and for how long should newly set plants be watered?
10. Wrapping the trunks of transplanted trees serves what purpose?

PROBLEM XIII

The lack of care given to plantings after they have once been started accounts for the unkempt, neglected, "run down at the heel" appearance of many farmsteads. Just what should the farm family do to keep the lawn trees, shrubs, and flowers in a good growing healthy condition.

Questions

1. Is it necessary to care for the lawn, trees, shrubs, vines, and flowers after setting them out?
2. How does one prune a shrub or a tree?
3. If farm fertilizer is used on the farm crops, should it also be used to feed the trees and the shrubbery?
4. What does mulching do?
5. Does edging of the shrub and flower beds add to the neatness of the lawn?

6. Should one keep the shrub border and the flower beds as clean of weeds as he does the corn field?
7. Why are plants sprayed?
8. What kind of injury do canker worms inflict? Plant lice? Scale insects?
9. How are plant diseases controlled?
10. What plants need winter protection in the territory of your home?

PROBLEM XIV

Special features, such as pools, pergolas, fireplaces, bird baths, gazing globes, garden furniture, are desirable items when properly chosen and fitted into the landscape plan as a whole. Should there be a large number of these accessories about the average farm home?

Questions

1. What is the proper setting for each of these garden accessories: a pool, a fireplace, a pergola?
2. Would you prefer a formal, an informal, or a naturalistic kind of landscape about the average farm home?
3. Could the average individual build his own pool or fireplace if he had definite plans?
4. Is there a social as well as recreational value for farm children in such things as a lily pool, an out-of-door fireplace, a bird bath, and so forth?
5. Do you believe that white washing stones and tree trunks adds to the better appearance of the farm home?
6. Would a screened-in porch, an arbor, a paved terrace, out-of-door picnic furniture, or even a garden gate give pleasure and enjoyment to any member of your family?

PROBLEM XV

After studying the problem of farmstead arrangement and farmstead planting do you believe that the landscaping of the farm place is worthwhile economically as well as socially?

Questions

1. Can a money value be placed upon the planning and development of the farmstead?
2. At what value would you estimate the joy and pride that a farm family taken in a well landscaped home?
3. Does a happy family life reflect itself in good citizenship, local and national welfare?
4. Are people more likely to do their best under miserable conditions, such as found in slums, or under conditions found in well landscaped farm homes?
5. Just what are we all striving for in this life, and when is it usually found at its best?
6. Do you agree with former Dean Alfred Vivian of Columbus, Ohio, that

"The farm home is the most important spot upon this earth"? Why do you think this is true?

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UNIT VII

Human problems in agriculture

UNIT VII

HUMAN PROBLEMS IN AGRICULTURE

PROBLEM 1

Agriculture, labor and industry are the three large groups engaged in production. No one producing group can live to itself alone, and none should prosper at the expense of any of the others. How does agriculture fit into the national picture, and how does it compare with the other two groups?

Questions

1. List twenty products you have used during the last month which your own family did not produce.
2. How many of these products originated on the farm?
3. What goods and services do farmers purchase?
4. Which of these three factors was most important one hundred years ago?
5. How do you account for the changed relative importance of agriculture?
6. What is the amount of the total national income?
7. What proportion of this amount is produced by farmers?
8. Do farmers receive a proportionate per capita share of the national income?
9. It has been said that the farmer is both a laborer and a capitalist. Do you agree?
10. What attempts have been made by the government to protect industry, labor and agriculture?
11. What has each of the three groups done to strengthen its own position?

PROBLEM II

Less than half the population of the United States is rural, and more than a third of the rural people are not living on farms. Nevertheless farmers are the largest occupational group in the United States. What are the characteristics of the farming population, and should all persons who are born on farms become farmers?

Questions

1. What is the size of the farm population of the United States?
2. What proportion of the total population is the farm population?
3. Has the proportion of farmers increased or decreased during the past one hundred years?
4. Compare urban population and farm population to determine which has the higher proportion of persons under twenty years of age. Which has the higher birth rate? Which has the higher proportion of adults married? Which has the higher divorce rate? Which has the higher proportion of men?
5. How do you account for these differences?
6. What do you understand by rural population?
7. What is meant by rural non-farm population?

8. Are the latter more like farmers, or are they more like city people?
9. How many farmers do we need?
10. Should all persons born on farms become farmers?
11. What might happen if they did?

PROBLEM III

The steady movement of population from farms to towns and cities involves some of the most serious problems of rural life. In spite of the higher birth rate on farms the urban population continues to grow, while the size of the farm population changes very little. Can farmers continue to send people to urban areas and still keep in the country sufficient material resources, population and leadership for a progressive rural life?

Questions

1. In what census period did the urban population first outnumber the rural?
2. What proportion of farm boys and girls go to town or city to live?
3. Would cities grow without this migration of young people from the farm?
4. Should these young people be considered a farm surplus, or should they be considered essential to city development and paid for accordingly?
5. How much does it cost to rear a boy or girl to eighteen years of age?
6. Do the best young people leave the farms?
7. What social problems arise when young people leave the farms?
8. What social problems arise when farm youth reach the city?

PROBLEM IV

Farm people have the same biological characteristics as people living in towns and villages. Farm people do live in a different environment and have somewhat different experiences. For instance, the business and the home are located together on the farm. Farmers do not live close to other families as city persons do. Farmers have more contacts with growing things and fewer contacts with persons outside their immediate families. How are the attitudes and the activities of farmers influenced by their agricultural occupation?

Questions

1. What is the average number of farm persons per square mile in Iowa?
2. Will this number probably increase during the next ten years?
3. How does the farmer's daily routine compare with the routine of a laborer and a business man?
4. What differences do you note between the physical environment of farm people and that of townspeople?
5. What differences do you note in their social environment?
6. How do environmental factors influence the social contacts of the farmer and his family?
7. Are there any organized groups to which farmers belong exclusively?
8. Are farmers more social or more unsocial than other people?

9. How does the business of farming affect farm family life?
10. How does the use of machinery change the thinking of farm people?

PROBLEM V

All persons born on farms cannot become commercial farmers. They might all be able to make a bare living on the land, but at the present time from one-third to one-half of them go to the towns and cities. Those who remain on the farm do so for a number of different reasons. In no sense are they a standardized product. How can sufficient persons who have the equipment to develop scientific agriculture and improve rural living be selected and encouraged to stay on the farms?

Questions

1. Is there danger of lack of food during the next generation?
2. Is farming a desirable life work?
3. Why do people operate farms?
4. Should persons who fail in other enterprises become farmers?
5. Should a person who inherits a farm operate it?
6. Can a young man without capital get started in farming?
7. How do young people get started in farming?
8. How much education do farmers need?
9. Do rural areas furnish their share of the world's leaders?
10. What steps are being taken by farm people to make sure that capable young people stay on the farm?

PROBLEM VI

Farmers today may choose between two distinctive philosophies of farming. An older philosophy says that farming is primarily a way of life, that a farmer should make a good living, raise most of his food on his farm and pay little attention to the market. The newer philosophy says that farming is the business of raising farm products to sell at a profit. Which of these ideas furnishes the better basis for agriculture today? Can either philosophy be adopted to the exclusion of the other?

Questions

1. What are the characteristics of farming and farm living under the live-at-home system of the pioneers?
2. Can the live-at-home farmer make use of modern machinery and scientific methods of farming?
3. What would happen if live-at-home farming was the only kind practiced in the United States?
4. What changes contributed to the development of commercial farming?
5. Will commercial agriculture require more farmers or fewer farmers?
6. Is live-at-home farming the best method of caring for people not needed in present commercial pursuits?
7. What are the most serious problems which result from commercial farming?

8. What are the effects of commercial farming on farmers' organizations and on rural schools?
9. Which philosophy of farming promotes increases in farm tenancy?

PROBLEM VII

The central problem of rural living is the development on farms of a civilization in line with the highest American ideals. While American ideals of good living have changed, the essentials of good living come from three related kinds of farm activities: (a) Producing things to sell on the market for cash. (b) Producing things to be consumed at home. (c) Producing satisfactions directly by the use of leisure time. If farmers work all the time they may produce more than they can sell and lose the satisfaction which comes from play. If they play all the time they will lack cash income. How can farmers attain the best possible standard of living, and what balance between work and play will contribute most to improve living for farm people?

Questions

1. Do the same ideals of good living apply to living in the country, in the town, and in the city?
2. Do we propose the same standards of good living for farm laborers that we do for city laborers?
3. Do we propose the same standards of good living for farmers in Iowa that we do for farmers in other parts of the United States?
4. How has commercial agriculture changed our ideas of good living for farmers?
5. Should commercial farmers have a garden?
6. Should farmers bake their own bread, do their own sewing, their laundry and similar tasks?
7. How does the farmer's scale of living compare with the scale of town and city dwellers?
8. Should farmers work all the time?
9. Should children work on the farm?
10. How much leisure do farmers have?
11. How do leisure time activities of farmers and those of townspeople compare?
12. What leisure time activities contribute the most satisfaction to rural living?

PROBLEM VIII

Group ways are the most effective methods developed by man to stimulate personal development and to raise the standard of living. Man is a social creature, and down through the ages he has developed various means of communication; language, the telephone, the radio. Developments in transportation kept pace first with the horse, the auto, and now the airplane. These developments are changing the number and kind of human groupings from small groups to large crowds and publics. Farmers are

also changing from personal face-to-face groups to the impersonal contact of books and movies.

These changes are extremely important for farmers whose interests and contacts have reached world-wide proportions. How can farmers come to understand these new groups, this new world of organization? How can they make the best possible use of group ways to improve rural living?

Questions

1. What are the advantages and the disadvantages of group action when compared to individual action?
2. What different kinds of groups do you recognize around you?
3. Which of these groups are primary and personal, and which are secondary and impersonal in type of contact?
4. Which groups are relatively permanent, and which ones may be dissolved in ten years or less?
5. To how many groups do you belong?
6. How many of them did you join voluntarily?
7. How does your experience compare with that of other persons whom you know?
8. How do you account for the wider social contact and association of farm people?
9. What effects does this wider contact have on group life of farm people?

PROBLEM IX

Certain well-defined groups have become so important through the ages that they have been generally accepted. More common among such groups are family, church, school, and government. Such groups have functions which are considered desirable by everyone. Institutions emphasize ways of acting which are fixed and definite and which are generally understood and appreciated. These institutionalized ways of acting, folkways and forms of organization, are passed on from generation to generation. They are the backbone, the rigid framework, of our civilization. These institutions were originally developed as parts of rural society. Farmers today depend on these institutions more than do city people. How do these institutions compare to other more temporary forms of organization, and how can farmers use these institutions to advantage in a changing world?

Questions

1. What is an institution?
2. Why do farmers cling to the rural school and the rural church?
3. What other institutions, in addition to home, school, church, government, and farm organizations, might be included?
4. Which folkways may be considered as group rules of social behavior?
5. How do these folkways differ from country to city?
6. What would society be like without institutions?
7. What are some of the disadvantages of institutions in rural life?
8. How may these disadvantages be overcome?

PROBLEM X

The family does much more than furnish us with food, clothing, and shelter from the time we are born until we can earn them for ourselves. In the family we are brought into the world and taught to live as our parents live. The family is the base from which we go as we explore the possibilities of associating with other persons in other groups. The family furnishes the basic social environment for the development of the human personality.

The farm family is especially important. Farm life is family life, and the farm family the seedbed of the race. What are the functions of the farm family, and how may the values of farm family living be retained?

Questions

1. How does farm family living influence the development of personality?
2. In what sense is the farm family the basis of civilization?
3. In what sense is it the seed bed of the human race?
4. Does the farm family exert too much control over its members?
5. Why is such a large proportion of farmers married?
6. What changes are taking place in the functions of the family?
7. How can farm boys and girls learn to live differently than their parents lived?
8. Is the farm family keeping pace with changes in rural society?
9. What functions or values of farm family living should be retained?

PROBLEM XI

The farm home is the place where the family lives and works. It is important, therefore, that farm homes be up-to-date and have up-to-date conveniences for comfortable living. If the farm home is to compare favorably to homes in towns and cities, there is the immediate question whether the farming business will supply the cash to pay for these conveniences. Some conveniences, such as electricity and water, cost more in the country where they must be transported long distances or where a generating plant must be purchased, a well dug and a pump installed, than they do in the city. Then, the needs of the farming enterprise itself always compete with the need for a better home. Farm tenancy further complicates the situation.

How do farm homes compare to town and city homes? Can the farm home be modernized to provide suitable conveniences for comfortable living in the country?

Questions

1. How do farm housing conditions compare to those in town?
2. How do you explain the fact that the proportion of families which own their own homes is larger in Des Moines than it is among farmers in Iowa?
3. Which is more important on the farm—a modern barn or a modern house?
4. What conveniences are essential for an up-to-date home?
5. What proportion of farmers have these conveniences?

6. Have advances in living kept pace with advances in farming?
7. Should the farm home grounds be landscaped?
8. How does farm tenancy affect the modernizing of the farm home?
9. What organized programs are under way in rural areas by means of which farmers may more easily modernize their homes and obtain modern home conveniences?

PROBLEM XII

It is generally conceded that the general education of farm people and other persons should be the same. Beyond this general education, a farmer should have a technical education which will enable him to do a good job of farming. These are the larger problems faced by the schools and the various educational agencies set up to supplement them. Can farmers continue to provide general education for both rural and urban dwellers, and, at the same time, equip themselves educationally for the highly technical business of scientific agriculture?

Questions

1. What are the principal educational agencies available to farm people?
2. Aside from the schools, which of these do you think are most important?
3. What educational problems arise from the fact that many farm boys and girls go to town?
4. Do the best educated young people stay on the farm?
5. Should towns and cities help maintain the rural schools?
6. How does the amount of schooling obtained by farmers compare with that of persons in town or city?
7. Who is better educated—the farmer or the farmer's wife?
8. Who is better educated—the farmer or the farmer's children?
9. Do farmers need as much general education as do town and city people?

PROBLEM XIII

The extension of educational requirements has placed an impossible task on rural schools. At the same time, changes in transportation and communication have made reorganization possible. How can the rural school system be reorganized to give adequate general and technical education at a price farmers can afford?

Questions

1. How many one-room schools are there in Iowa?
2. How do you account for this large number?
3. Can a one-room school give its pupils a modern educational and social experience?
4. Can a one-room school serve as a center for community activities?
5. Why do relatively few graduates of one-room schools attend high school?
6. If all farm boys and girls graduated from high school, does it seem probable that more of them would leave the farm?
7. What are the advantages and the disadvantages of multiple unit schools for rural pupils?

8. Is the added education obtained in the larger schools worth the extra cost?
9. Can better schools be financed without undue burden on the farmer?
10. What steps are town schools taking to obtain pupils from the country?
11. Should all farm boys and girls attend school in town?
12. Do farmers need a college education?

PROBLEM XIV

Farmers have traditionally been very religious people. Faced by the facts of scientific agriculture there is some question whether farmers are as religious as formerly. Changes in the rural community make it easier for farmers to attend church in town. Should farmers give up the country church and go to church in town? Town dwellers influence the answer which farm people give to this question.

Questions

1. Are persons in contact with nature more religious than those who are not?
2. Are young people less religious than older people?
3. Does scientific knowledge destroy religion?
4. Which has greater influence on the rural church—changes in agricultural practices or the expansion in size of the rural community?
5. What other factors affect the success or the failure of the rural church?
6. Are rural churches large enough to operate economically?
7. Should the towns help finance rural churches?
8. Should farmers generally attend church in the town?
9. What is the responsibility of the town for making farmers feel at home in town churches?
10. How can persons with religious differences cooperate to maintain a church organization?

PROBLEM XV

Farmers like to feel that they are relatively independent. With the rise of national government, farmers find it difficult to remain independent and not be at a disadvantage in comparison to other groups which receive government aid. The decline in the importance of local government is also a factor in this situation. How can farmers maintain democracy in local and national government?

Questions

1. Are farmers more in favor of democracy than other people?
2. Is local rural government essential in a democracy?
3. What functions of local government have been taken over by state and national governments?
4. What new functions have been developed by state and national governments in the United States during the past ten years?
5. How many different kinds of government aid can you mention?
6. Does government aid impair personal initiative?

7. Does government aid impair rural organizations?
8. Is government aid to farmers essentially any different from that given laborers or business men?
9. How can the democratic character of rural government be maintained among rural people?

PROBLEM XVI

Large-scale organization of farmers is a relatively recent development. In fact, it has come about mostly since the rise of commercial agriculture and in those areas where farmers were in evident distress. Four national farm organizations and a number of smaller ones have attained prominence during the past one hundred years. Success attained by these organizations indicates clearly that farmers can organize. It indicates also that these organizations are becoming a fixed and definite part of the farm scene; that is, they are becoming institutionalized in their present form. Can farmers depend upon farm organizations to promote their interest in economic, political, educational and social matters?

Questions

1. Name the four large national farmers' organizations.
2. Which one was the first to be organized?
3. Which one was organized last?
4. Which one has the most members in Iowa?
5. What is a farmer movement?
6. Is it true that farmers organize only when they are in trouble?
7. Have farm organizations ever cooperated actively with labor organizations?
8. Why did farmers have to organize as soon as commercial agriculture was the general practice?
9. Name some of the accomplishments of farmers' organizations in each of the following fields: Economic or business, political, educational, social.
10. Which of these do farm organizations stress most in their present programs?

PROBLEM XVII

Some of the most important special interests of farmers have had no special organization to represent them. There is evidence of the growing importance of these problems for farm people. The trend toward specialized organization for persons interested in special problems has placed these problems outside the realm of general consideration by older established institutions. Some of these emergent groups will undoubtedly endure, but the mortality among them is extremely high. Some have promise of becoming permanent and institutionalized; others are based upon nothing more permanent than a passing fancy. Farmers, generally inexperienced in these more transitory special groups, are perplexed by the great number of them springing up in rural areas and the seeming lack of coordination

among them. Are special interest groups a permanent part of the American scene, and how may farmers use them to advantage?

Questions

1. What is a limited-interest or a special-interest group?
2. Why is this kind of group so important to farmers at the present time?
3. How do you account for the rapid increase in the number of organizations among farm people?
4. How does specialization affect rural organizations?
5. To how many organizations should farmers belong?
6. Do special interest groups interfere with or supplement the operation of rural institutions?
7. How can leaders be developed for rural organizations?

PROBLEM XVIII

Health has always been a matter of major concern. Rural people have taken it largely for granted because of the healthful advantages of their natural environment. As medical practice developed health was still an individual matter to be guarded and restored with the aid of a physician. Only recently have people, especially rural people, come to realize that health is a matter of social importance, that prevention is more effective than cure and that organized means are needed to furnish conditions under which health may be properly safeguarded. The development of such organizations in rural areas has been neglected. How can farmers best organize to meet rural health needs?

Questions

1. Are health conditions becoming worse in rural areas, or are farmers becoming more conscious of health problems?
2. How do rural health conditions compare to conditions in town?
3. Are physicans available for country calls?
4. How does the price for country calls compare with the price for calls in town?
5. Are hospital and nursing services available to farm people in our rural counties?
6. What is a County Health Unit, and how is it organized?
7. How many county health units are there in Iowa?
8. What are the advantages and the disadvantages of the county health unit?
9. What other organized health services are available to farm people?

PROBLEM XIX

Many older farmers were educated before the present development of science in agriculture. Farmers recently completing school realize that they must continue their studies in order to understand current problems. Each new problem brings its new demand for more education. Books and newspapers, libraries and extension service make the newest information currently available. New organizations are needed to bring these facts to the

attention of farm people. Organizations of farmers are needed to disseminate the information and to conduct demonstrations of the new methods. More recently the schools have entered the field of adult education, with considerable success. How can farm people develop a suitable plan by means of which they can continue their education and so gain the information necessary to solve current problems?

Questions

1. Why is out-of-school education important?
2. Should out-of-school education be general or vocational in character?
3. What agencies have programs of out-of-school education for farmers?
4. How are these educational programs financed?
5. What assistance does the local, state, and federal governments give to out-of-school education for rural people?
6. Does your school or your town have anything comparable to this?
7. What proportion of farm people can borrow books from a free library?
8. How many farmers borrow books from the local library?
9. How are farm organizations promoting rural out-of-school education?

PROBLEM XX

Farmers taught to believe that work was good and that more work was better have some trouble adjusting themselves to the machine age and the possibility for leisure which it brings. Commercial enterprisers, movie operators, and others are quick to capitalize on this situation and get their share of the farmers' dollars. The older forms of recreation still interest farmers, but radio plays an important role, and the automobile makes taking part in group games and other organized activities easier for farmers. Farmers are concerned about recreation as never before. How can they select suitable recreational activities, obtain the necessary facilities and develop the leaders for an adequate recreation program?

Questions

1. What kinds of recreational activities can you mention?
2. What are the chief differences between the recreation of farmers and that of other people?
3. How much leisure time do farmers have?
4. Should farmers take annual vacations?
5. Do farmers prefer commercial recreation to their own programs?
6. Do farmers lack organizations to sponsor recreation programs?
7. Do farmers have suitable meeting places for active recreational programs?
8. Do farmers have sufficient leaders to direct recreational activities?
9. How does the country compare to the city in the above mentioned factors?
10. Should the recreational facilities of the schools be made available to out-of-school farm groups?

PROBLEM XXI

The farmers' neighborhood club has now become the local unit of the larger farmers' organization. Many farmers and their wives still belong

to fraternal orders of various kinds, but more and more of their activities are in connection with the general farmers' organization and the program of the Agricultural Extension Service. Card clubs, sewing clubs, book clubs, and civic clubs of various kinds are increasing in number and compete for their share of the leisure time of farm women. Will these clubs become a permanent part of the organized activities of farm women, and will other groups take over the fraternal and social functions previously performed by the lodges?

Questions

1. Do farmers have more social life than they had twenty years ago? Fifty years ago?
2. What lodge groups are active in your town?
3. Do lodges have more members now than they had twenty years ago?
4. How many farmers belong to fraternal lodges in your town?
5. Should farm organizations have a social program?
6. Do farm women belong to farm organizations?
7. How many card clubs, book clubs, or social clubs are active in your community?
8. Why do so few farmers belong to social clubs?
9. Does your community have an organized P. T. A.?
10. Should the school facilities be available for community-wide social events? For special groups?

PROBLEM XXII

Heretofore the arts of good farming and good homemaking were the principal arts developed on the farm. During recent years other arts have developed in the country, as a means of self-expression and social enjoyment. Music, at one time developed in the neighborhood singing school, now is taught in the schools, and trained groups under competent direction attain a high standard of amateur performance. Drama groups are developing likewise. Neighborhood minstrels and one-act plays provide limited forms of expression. Plays have come to be recognized as good "money raisers" for community events, while class plays in high school have become traditional. Wider participation in such activities and high standards of performance would add much to the opportunities for artistic expression for rural people. Can rural people promote the organized development of music, drama, and other arts in rural life, and what effect would such development have on the recreational activities of farm folks?

Questions

1. How do you distinguish between enjoyment of art and recreation?
2. Does the farmer's environment help him to appreciate art?
3. What farm groups have a program for the development of rural arts?
4. What is included in these programs?
5. Is there a county farm women's chorus in your county?
6. Does your county have an annual rural talent festival?
7. Have rural music or drama groups from your community or your county

ever performed at the Iowa State Fair? At the Iowa State Farm Bureau Convention? At Iowa State College?
8. What is the school program for promoting the arts?
9. How many farm boys and girls are taking part in these activities?

PROBLEM XXIII

In the past, farmers have usually been able to make a living by hard work. Commercial agriculture has developed to the point where it is no longer possible for all of them to do so. Migrant farmers and farmers on relief testify to the fact that not all of them succeed. At the same time some of the more important measures for social security do not apply to the farmer and his family. Can social security be attained by making farming less hazardous or by making farmers eligible for social security benefits?

Questions

1. Are there farming areas in the United States where the soil is so poor that it is impossible for farmers to make a good living?
2. Where is the density of farm population greater—in good farming areas or in poorer farming areas?
3. Why was it necessary for the Federal Government to assist the states in carrying their relief burdens?
4. Is it true that the more corn farmers raise the less money they receive for it?
5. How many families are receiving public assistance in your county?
6. How many of these persons are living on farms?
7. How many of them are farmers by occupation?
8. Is the number of persons receiving old age assistance increasing or decreasing in your county?
9. How many of the social security benefits can be obtained by farmers?
10. How many farmers are being assisted by the Farm Security program in your county?
11. How do you account for the fact that public assistance has decreased so little in Iowa since the peak of the depression need?

PROBLEM XXIV

Farmers are careful planners. The nature of their business demands that they maintain a long-time point of view. Recent events lead them to believe that social and economic planning is necessary. Recent experience in organized groups leads them to believe that desirable results can be attained. Planning is the keynote of the new agriculture. What are the resources available for planning, the results to be achieved, the major problems involved, and some of the ways in which these problems are being met?

Questions

1. Does contact with nature make it difficult for farmers to plan?
2. Do natural causes exert more influence on farming than they have formerly?

3. Why is planning more necessary for farmers now than formerly?
4. What agencies for planning are actively working in your county?
5. What is the county agricultural planning committee?
6. Who belongs to it?
7. What is its program in your county?
8. Through what action agencies is it working?
9. What is the relation of agricultural planning to farm organizations? To the State Agricultural College? To the Federal Government?
10. Does Iowa have a state planning board?

PROBLEM XXV

The farmer and his family used to go to town only on Saturday night; now they attend many activities in the towns. They have become an important part of the life of the town. The services of the town are essential to the farmer, and the support of the farmer is essential to the town. The increasing interdependence of farm people, and town and city people is basic to any consideration of the larger rural-urban community. Farmers and townspeople have been quick to recognize the closer relationship, but they have not always been ready to accept the added responsibility. How can mutual responsibility and effective cooperation be developed as a basis for the larger town-country community?

Questions

1. How many of your townspeople have relatives living on farms?
2. What do farmers now buy in town that they used to produce at home?
3. How large a proportion of the business of your town is done with farmers?
4. What professional, educational, social, and recreational services do farmers obtain in your town?
5. To what town in your vicinity do farmers go most frequently?
6. What is the population of this town?
7. Why do farmers go to larger towns more frequently now than formerly?
8. What do farmers expect of their town more than the essential services above mentioned?
9. What is a community?
10. Does your town work with farmers on farm problems?
11. What is being done to develop more cooperation between town and country people?

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ADDITIONAL SOURCES OF INFORMATION

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The Grange (No state office), Ralph Smith, Master, Newton, Iowa.
The Iowa Farmers' Union, Grand Avenue, Des Moines, Iowa.
State Board of Social Welfare, Iowa Building, Des Moines, Iowa.
State Department of Health, State House, Des Moines, Iowa.
State Department of Agriculture, State House, Des Moines, Iowa.
State Department of Public Instruction, State House, Des Moines, Iowa.

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These bulletins may be obtained by writing to the Iowa State College Extension Service, Morrill Hall, Ames, Iowa.