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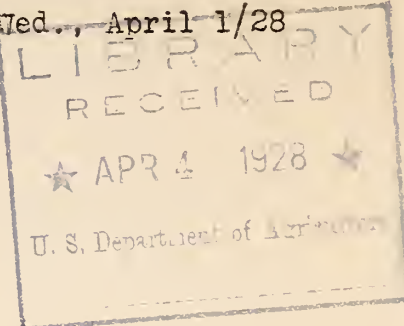
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In 3Fs
U. S. RADIO FARM SCHOOL

NOT FOR PUBLICATION

Farm Economics Meeting No. 28.

SUBJECT: Cooperative Marketing of Livestock.

Wed., April 1/28



ANNOUNCEMENT: Cooperation is a live subject in our farm club these days. Last meeting our members were talking about the cotton co-ops. That bunch down there with Jim Parker and that Department of Agriculture expert now seem to be talking livestock ---- Listen ----

EXPERT: -- Oh, there are about five thousand local livestock shipping associations in the United States now ---

PARKER: -- Do all those five thousand just ship livestock?

EXPERT: Well, about three thousand of them make livestock shipping their main business. The rest of them handle livestock as a side line.

PARKER: How much livestock does one of those co-ops handle in a year's time?

EXPERT: Of course, that varies. Some handle only a few carloads. Others handle more than a thousand carloads of livestock a year. As I remember the figures a year or two back, the total value of sales by the livestock locals in a year was about four hundred million dollars.

PARKER: That's getting up into real money! Most of those co-ops have been started in the last few years, too, haven't they?

EXPERT: The first local livestock shipping association was started more than fifty years ago.

PARKER: Is that so! I thought they were newer than that.

EXPERT: Well, the movement made little progress for about the next forty years. It is only since 1915 that numbers of local livestock shipping associations have sprung up in the Corn Belt and other sections of the country.

PARKER: That's what I was thinking. But, when you come right down to it, can these local shipping associations really show that they're saved money for the livestock farmers?

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EXPERT: Yes, they make substantial savings for the farmers. Investigation shows that in Iowa, net savings of from twenty to seventy-five cents a hundredweight are being made by the majority of the successful associations in that State. And it seems to be pretty much the same story in several other States as well. Not only that, but local shipping associations help farmers in other ways ----

PARKER: What other ways?

EXPERT: Well, they help the big feeders and ranchmen as well as the less-than-carlot shippers by shipping the stock when it is ready for market.

PARKER: What else?

EXPERT: Managers of local associations encourage livestock producers to go to market with the association shipments ----

PARKER: What good does that do?

EXPERT: That helps farmers to become familiar with market methods and practices. The local associations also furnish a medium through which the terminal associations can reach the farmers with information on market situations and probable trends of receipts and prices.

PARKER: Tell me about those terminal livestock co-ops. They are newer than the local co-ops, aren't they?

EXPERT: Yes, the first terminal cooperative livestock commission association was started in 1889.

PARKER: Is that so? It didn't last did it?

EXPERT: No, it didn't last. A second attempt was made in 1906. It didn't last either. The first permanent association was organized in 1917.

PARKER: How many are there now?

EXPERT: Today there are twenty-five terminal livestock commission agencies operating on nineteen central markets.

PARKER: Are these terminal livestock commission associations receiving the support of the local associations?

EXPERT: Oh, yes. The local shipping associations furnish about sixty-five per cent of the receipts of the terminal cooperative livestock associations.

PARKER: I guess these terminals must do a sizable business too?

EXPERT: Last year, the terminal livestock commission agencies, all in all, handled around eleven million head of livestock valued at about two hundred and sixty-million dollars. In 1926, they handled, on an average, over sixteen per cent of the total livestock on the markets where they operated.

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PARKER: That's just in one year?

EXPERT: Yes, if you count from the time they began operations, these livestock terminal agencies have handled around sixty-two million head of livestock with a value of about one billion four hundred million dollars.

PARKER: How much of that was savings for the farmers?

EXPERT: Well, from the beginning of operations to the end of 1927 the terminal cooperative commission agencies saved farmers about five and a half million dollars in reduced commissions and in amounts paid back to shippers in the form of cash refunds. Cash savings, however, are the least important of the benefits of the cooperative livestock commission associations.

They also work with the traffic departments of the railroads to get better train service. And they work with local associations and individual shippers to help them get better facilities for handling livestock at local points. Then, too, they help organize shipping associations where they are needed and where farmers want them. Some associations have established transportation and claims departments. Some have also organized credit corporations to finance stockmen in their feeding operations.

PARKER: Yes, and they get up these pools for moving stock direct from the range to the feedlot, don't they?

EXPERT: Yes, that's another important thing they do. They also do a good bit of educational work.

PARKER: What kind of educational work?

EXPERT: They invite groups of shippers, educators, and others to the markets so they can study and become acquainted with market methods and practices. They give special attention to girls' and boys' clubs and to vocational agricultural activities. Then, you know, they furnish information on markets, prices, and cooperative marketing generally through their official papers and other publications. Some of the terminal associations cooperate with the extension departments of the agricultural colleges in arranging for livestock grading demonstrations -----

PARKER: Since you mention all those things, I guess those terminal livestock co-ops do help at that.

EXPERT: Yes, the farmer-owned and farmer-controlled livestock agencies, both locals and terminal, have made some substantial contributions to the livestock industry. And what's more, they'll probably do much more for American agriculture in the years to come.

ANNOUNCEMENT: Any of you who wish one of those radio bulletins on cooperative marketing can get one by writing us. We also have a bulletin on "Marketing Farm Products" and one on "The Business of Farming" which can be had for the asking.

THE HISTORY OF THE COUNTY OF MIDDLESEX

IN THE REIGN OF KING CHARLES THE FIRST

BY JOHN STUBBS

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U. S. RADIO FARM SCHOOL

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RECORDED
MAR 23 1934
Monday, April 2.

Crops and Soils Meeting No. 27a.

SUBJECT: Soy Beans.

ANNOUNCEMENT: Who, that man talking there now? --- Oh, that's the expert from the Department of Agriculture. He's telling some of our farm club about soy beans --- Now, listen ----- That's John Morgan he's talking to -----

MORGAN: You say soy beans have been grown in this country for years and years? I never heard much about them until about ten years ago.

EXPERT: That just shows how hard it is for a new crop to win its way. You mark my word, soybeans will be one of our chief crops some of these days.

MORGAN: Why? --- Why have soy beans increased so fast in the United States?

EXPERT: There are several reasons ----- and they are all good ones.

MORGAN: What are they?

EXPERT: In the first place, the soybean is an annual legume. It fits well into rotations either as a main or as an emergency crop. Not only that, but it is adapted to a wider range of soil and climatic conditions than any other legume.

MORGAN: What else?

EXPERT: Why, it is adapted to so many uses. And it is relished by all sorts of farm animals. It is the richest protein grain produced on the farm. It is also the richest nitrogenous forage adapted to most farms.

MORGAN: That is certainly a lot in its favor.

EXPERT: Yes, and besides that, the soybean has few diseases and insect pests. And it ranks well as a cash grain crop for the production of oil and oil meal. Fact is, indications are that the future increase in soybean acreage will be largely for the production of oil and oil meal. But, of course, it will probably continue to grow in importance as a forage crop, too.

MORGAN: What is soybean oil used for?

EXPERT: Soybean oil is used largely in the manufacture of soaps, paints, varnishes, butter and lard substitutes, enamels, lubricating oils, printing ink, and substitutes for rubber.

MORGAN: What's the soybean oil meal good for?

EXPERT: The soybean oil meal left after the oil is pressed out makes a highly nitrogenous foodstuff. It is used for human food and is a highly nutritious stock feed for all kinds of farm stock. Like cottonseed meal it contains considerable amounts of phosphoric acid and potash, but is principally valued in fertilizers as a source of nitrogen.

MORGAN: They tell me that over in Asia the people use soy beans for food a lot more than we do over here. Is that so?

EXPERT: Oh, yes. In number of uses and value the soybean is the most important legume grown in Asiatic countries. And it is grown primarily for seed which is used to a very considerable extent in the manufacture of numerous products for human food. Now, on the other hand, in the United States, the use of the soybean for food has been very limited. However, during the past few years, the number of companies producing soybean food products in this country has increased considerably. Soybeans are now being made into breakfast foods, crackers, wafers, soy sauce, bean curd, soy flour, and special preparations for various purposes.

MORGAN: But most farmers in this country grow soybeans for forage don't they?

EXPERT: Yes, soybeans are largely grown and used for pasture, hay and silage, and often as a green manure or cover crop for orchards.

MORGAN: And you say soy beans are good for all kinds of livestock?

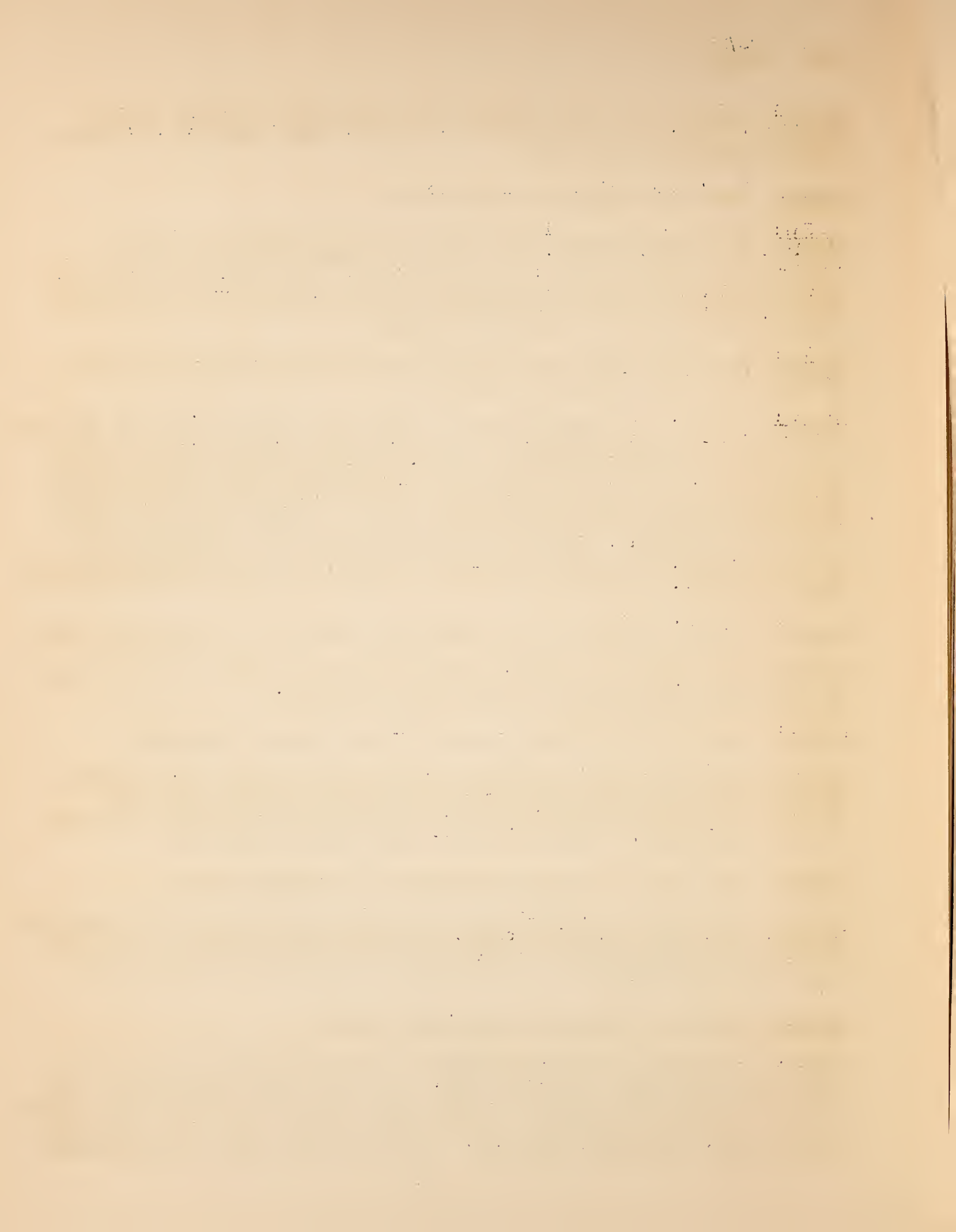
EXPERT: That's what feeding tests and practical experience show. Soybeans are valuable for beef and dairy cattle, hogs, sheep, horses, mules, and poultry. The soybean offers one of the cheapest forms of protein. And that protein, undoubtedly, is one of the best plant proteins there is.

MORGAN: What's the best way to use soybeans as a pasture plant?

EXPERT: The soybean is probably most profitable when fed to hogs to supplement the corn ration and when fed to sheep. Used that way, the crop is not only profitable in feeding value, but also makes the soil more fertile from the manure and refuse vines.

MORGAN: How does it compare as a hay with alfalfa?

EXPERT: If soybeans are cut for hay at the right stage and if they are properly cured, they make a first-rate hay; a hay with high feeding value. Comparative feeding tests show that soybean hay is equal to red clover and alfalfa for milk and butter production. It also makes a fine winter ration for young cattle, sheep, and horses, and mules. And it has been used to good advantage



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for hogs and poultry. But I wouldn't advise you to feed soybean hay alone ---

MORGAN: Why not?

EXPERT: Because the high feeding value of soybeans may cause digestive troubles. It is too rich by itself.

MORGAN: It is all right for silage to go with corn isn't it?

EXPERT: Yes, it is a valuable supplement to corn for silage. The growing of soybeans for that purpose has increased a good bit all through the Northern and Central States and in some of the Southern States. Having a high protein value, the soybean has an important place among soiling crops, also. And it may be fed to good advantage with less nitrogenous crops, such as corn, sorghum, and millet. As it is drought resistant, it will furnish green forage in the summer when pastures are likely to be short.

Soybeans are often used as an emergency crop when new seedings of grass and clover fail or on wheat or oat stubble where grass or clover has not been sown. You may also use soybeans to replace other crops when poor stands are obtained with late plantings.

Soybean seed contains 30 to 40 per cent protein. Growing soybean seed will enable you to produce at a moderate cost at least part of the high protein concentrate necessary for stock feed and milk production.

Then soybean straw is a valuable feed. It makes a fine roughage for wintering idle work horses and mules, and for cows and lambs.

MORGAN: How about soybeans as fertilizer? How do they compare with other crops grown for green manure?

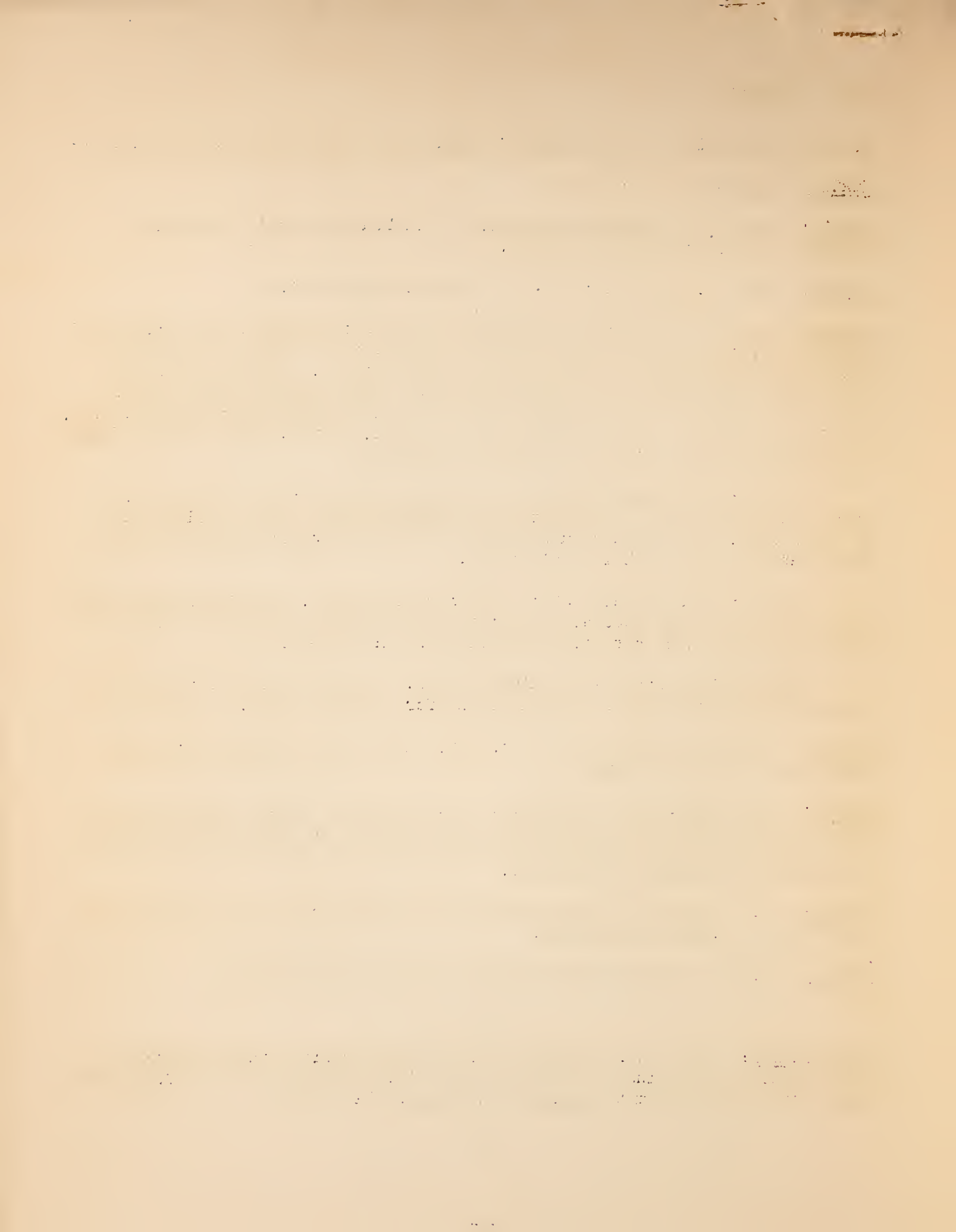
EXPERT: They compare very favorably. When the whole soybean crop is plowed under, large quantities of nitrogen are returned to the soil. However, when you remove the soybean crop for seed or hay it is not as good as the clovers and alfalfa in building up the soil.

MORGAN: No. I guess you could hardly expect that; but I never realized soy beans were as useful as they are.

EXPERT: Oh, yes, soybeans are becoming one of our major crops.

ANNOUNCEMENT: Any of our listeners who have not received those pamphlets on "The Business of Farming" the "Marketing of Farm Products" and on "Cooperative Marketing" can get them by application through this Station.

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U. S. RADIO FARM SCHOOL

Mon. April 2, 1928.

Crops and Soils Meeting No. 27b

SUBJECT: The Curly Top Disease of Sugar Beets.

ANNOUNCEMENT: Who? That man talking there now? --- Oh, that's the expert from the Department of Agriculture. He's telling some of our farm club members about sugar beets ----- Now, listen ---- That's John Morgan he's talking to -----

MORGAN: You say the curly top disease is carried by a little insect?

EXPERT: Yes.

MORGAN: Does that insect go after anything except sugar beets?

EXPERT: Oh, yes. In years when that insect, the beet leafhopper, is very plentiful there is heavy damage to several other important crops. In particular, the virus the leafhopper carries causes a severe disease of beans and a very destructive disease of tomatoes known as Western Yellow Blight or tomato yellows. And, as you all know, the losses from curly top reach sizable figures every year. Some seasons the losses from curly-top ^{in certain sections} are so big as to amount to almost a total failure of the sugar-beet crop -----

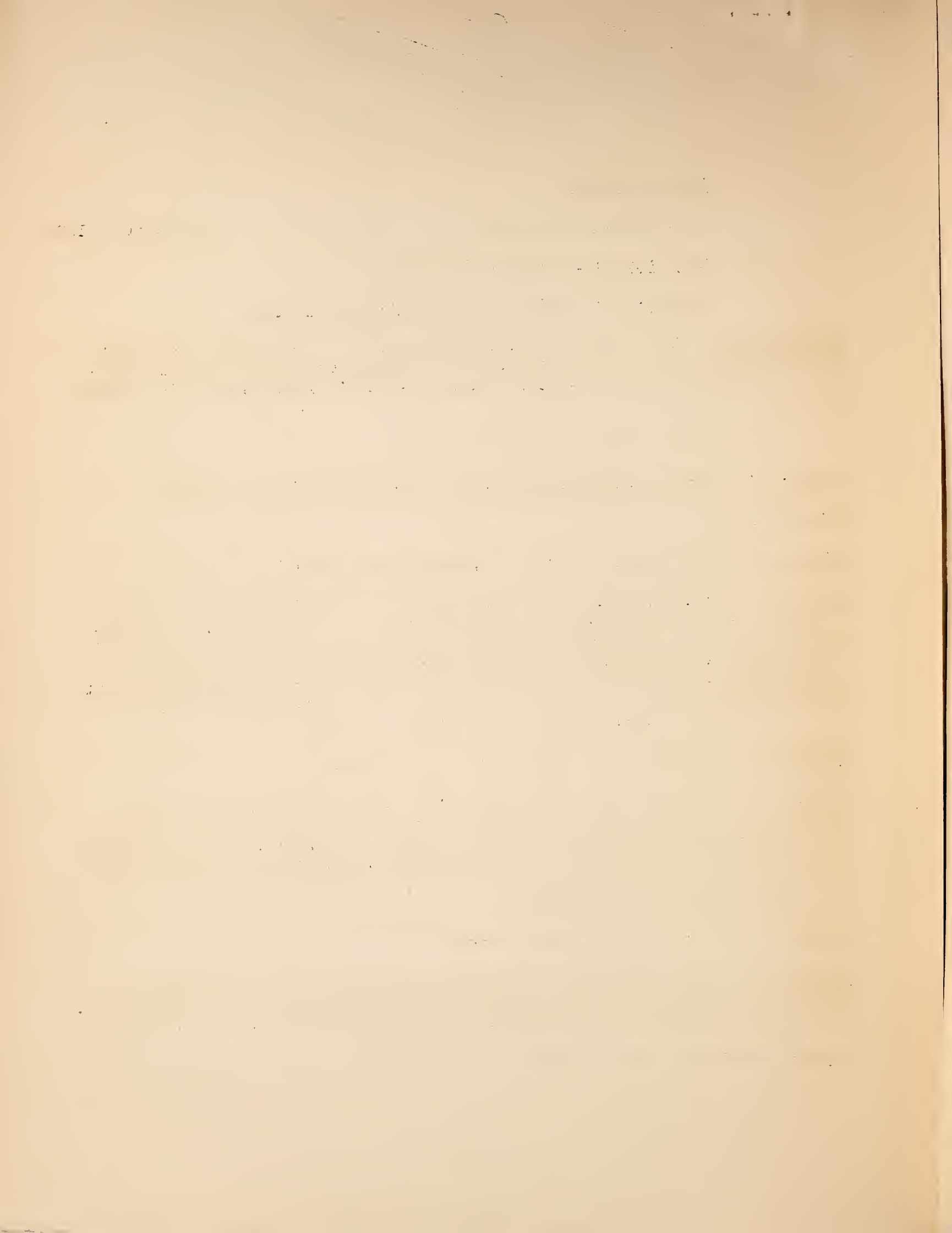
MORGAN: And you say that is caused by the leafhopper?

EXPERT: Well, we don't know the exact nature of the cause of the disease. We know that some poisonous substance or maybe some unknown form of parasite must be introduced into the beet plant to cause the trouble. Because whatever is responsible is infectious, we call it a virus. We do know, however, that whatever actually causes the trouble, it is carried by and injected into the beet plants by the beet leafhopper.

MORGAN: Is that the little winged insect we call the "white fly"?

EXPERT: Yes, the leafhopper is commonly called that in some sections. I suppose you all know what curly-top is like. That disease carried by those insects is characterized by a general dwarfing of the plant ----

MORGAN: The leaves curl and roll up. That's where it gets its name.



EXPERT: Yes, and there is a conspicuous irregular swelling of the smaller veins on the under side of the leaves. If you cut the infected beet roots crosswise, you will notice not only that the growth has been checked, but that they show dark rings. Those dark rings and the large number of small side roots are also symptoms of the curly-top disease.

MORGAN: Well, what I had in mind, is this. If you know that the leafhopper' insect carries the disease, why can't you get rid of the curly-top disease by getting rid of the leafhopper?

EXPERT: On first thought, that would seem the logical way to go about it. The trouble is, that is easier said than done. So far, we haven't discovered any way to do that. But from the intensive study we have made of the life history of the leafhopper, we have found some facts that are mighty important to beet growers.

MORGAN: What kind of facts?

EXPERT: For instance, we have learned that the insects do not usually fly into the beet fields in spring until their wild food plants have commenced to dry up.

MORGAN: I get the idea! By planting early we may be able to beat the leafhopper to it. Older beets are seldom damaged as much as the young beets. By planting early the beets will be older when the leafhoppers make their attack.

EXPERT: That's exactly it! That has been found very helpful in many sections. In other and more limited areas, it has, however, been found advisable to postpone planting until after the flight of the insects from their natural breeding grounds.

MORGAN: It would be a big help if the insect experts could just tell when the leafhoppers are going to be thick and the years when they will be scarce. Then we could plant accordingly. That would save a good deal.

EXPERT: That's just what the studies of the leafhopper are making possible. In certain areas, we can predict whether or not a bad outbreak is to be expected. Where that can be done with accuracy, it will, as you say, enable growers to profit in the good years and avoid losses in the bad ones.

MORGAN: Is there anything else that we growers can do ourselves to keep down curly-top?

EXPERT: Oh, yes. In addition to planting at the most favorable time, all the other practices which are included in good farming help the situation. Where you can get plenty of water, you should irrigate the soil often.

MORGAN: What's the idea in that?

EXPERT: Why, the diseased plants can't get the moisture from the lower levels of the soil on account of their roots being damaged. Proper fertility and

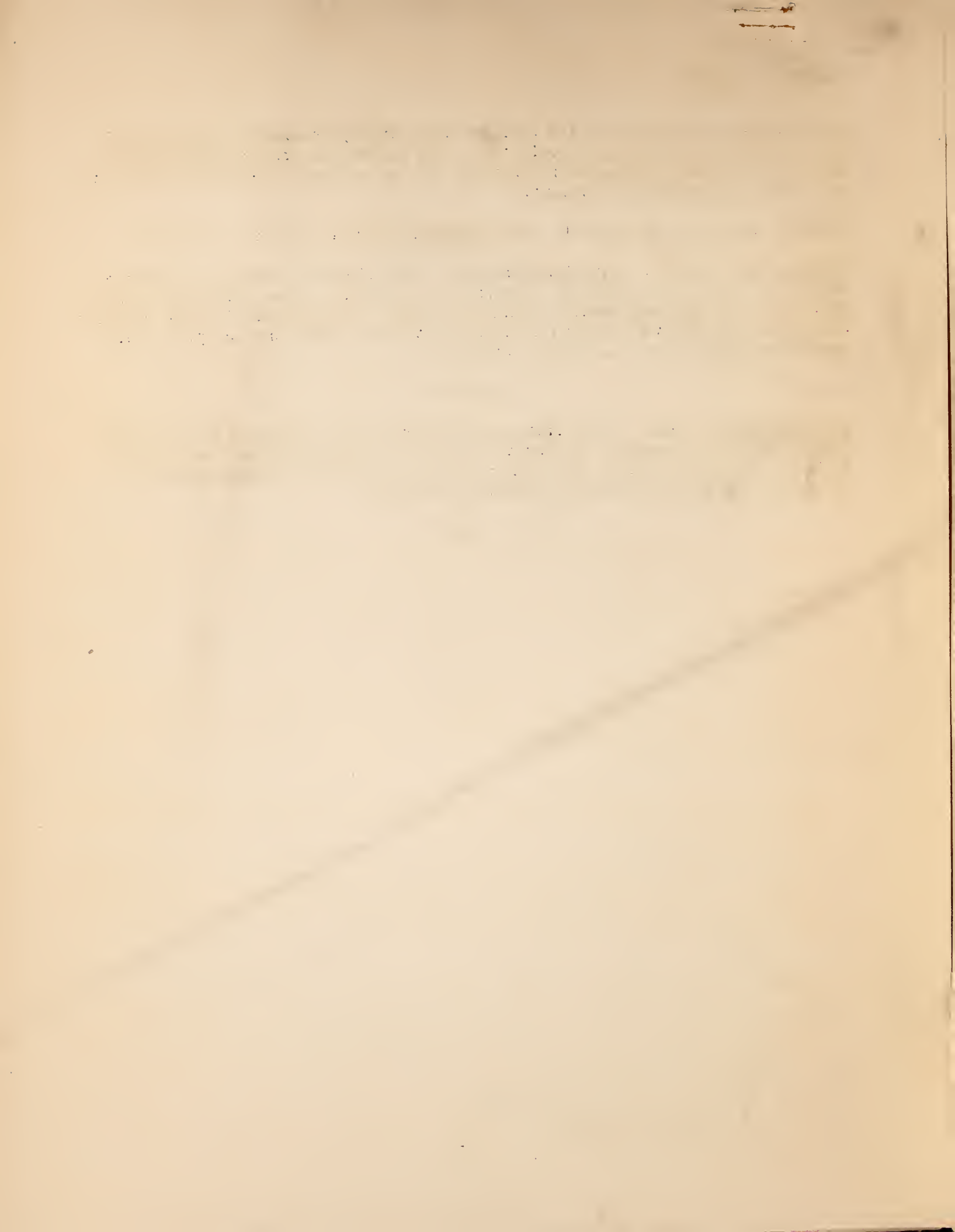
good physical condition of the soil are also highly desirable if you expect to cut down the damage from curly-top. The farmer who produces the bumper crop under normal conditions is usually the one who gets the best yield in a year when the disease is serious.

MORGAN: Is there any hope of ever completely getting rid of curly-top?

EXPERT: Yes, indeed. Our plant breeders are working to develop a strain or variety of beets that will be resistant to curly-top. They already have had distinctly encouraging results along that line. The prospect is that within a few years, we'll have a strain of sugar beets which will produce profitable yields in spite of the curly-top disease.

ANNOUNCEMENT: Those of our listeners who have not received the three radio bulletins on the business of farming can do so by application through this Station. These bulletins deal with farm management, the marketing of farm products, and the cooperative marketing movement.

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Wed., Apr. 4, 1928

U. S. RADIO FARM SCHOOL

Farm Economics Meeting No. 27.

SUBJECT: Cooperative Cotton Marketing Associations.

NOT FOR PUBLICATION

ANNOUNCEMENT: Come on in --- Yes, our farm club is still talking about co-operative marketing. Fact is, Ed Tate is asking the Department of Agriculture expert about co-ops there now--- Go on down front and you can hear better what's said-----

TATE: --- They tell me that the cotton co-ops are not doing the business they were a couple of years back. Is that so?

EXPERT: Well, Tate, the membership and volume of business has declined somewhat, but the cotton cooperatives today are probably better organized to perform efficient marketing services than they ever were before.

TATE: Do you think they will last?

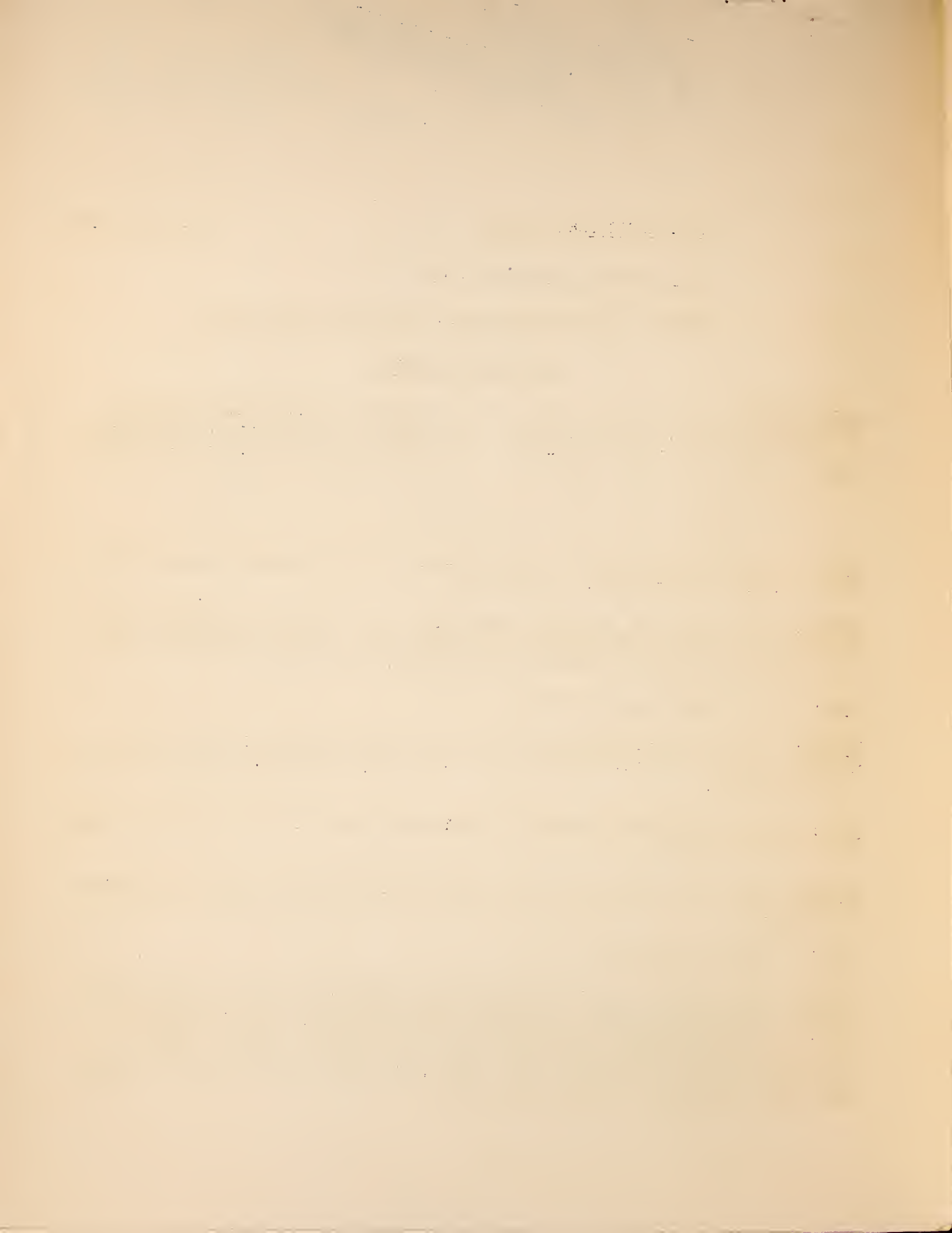
EXPERT: "Last!" Why, they should keep on making headway. I expect that ultimately the cooperative associations will become the leading cotton merchants of this country.

TATE: They can hold their members to their contracts, but can they keep getting the growers to join?

EXPERT: Why, Tate, you must not have kept up with what the cotton cooperatives are doing.

TATE: What do you mean?

EXPERT: Why, recent changes in the marketing contracts of most of the cotton cooperatives give the grower a chance to pull out at some time during each year. They also provide optional pools for the member's cotton. Those are certainly fine indications that the cooperatives are not going to rely on legal force to get deliveries in the future, but that they are going to develop good will on the part of the cotton grower.



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TATE: How are they going to do that?

EXPERT: By giving them better marketing services. Some cooperatives are developing cooperative gins.

TATE: Is that with the idea that they can do better ginning than the private gins?

EXPERT: Not only for better ginning, but to stimulate local interest in cooperative cotton marketing, and to better relate the whole field of cotton production, processing, and merchandizing in order to give more efficient service to both producers and spinners.

TATE: To satisfy both the spinners and the growers is a pretty hard job, isn't it?

EXPERT: Well, yes. Fact is, they are two of the biggest problems the cotton cooperatives have at the present time. That is, one thing they have to do is to win the confidence and support of the cotton growers; and the other is that they have to develop closer contacts with the spinners and manufacturing interests by dealing to a larger extent directly with them. Those two problems really summarize the purposes of marketing cotton cooperatively.

TATE: It seems to me that the co-ops would have to have trained men for dealing with the spinners, and running the business end of the association. Don't they have trouble picking men for that kind of work?

EXPERT: Yes, they do. One of the big problems that confronted the cotton cooperatives at the very outset was the problem of setting up an efficient business organization and securing a staff of competent well-trained men to handle this new kind of business.

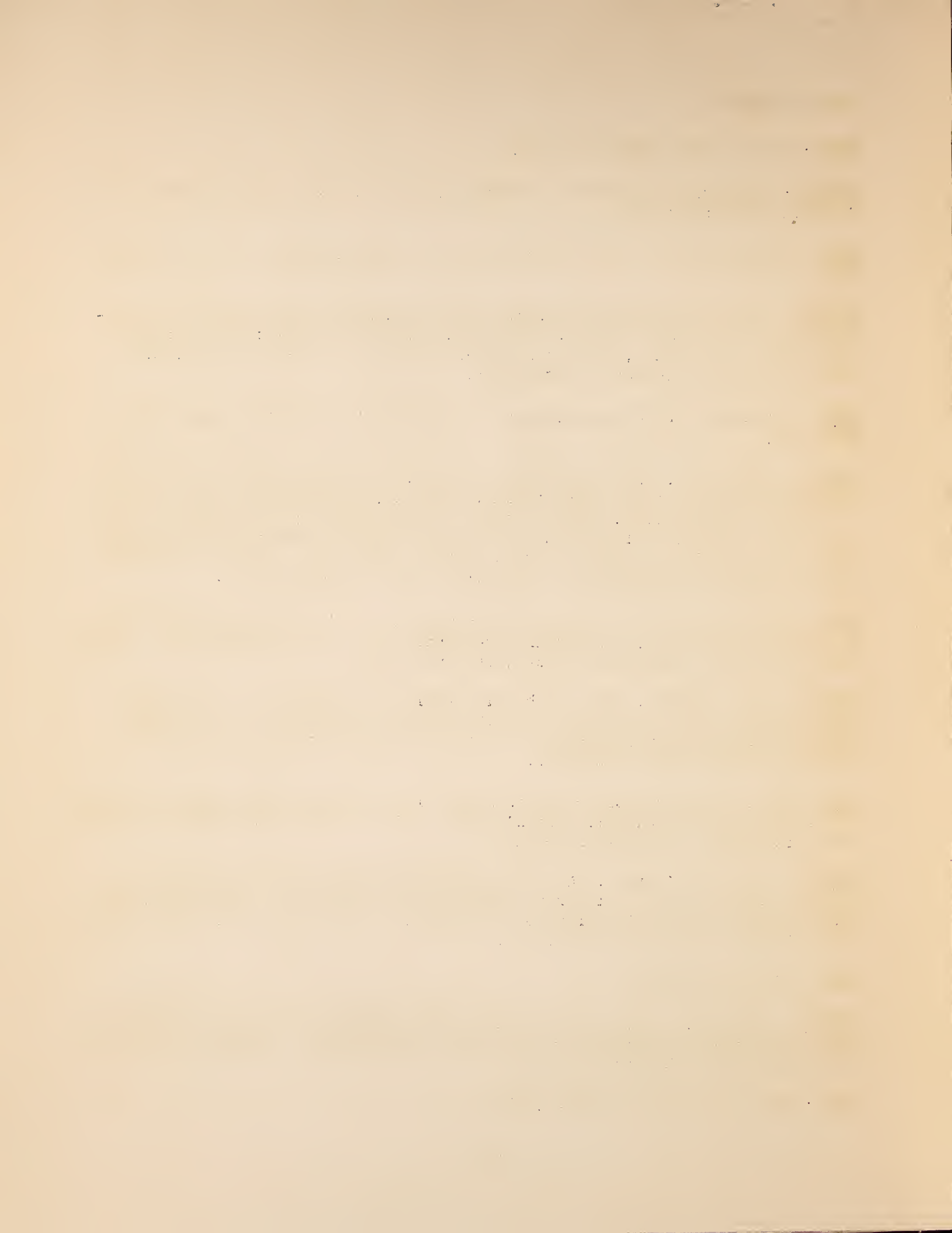
TATE: Most of the co-ops got their responsible officials from among the fellows who started the organization, didn't they? Some of them must have been pretty green in running a marketing business.

EXPERT: Yes, that's true. Of course, some experienced men were brought in from the cotton trade; but for the most part the associations developed their business leaders from the group of individuals who had been prominently identified with the organization movement.

TATE: How did it work?

EXPERT: Naturally, with a comparatively inexperienced personnel in charge and with a new type of business to be organized and operated, a number of mistakes were made during the first few years.

TATE: They had to pay to learn, then?



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EXPERT: Yes, it was inevitable that costly mistakes would be made under such conditions. But, as you say, experience had to be gained. And I'll say this for the associations, they are probably stronger today for having trained their own men.

TATE: Then they don't have any more trouble along that line?

EXPERT: Oh, I didn't say that. The problem of developing an efficient staff of men, well trained in economics and in marketing methods, is still one of the chief problems of the cotton cooperatives.

TATE: Cooperation in cotton marketing dates pretty far back, doesn't it?

EXPERT: Well, no. Of course, cotton farmers have made many spasmodic attempts, during periods of depression, to get a better price for their cotton. These efforts have usually taken the form of acreage reduction campaigns or organized attempts to hold cotton off the market with a view to boosting the price. However, before 1920, the efforts of cotton growers to organize were mostly local; there was no far-reaching attempt to organize all cotton growers into state-wide or regional associations for the purpose of controlling the entire crop.

TATE: Then it was really the big slump of 1920 and 1921 that started the big cotton co-ops?

EXPERT: Yes. In June 1920, middling cotton at New Orleans sold for 40.64 cents a pound and in December it was down to 14.64 cents a pound. The 1920 cotton crop had been produced at high cost. As a result of the big drop in prices, cotton growers and business men were hard hit. The cotton marketing system was blamed and a movement was started to set up a new and more efficient system to be run by the cotton growers themselves.

TATE: It went over big didn't it?

EXPERT: During 1921 and 1922, 15 state-wide or regional cooperative cotton marketing associations were formed throughout the Cotton Belt.

TATE: How were they organized?

EXPERT: They were organized as non-stock, non-profit, centralized associations and were incorporated under the laws of their respective States. In joining, a member signed a legally enforceable contract which called for the delivery of his cotton to the association for a period, usually of 5 years. The main purposes of those cotton cooperatives were to market the cotton in a business-like manner, to avoid dumping of cotton in the fall through orderly marketing, that is, distribution of sales over the entire year, to secure for their cotton full value in grade and staple, and to effect savings by making direct sales

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to the spinners and manufacturers.

TATE: Have they grown much since that first big start?

EXPERT: Well, membership increased from 55,000 in 1921 to 285,000 in 1925.

TATE: How much cotton did they handle?

EXPERT: The volume of cotton handled grew from 352,226 bales in 1921-22 to about 1,500,000 bales in 1925-26. That was the peak. There has been some decline since then.

TATE: How much of the total cotton crop of the country did they handle?

EXPERT: On the average, slightly less than 10 per cent of the entire American cotton production. And, as I said before, if they can keep making headway in performing efficient marketing service, they should ultimately become the leading cotton merchants of the country.

ANNOUNCEMENT: We have a radio bulletin on Cooperative Marketing. Also one on Marketing Farm Products and another on the Business of Farming. Any of our listeners can get these little books by application through this Station.

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RECEIVED
MAR 27 1928
Fri. April 6,

U. S. RADIO FARM SCHOOL

Livestock and Dairy Meeting No. 27

SUBJECT: Dips and Disinfectants.

NOT FOR PUBLICATION

ANNOUNCEMENT: Here we are all ready for the meeting of our farm club. That bunch down front are just talking about things in general. That's Roberts talking to the Department of Agriculture man there now--- Listen----

ROBERTS: -- These gang wars in the cities are getting terrible! You been reading the papers lately, about the way the gangsters have been doing?

EXPERT: Yes, they do make things dangerous some places.

ROBERTS: They surely do. It looks like they would just clean those gangsters out --

EXPERT: Yes, it does seem that way. Then again, it seems like a lot of farmers would clean the gangsters off their places, too.

ROBERTS: What do you mean "gangsters?" Thank goodness, we don't have to worry with underworld problems on the farm.

EXPERT: Don't be too sure about that, Roberts. Did you ever see that motion-picture called the "Barnyard Underworld"?

ROBERTS: No. What's it about?

EXPERT: It is about a farm family's fight against gangsters on the farm.

ROBERTS: That sound impossible!

EXPERT: It is a very real situation just the same. That film tells the story of the experience of a farm family which neglected sanitary conditions on the farm. The gangsters in the barnyard underworld include lice, mites, parasitic worms, and disease-producing bacteria. They also include "suspicious characters" in the shape of strange animals that may scatter infection of various kinds

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over your farm.

ROBERTS: Ah, is that what you are talking about!

EXPERT: Yes. Some of those pests may be microscopic in size, but they can be just as dangerous as gangsters. They've robbed many a farmer of his profits.

ROBERTS: Well, I figure that you give stock plenty of sunlight and fresh air, that's the main thing.

EXPERT: Unquestionably. Sunlight and fresh air are the first essentials to health. Cleanliness of the premises and rotation of lots or pastures are a valuable help also. But important as they are, they can't always prevent disease. The organisms, the insects, the worms, and germs must be killed either on the animals themselves or where they are scattered around the grounds or barns where they can get to the animals.

ROBERTS: You mean we have to use dips and disinfectants?

EXPERT: Exactly.

ROBERTS: What kind is best to use?

EXPERT: You know the old saying "What's one man's poison, is another's meat and drink". It is the same way with insects and germs. A product that may be deadly to one kind of insect or germ, may have little effect on another. For that reason, you must know what disease or what parasite you are dealing with before you undertake dipping or disinfecting.

ROBERTS: How can you find about what dip to use? -- about what's needed?

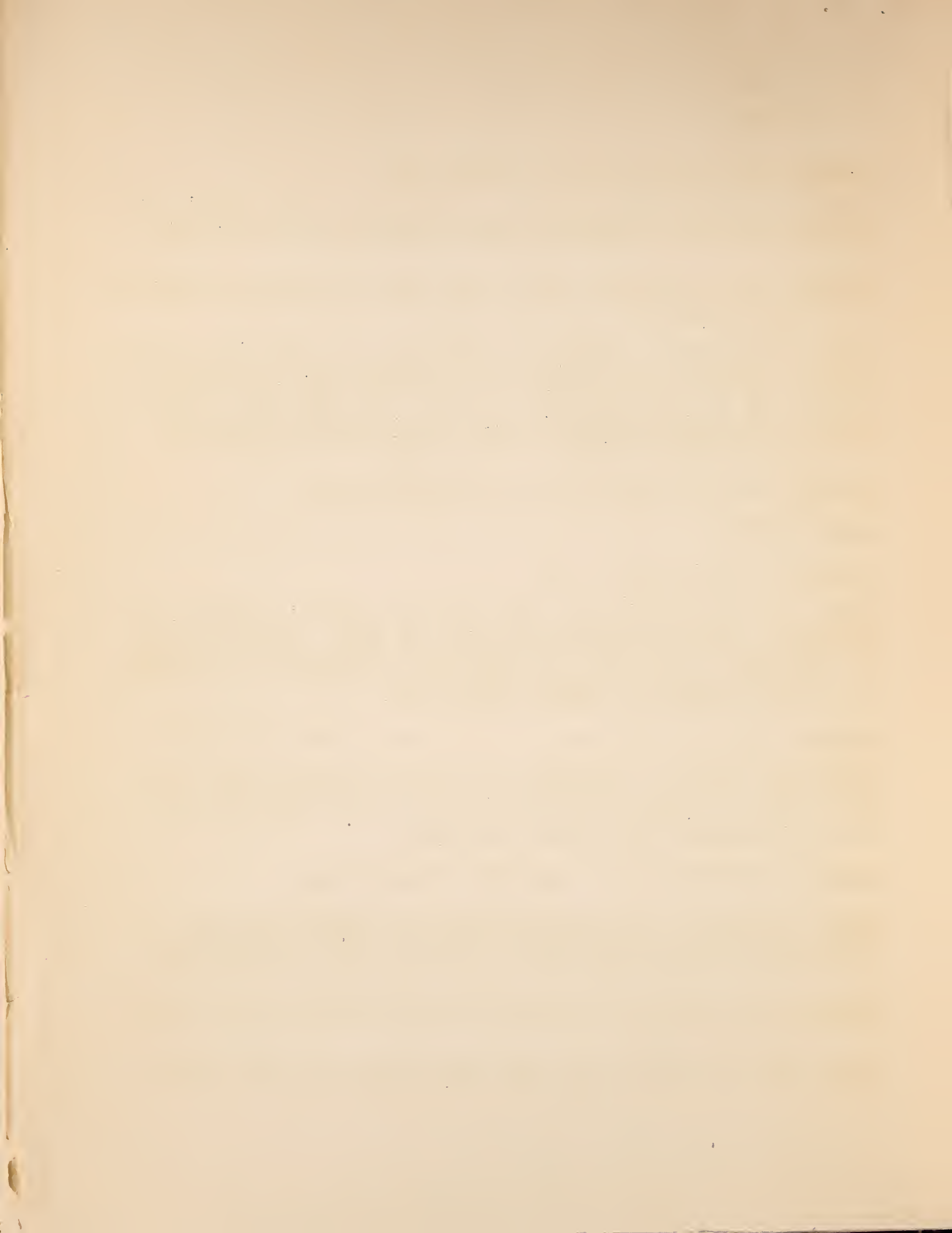
EXPERT: The Department of Agriculture distributes printed bulletins on the best methods of dipping all kinds of livestock against ticks, mites, and lice. You can get those bulletins free of charge. They contain pictures of the pests and describe the symptoms they produce.

ROBERTS: I don't want to use a dip that will cost too much.

EXPERT: Certainly not. You must keep in mind the economy in the use of the different products as well as their effectiveness. For some purposes, a cheap chemical is often as satisfactory as one which is much more expensive.

ROBERTS: I use a good bit of whitewash around the buildings. That's a good disinfectant isn't it?

EXPERT: That's probably the most widely known disinfectant. But remember,



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either whitewash or dry lime to be most effective must be fresh. After long exposure to air they get inert and are ineffective for killing germs.

ROBERTS: Did you ever use any of this chlorinated lime? It is a dry powder.

EXPERT: Oh, yes. Chlorinated lime is used a lot in neutralizing bad odors as well as in killing germs. When mixed with water, chlorinated lime is a good disinfectant for wood and metal surfaces, though it is likely to corrode metal and is also injurious to clothing.

ROBERTS: Coal-tar creosote is a good general disinfectant, isn't it?

EXPERT: Yes, when properly prepared, coal tar creosote disinfectants are dependable germ killers. Coal-tar creosote, you know, is a liquid almost black and has a strong tarry odor. When it is used as a disinfectant, however, it is combined with soap and makes a milky emulsion in water. Another common disinfectant, that is even better for many purposes, is saponified cresol solution; a brownish liquid with a carbolic odor. It dissolves readily in water.

ROBERTS: Do you wash off the barn floor before you use a disinfectant?

EXPERT: Before using any disinfectant, to get the best results you should prepare a surface on which it can work properly. In barns where infection is often sheltered by accumulations of manure, dirt, and trash, you should scrape or wash off, or better still, scrape and wash off all accumulations, using sal-soda solution on the bare wood. The hotter the solution the better.

ROBERTS: I always drag out everything movable, so as to give everything a good sunning.

EXPERT: That's a good idea.

ROBERTS: How about dips for the livestock themselves?

EXPERT: A livestock dip is nothing more than a disinfecting bath. The chemicals you use must be effective in killing the parasites hiding in the animals' coat or skin, but they must not hurt the animals themselves. The most common dips are the arsenical, nicotine, lime-sulphur, and coal-tar creosote. Besides those useful dips, there are also oils for hogs and various preparations for keeping flies off stock. For poultry you may use dusting powders, ointments, or dips.

ROBERTS: Thanks! I'm going to write to the Department of Agriculture for some of those bulletins on dipping against ticks and lice---

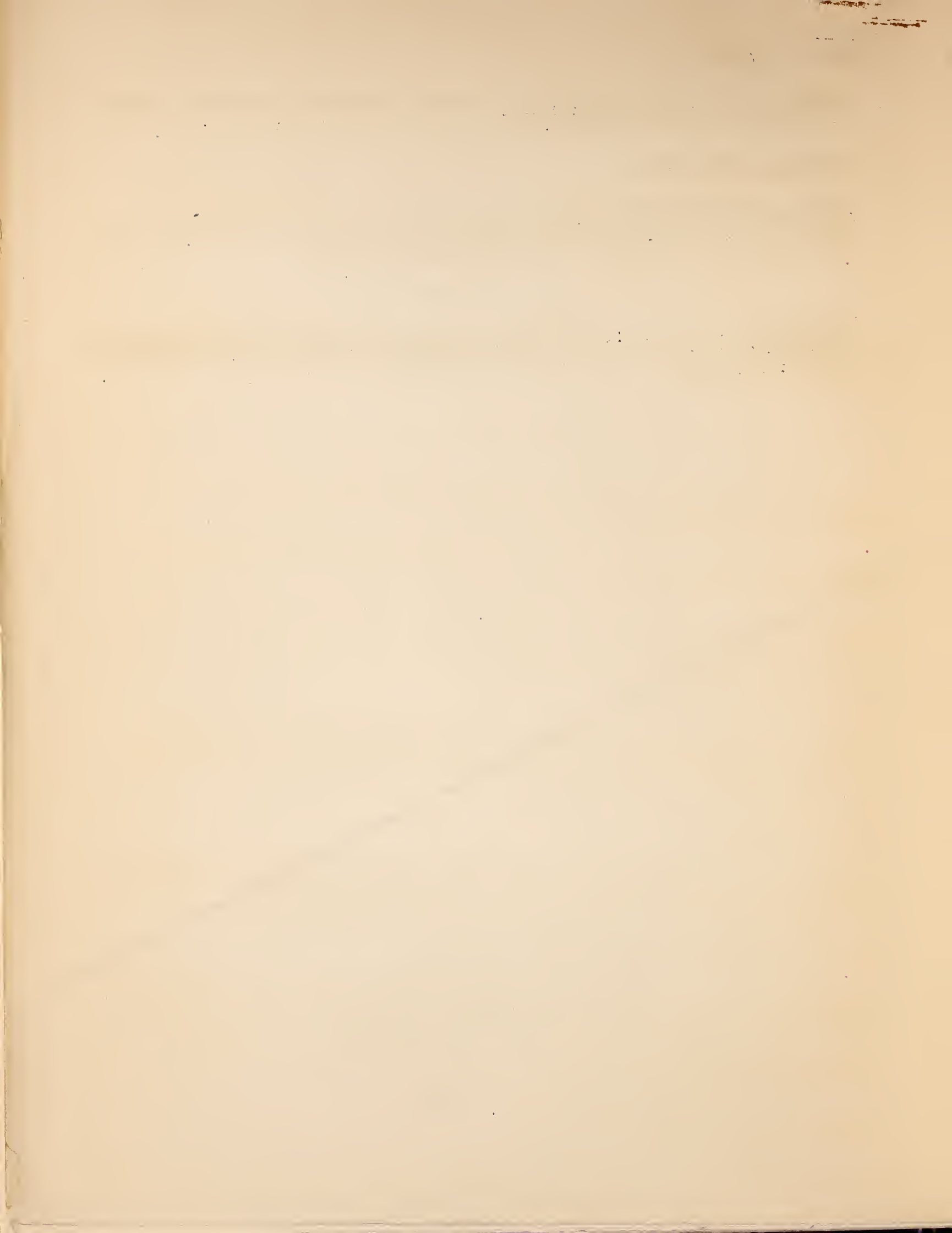
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EXPERT: Just a minute, Roberts! ---- There is something you mustn't forget in handling dips and disinfectants.

ROBERTS: What's that?

EXPERT: Practically all disinfectants contain powerful chemicals. It is important to use them in correct strength and according to directions. And keep them away from children and irresponsible persons.

ANNOUNCEMENT: Any of our listeners who have not received the three bulletins on the Business of Farming can do so by asking this Station for a request card. The bulletins are free of charge.



1.9
In 3 Fs

U. S. RADIO FARM SCHOOL

APR 9 1928
Mon. April 9, 1928

Crops and Soils Meeting No. 28.

SUBJECT: Planting Trees for Protection.

NOT FOR PUBLICATION.

ANNOUNCEMENT: Our regular farm club meeting is just starting. We meet here at this time every week --- that Department of Agriculture expert talking there now tells us some things that help a good bit. And we give him some ideas to-----Sure, if you have any questions, go ahead and ask. Ray Morton is asking something there now---- Listen----

MORTON: -- You say, it is a good idea to plant a windbreak----

EXPERT: --- Oh, yes, Morton. Wind and water do a good bit of damage ---

MORTON: -- You mean, when there's a big wind-storm?

EXPERT: Well, Morton, I wasn't thinking so much of that sort of damage. I was thinking more of the quiet kind of damage, that's going on most all the time. Of course, homesteads on the prairie are especially subject to wind damage; but many farm homes far from the prairies would be a lot more comfortable and homey if they were protected by a growing wall of green trees.

MORTON: How far away from the house should the windbreak be planted?

EXPERT: For the protection of homes, the windbreak should be fairly close.

MORTON: Just how close?

EXPERT: Well, any wind barrier, whether it be a fence or a row of trees or whatnot, will extend its protection about ten feet for every foot in height.

MORTON: Ten feet for every foot high the trees are, you say?

EXPERT: Yes. A wall of trees, say thirty feet high, will helpfully influence the country to the leeward for a distance of three hundred feet. Of course, the effect is greatest close to the trees. For the protection of the home, the windbreak should be fairly close; but it should give enough room for a lawn or a garden and a chance to look out.

MORTON: What kind of trees would you plant?

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EXPERT: Of course, that depends on where you expect to plant them. However, evergreen trees have some big advantages.

MORTON: You mean, the pines and spruces?

EXPERT: Yes, pines and spruces, and in some regions cedars and firs.

MORTON: What are the advantages in planting evergreens?

EXPERT: Why, they hold their needles during the winter when you need protection most. And the carpet of humus which forms under them is especially good as a blotter or holder of moisture. Then, too, evergreens are easy to transplant and after they get to be big trees their trunks will be useful for timber.

MORTON: What's the best time to plant the trees?

EXPERT: The spring is the best time, but in many regions fall planting is equally successful.

MORTON: What time in the spring?

EXPERT: Set them out just before the buds begin to swell, but after the ground is soft; then growth can take advantage of the fine weather. Fall planting should be done after the active growth has stopped, but early enough so that the roots may establish themselves. Over much of the northern half of the country, September is recognized as a good time to plant evergreens.

MORTON: It is best to plant small trees, isn't it?

EXPERT: Yes, the small ones are safest to plant, if they have good root systems. You can prune the long roots, so the tree will have a more compact root system. And set the trees in the ground firmly and deep enough so they will stand at the same level they grew before they were transplanted.

MORTON: Trees will help keep land from washing, won't they?

EXPERT: Oh, yes. Trees growing on rough land or on soil which washes easily are a real help in keeping the surface soil from being carried away.

MORTON: The roots hold back the water, they slow down the run-off, don't they?

EXPERT: Yes. And not only that, the tree tops break the fall of the rain. The canopy of leaves or needles with the supporting twigs, branches and trunk catch the rain drops. They absorb the first shock of the fall.

MORTON: Oh, I see, you mean instead of beating hard against the earth, the raindrops trickle down the branches or trunk, or drip to the ground.



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EXPERT: Yes, and even after that the fall is often broken again by shrubs and vines and other vegetation. And under that there is usually a carpet of twigs, leaves, needles, moss and vegetable growth which may be several inches deep.

MORTON: And the water has to percolate through that mulch before it gets into the soil ----

EXPERT: Yes, and shielded as it is by the tree tops from the sun and wind, the surface run off is not very fast.

MORTON: All that blanket of stuff under trees can soak up considerable water, too.

EXPERT: Yes, there are examples of streams flowing out of forests which show no increase in flow even from the steepest slopes after a rainfall of two and a half inches. Of course, that is unusual.

MORTON: How much rainfall can ordinarily be held that way?

EXPERT: Well, it is a safe rule, that every inch of humus on the floor of a woods will absorb a quarter of inch of rainfall. But, of course, even a good blotter may be filled. An unusually heavy rainfall or a series of rainfall may fill the water storing capacity of the woods.

MORTON: The woods also hold back the snow from melting?

EXPERT: Yes, in that way they prolong the time during which the snow water runs off.---Yes, Morton, trees are a great help in preventing land from washing. In many localities, too, gullying has been effectively checked by the planting of trees. That is especially good where the land has been gullied so badly that the cost of reclaiming it for pasture or cultivation would be too much.

MORTON: Where could I get trees for planting to protect the house and barns and prevent land washing?

EXPERT: Well, most of the States are now equipped to furnish trees for protection from the nursery of the State Forester. If you want information on planting trees, why not ask your State Forester or your State College of Agriculture?

ANNOUNCEMENT: Those of our listeners who have not yet received the three bulletins on "The Business of Farming", "The Marketing of Farm Products" and "Cooperative Marketing" can get them by applying for them through this Station. They are free for the asking.

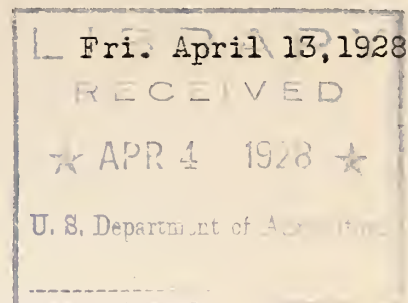
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U. S. RADIO FARM SCHOOL

Livestock and Dairy Meeting No. 28.

SUBJECT: Cream Production.

NOT FOR PUBLICATION



ANNOUNCEMENT: Our farm club meeting has started again. That's Joe Brunton who is talking to the Department of Agriculture specialist there now. And the way those dairy farmers are gathered around them they must be discussing something about milk --- or, is it cream? --- Listen ----

BRUNTON: ---- Bad odors and tastes are worse in the cream than they are in the milk.

EXPERT: Sure Brunton. It takes high quality milk to make high quality cream. The quality of the cream can't be better than the quality of the milk from which you get it. It may be much poorer.

BRUNTON: Do you think cream from a separator is as good as cream you get in the old-fashioned way of pouring the milk in pans or cans and letting it stand until the cream rises?

EXPERT: Why, there's no question about that. The fact that the cream is separated immediately after the milk is drawn from the cow results in a much fresher cream. Not only that, but less cream or butterfat is left in the skim milk. The skim milk is also fresher and better for feeding calves.

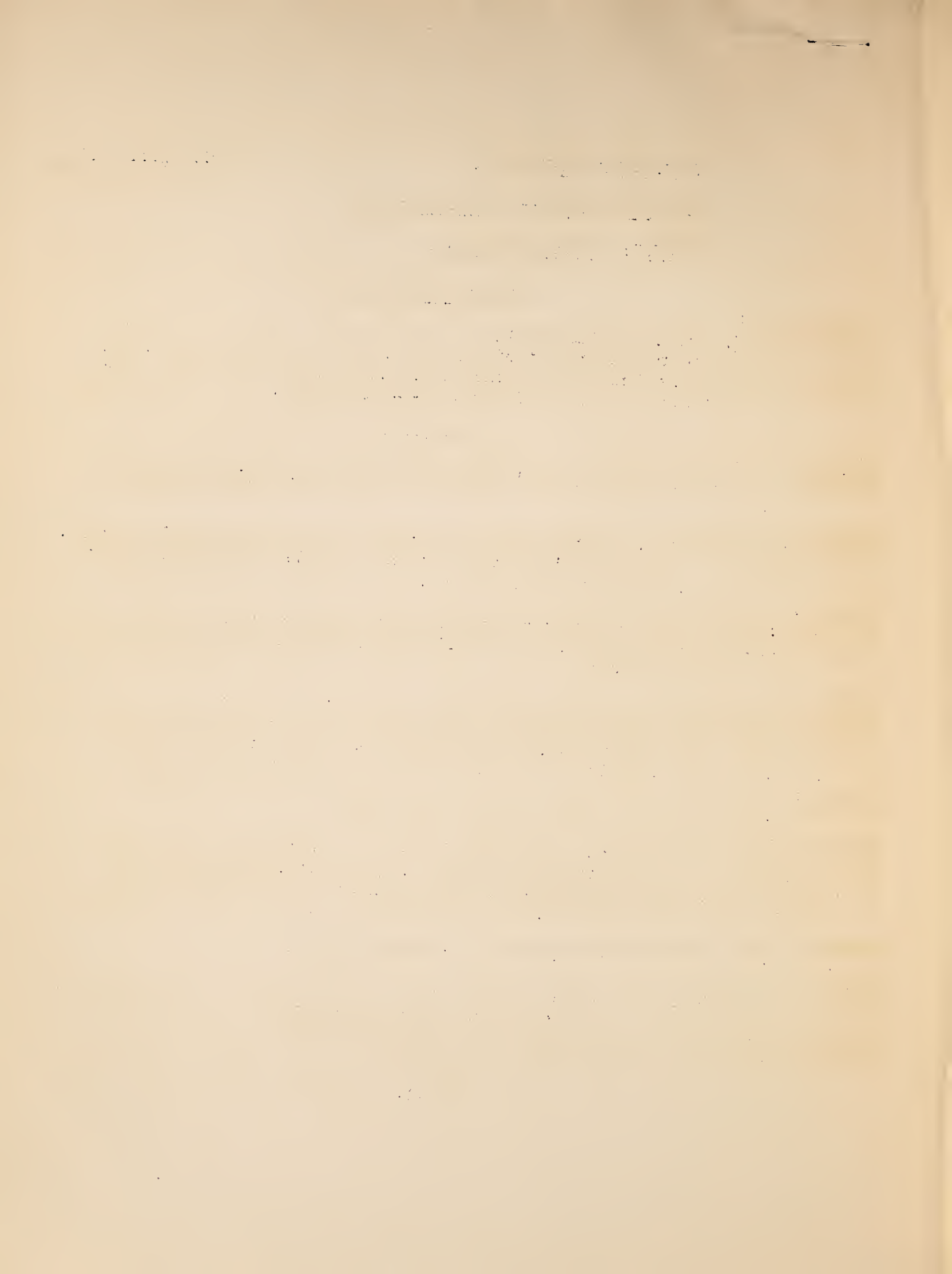
BRUNTON: Then you think it pays to buy a separator?

EXPERT: Unless you produce a very small quantity of milk, the centrifugal cream separator is a profitable investment. Of course, you should set up the separator in a clean, well-lighted dairy house, where there are no odors to contaminate the milk and cream during separation.

BRUNTON: Does a cream separator get out of order easily?

EXPERT: No, but you should handle it with a great deal of care. It does its work best only when it is operated under proper conditions.

BRUNTON: What would you call proper conditions?



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EXPERT: In the first place, in order that the machine may be firm when in operation, you should set it perfectly level and fasten it tightly on a solid foundation.

BRUNTON: What kind of foundation?

EXPERT: Concrete is best. If the separator is not level and fastened tightly, the running of the machine will cause the frame to vibrate. That will wear out the bearings quickly. The bowl will not run true. Butterfat will remain in the skim milk.

BRUNTON: How should the separator be run?

EXPERT: Follow the directions furnished with the machine. Keep the bearings and gearings clean and free from grit and well lubricated with good oil. If there is no speed indicator on it, you should time the revolutions of the crank by a clock or a watch. In turning, press evenly on the handle throughout the revolution. Jerking causes unequal wear on the bearings and the gears.

BRUNTON: The cream won't all separate if you don't run it at the right speed, will it?

EXPERT: No. If you run the separator too slowly, the centrifugal force developed is not enough to separate all the cream from the milk. Any vibrations or wobbling of the bowl stirs the milk to such an extent that the normal separation of the cream can not take place. Then, too, if the bowl parts are bent, dirty, or not properly assembled, the machine can't work properly.

BRUNTON: You don't get as much cream from the milk when it is cold either, do you? Temperature seems to affect separation.

EXPERT: Around ninety degrees is the lowest temperature for the best separation. If milk is too cold that means a loss of butterfat in the skim milk and a somewhat smaller quantity of cream with a higher percentage of butterfat. During the winter, if your separator is in a very cold room, you should warm the separator bowl by running warm water through it so that the first milk that enters will not be chilled. But you have little to worry about along that line at this time of the year.

BRUNTON: You can regulate the richness of the cream in the separator, can't you?

EXPERT: Well, the richness of the cream can be regulated, to a large extent, by simply adjusting the cream screw of the separator. But the speed at which the separator is run also affects the richness of the cream. The lower the speed, the more cream and the less butterfat. However, even when the separator is run at the proper speed, variations occur in the butterfat

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test of the cream.

BRUNTON: Why is that?

EXPERT: It may be due to the milk being cooler than usual or to the separator running below capacity or running dry occasionally. Other things being equal, though, the richer the milk the richer the cream will be. That may be the cause of the seasonal variation in the test of your cream. Flushing the last of the cream from the bowl with skim milk, has a big effect on the test of the cream if you separate only a small quantity. Regardless of that, however, flushing should be practiced.

BRUNTON: Thanks for the information. If you think it pays, I'm going to get me a separator.

EXPERT: Just a moment, Brunton. If you want to make the most money and avoid losses from poor quality cream, there is something else you should especially keep in mind.

BRUNTON: What's that?

EXPERT: Clean the separator thoroughly each time you use it. Unclean separator parts harbor bacteria that contaminate the cream and injure its market value. They also cause the machine to separate less efficiently.

BRUNTON: What would you call a thorough cleaning of a separator?

EXPERT: Well, first, all parts of the bowl, together with the tinware that comes in contact with the milk, should be rinsed with warm water. Then they should be thoroughly scrubbed with a brush in hot water in which a non-soapy washing powder has been dissolved.

BRUNTON: Why, can't I use soap?

EXPERT: Soap or soap powder is liable to leave a soapy film on the surface of the tinware. It should not be used. After you scrubbed them, you should rinse the parts thoroughly in clean warm water. Then sterilize them in a steam sterilizer or put them in boiling water for at least five minutes. You should not use a towel for drying them. The hot utensils will dry themselves. Handle them as little as possible, so they will stay sterile.

BRUNTON: Is that all there is to it?

EXPERT: Of course you must cool the cream after separation, and keep it below 50° F. Cooled cream should be kept tightly covered and in a clean place free from dust, odors and insects.

ANNOUNCEMENT: Any of our listeners may get three radio bulletins on the Business of Farming, The Marketing of Farm Products, and Cooperative Marketing. Just write to this Station for them. They are entirely free of charge.



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In 3 Es
U. S. RADIO FARM SCHOOL

Mon. Apr. 16/28

Crops and Soils Meeting No. 29.

SUBJECT: Vegetable Garden Diseases.

ANNOUNCEMENT: How's that garden you've been talking about? -- I'm glad you dropped in. The Department of Agriculture man is telling some of our farm club members about gardening over there now --- Sure, go on over --- Hear that?

JENKINS: --Oh, yes, I know plant diseases do cause considerable damage at times --

EXPERT: You're right they do. Gardeners everywhere have to fight them sooner or later --

JENKINS: I saw a statement the other day that in one year the Irish potato crop in the entire United States was cut down about 21 per cent by potato diseases. Could that be right?

EXPERT: Yes, that's true, Jenkins. That same year, in twelve important sweet potato growing States the loss from diseases was more than twenty per cent. That is, a fifth of the crop, taken as a whole. That's a heavy toll. But I could give you any number of similar cases.

JENKINS: But diseases don't always kill plants outright.

EXPERT: No. But some diseases do cause the loss of the entire crop by killing the plants before they mature. That may happen when a non-resistant variety of cabbage or tomato is planted on soil infested with the wilt fungus. In other cases, the loss is due to spots or blemishes on the leaves, stems or fruits which make them unfit for use as food, or, as you suggest, cause heavy wastage in preparation for the table.

JENKINS: Yes, I've had to throw away potatoes on account of potato scab. I've pared many another thick to cut out the bad spots. And sweet potatoes badly spotted by black rot you have to throw away. If you leave them in with the healthy ones when they are boiled they give the entire lot a bitter taste.

EXPERT: Yes, there's a good deal of wastage of that sort on account of diseased plants. That's another reason for keeping diseases down.

JENKINS: When your garden is infested with diseases which are troublesome, how do you go about controlling them?

EXPERT: Well, several things may need to be done. Of course that depends on the section where the gardener lives, the disease concerned, the character of the soil, the season, and other surroundings. First, we must get the diseases out of the garden as far as possible, by crop rotation, the most fundamental and generally applicable method, or by soil treatment, and then we must keep them out by seed treatment, the use of disease-free seeds and plants, or in other ways.

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JENKINS: How does crop rotation keep down disease?

EXPERT: Many diseases live over winter on bits of diseased parts of plants. If plants of the same sort are again planted the disease attacks them.

JENKINS: Then you would move the rows of each vegetable to another place every year to prevent that and starve out those things that cause the disease?

EXPERT: You have the idea, exactly, Jenkins. The importance of the practice of rotation can hardly be overestimated. Of course, rotation is not effective with all diseases.

JENKINS: No, onion smut was once giving me trouble and a garden specialist said I'd have to treat the seed and soil in the drill with a formalin solution when I planted the seed, or I'd have to use onion sets instead.

EXPERT: Yes, soil treatment is needed when the soil becomes generally infested with some disease organism. For instance, when you have trouble from "damping-off" or sudden dying of small plants of lettuce, tomato, or other crops in the seed bed, you can know the soil is infested with disease producers. Before planting again, you should kill off the trouble starters by steaming the soil or treating it with hot water or a chemical disinfectant, or you must get new soil for the seed bed, free from disease.

JENKINS: You spoke of keeping diseases out of the garden by seed treatment. Do you mean that disease germs are carried on the seed?

EXPERT: Yes, that is exactly the case, and to kill off these disease organisms carried on the surface of the seed, both liquid and dust disinfectants are used. You can get directions for using those disinfectants from your State Agricultural Experiment Station or from the United States Department of Agriculture. But there are certain diseases carried inside the seed. They can't be reached by seed treatment.

JENKINS: If you buy "certified" seed, you can dodge that sort of trouble, can't you?

EXPERT: Yes, in some cases. You can buy potato seed relatively free from such diseases as mosaic, leafroll, and similar troubles for a slightly higher price than that of ordinary seed. In many cases, however, "certified" seed are not available and one must save one's own seed from healthy plants, or purchase from a reliable seedsman. In some sections you can also buy State-certified diseases-free seedling plants.

JENKINS: I'm pretty careful where I buy seedlings for my garden. I never take any cabbage plants that show club root or any sweet potato slips that have discolored roots or stems. I'm specially careful to see that no root galls due to eelworms are on the roots of any seedling plants I buy.

EXPERT: That's good. In still other cases, however, you can get varieties of plants bred for resistance to certain diseases.

JENKINS: That's about the only way to avoid some troubles, like tomato wilt or bean rust.

EXPERT: Yes, it is. Now, in the case of early and late blight of potatoes, and certain leaf-spot diseases of tomatoes, cucumbers, and other vine crops, where other more desirable means of disease control are not available, you must fall back on such preventive measures as spraying and dusting the healthy plants.

JENKINS: Which is best for a small garden, spraying or dusting?

EXPERT: Why, dust is easier to prepare and apply. Its slightly greater cost is of little importance, and the fact that a dust is ready to put on results in its being used in many instances, where, because of the trouble of preparing a mixture spraying would not be done.

JENKINS: Keeping down weeds and killing off insects also help keep down some diseases, don't they?

EXPERT: Yes, certain diseases of garden vegetables are carried over winter on wild host plants growing near-by. Some insects are also important agents in the spread of disease.

JENKINS: Well, how is a gardener going to know just what to do; which method of control to use?

EXPERT: Well, in some cases a single control measure will do, such as the use of a wilt-resistant variety to control tomato wilt. In other cases, you may have to use two or more measures to get rid of a disease. Seed treatment, crop rotation, and in some cases soil treatment may be needed to control potato scab. But you can get detailed information about disease control from your State experiment station or from the Department of Agriculture Bulletins.

JENKINS: But suppose some disease shows up on the plants and you don't know what it is?

EXPERT: In that case, send a few of the affected leaves, stems, fruits or roots to your State Experiment Station or to the United States Department of Agriculture, together with a careful description of the trouble. It will help in the identification of the disease if you get fresh specimens, wrap them securely in newspaper and send them promptly. Information on the cause of the trouble and the way to control it will be sent when possible.

ANNOUNCEMENT: The Department of Agriculture also has Farmers' Bulletin No. 1371 on "Diseases and Insects of Garden Vegetables." This bulletin may be had for the asking. Any of you who have not received copies of the three bulletins on "The Business of Farming" "Marketing Farm Products," and "Cooperative Marketing" can get them by application to this Station. These are also free of charge.

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U. S. RADIO FARM SCHOOL

Wed., April 18, 1928.

NOT FOR PUBLICATION

Farm Economics Meeting No. 29.

SUBJECT: Cooperative Marketing of Fruits and Vegetables.

ANNOUNCEMENT: For several meetings now our farm club has been discussing cooperative marketing. Last week, that Department of Agriculture expert there was telling us about the livestock associations. From what I heard awhile ago, the members must be asking him about the fruit and vegetable co-ops now --- Did you hear that? --- Listen -----

GREEN: --- Two hundred thousand growers marketing fruits and vegetables through the co-ops! -- They must do considerable business?

EXPERT: They do about three hundred million dollars worth of business a year.

GREEN: What part of the country are they in?

EXPERT: Practically every fruit and vegetable section in the United States. Why, at the present time, there are probably not less than two thousand co-operative associations which market one or more fruit and vegetable products.

GREEN: Those associations are mostly small locals, are they not?

EXPERT: Well, of course, cooperative marketing of fruits and vegetables has been characterized by the development of local associations.

GREEN: How long have these associations been running?

EXPERT: The oldest fruit and vegetable association of which the Department of Agriculture has any record was formed in 1878. In the nineties, however, they began to appear in numbers. By 1915, there were about 900 of them ---

GREEN: And now, you say, there are two thousand?

EXPERT: Yes, about that number. Of course, you understand, Green in many instances, local associations have federated to form a central agency.

GREEN: Just what do you mean by "federated?"

EXPERT: In the federated form of organization, the growers are members of the local associations, and the locals in turn are members of the central

agency which is controlled by a board of directors made up of representatives of the locals.

GREEN: How many federations like that are there?

EXPERT: At present, there are over twenty federations marketing fruits and vegetables in the United States.

GREEN: How many locals in those federations?

EXPERT: They represent over eight hundred and fifty local units and sixty thousand grower members. The largest of these federations is the California Fruit Exchange. It represents two hundred and four local associations and did an eighty-five million dollar business last year. It is the oldest of the federations. It was formed in 1895.

GREEN: What part of the marketing does the local do and what part does the federation do?

EXPERT: In most of the federations, the local units attend to the assembling of the products, as well as grading, packing, and loading for shipment. The central agency looks after selling, collections, transportation and other general matters.

GREEN: Does the central agency ever own and operate the local plants?

EXPERT: Yes. That's what we call the centralized type of large-scale association. Most of those are in the dried fruit business. The growers hold membership directly in the central association and the local plants are owned and operated by the central. Raisins, prunes, dried apricots, peaches and figs are marketed by associations of that kind.

GREEN: Do the fruit and vegetable associations really save the growers much?

EXPERT: Yes. That is why they were formed. The growers believed it was possible to carry on the assembling, grading and packing of their products cheaper and better than those things were being done by the privately owned agencies. In many instances, concentration of a large volume of products at local points has made possible substantial savings for members. Even more important than that, however, have been the improvements made in preparation of the products for market.

GREEN: What improvements have been made in preparing fruits and vegetables for market?

EXPERT: Well, the fruit and vegetable cooperatives have been instrumental in improving handling and packing methods, and in establishing standard grades.

GREEN: What's the use of those standard grades anyway?

EXPERT: Well, in the first place, they help to stabilize the market. Standards provide a common language between the seller and the buyer. That's

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very necessary with stuff like vegetables and fruits. Most of them are perishable and lack uniformity in size and grade. Cooperative associations, particularly, find grade standards necessary not only to enable them to sell efficiently and economically, but also to enable them to make returns to their members on the basis of the grade and quality of the product each member delivers to the association.

GREEN: --- That's one of the things I wanted to ask you about. How do the fruit and vegetable co-ops handle payments?

EXPERT: Most of the fruit and vegetable associations pool the returns.

GREEN: You mean they settle with members on the basis of the average price?

EXPERT: Yes, on the basis of the average price for the fruits or vegetables of the same kind, variety, and grade delivered during the pooling period. The pooling period may extend over a week, several weeks, or an entire producing season.

Then, too, the distribution of fruits and vegetables has been facilitated by large-scale cooperative organizations. The market information they can get and their widespread market contacts enable them to sell when and where they can get the best returns.

GREEN: Some of them go in for advertising and making by-products and things like that, don't they?

EXPERT: Oh, yes. Several associations have been active in the development of new uses for fruits and vegetables and in the manufacture of low-grade products into by-products. The popularity of orange juice and the use of raisin bread, for example, may be traced to the selling activities of cooperatives. The fruit associations were among the first to use advertising to stimulate demand. Yes, there's no question about it, cooperatives marketing fruits and vegetables have rendered important services to their grower members.

ANNOUNCEMENT: Next week we will have the last of this series of discussions of cooperative marketing. Any of our listeners who would like to have the information contained in these talks in printed form, can get a special printed bulletin on "Cooperative Marketing" by applying to this Station. This bulletin is free of charge. We also have free bulletins on "Marketing Farm Products" and on "The Business of Farming." Write us for them.

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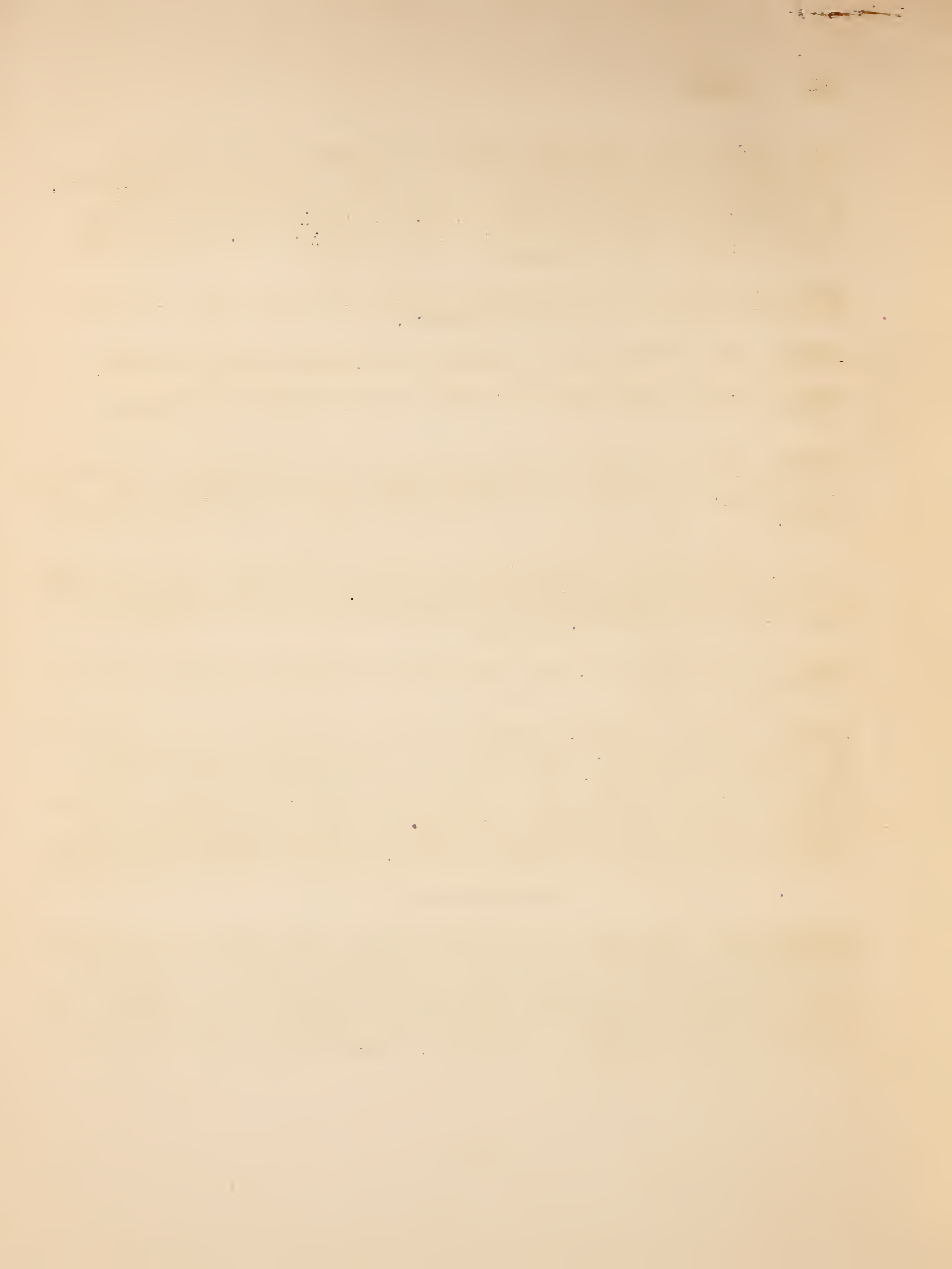
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U. S. RADIO FARM SCHOOL

Friday, April 20

Livestock and Dairy Meeting No. 29.

SUBJECT: Making and Storing Farm Butter.

NOT FOR PUBLICATION.

ANNOUNCEMENT: Our farm club is meeting again. The Department of Agriculture man who is a member of this club, is down front there now; - the man Hawkins is talking to there --- Hawkins told me awhile ago, he was going to ask something about putting up butter for winter use --- Let's hear what they have to say ----

EXPERT: ---- Yes, Hawkins, that's the case on many farms. Where you make butter for home use, it is a good idea sometimes to put away some of the surplus butter to use during the late fall and winter.

HAWKINS: ---- Yes, we've tried that. The trouble is, we put away the butter, but when we go to use it a few months later, it has become strong and rancid ---

EXPERT: Well, you are not the only one to have had that experience. The city dealer in creamery butter has had the same experience even when he stored it in a good cold-storage warehouse.

HAWKINS: Then how can we get around it?

EXPERT: Butter for storing should be made from perfectly sweet pasteurized cream. Many creameries make their butter that way now. The sourness of the cream greatly influences the keeping quality of the butter. Butter made from perfectly sweet pasteurized cream, churned without being ripened or soured in the least, and made under proper conditions will keep for months.

HAWKINS: How sweet does the cream have to be?

EXPERT: Oh, sweet enough to use in hot coffee without curdling.

HAWKINS: How about pasteurizing it? We are not used to pasteurizing cream on our place. We are not equipped for it.

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EXPERT: Pasteurization is a very simple process. It just means heating the cream to a temperature that will kill most of the bacteria in it.

HAWKINS: I know, but how would you do that on the farm?

EXPERT: Put the cream in shotgun cans or pails. Put the pails in a big kettle or other container partly filled with water, and set it on the stove. Stir the cream often while it is being heated. Bring it up to a temperature of 145 to 150 degrees and hold it at that heat for thirty minutes. Then cool it as quickly as possible down to 50 degrees or lower and keep it there for at least three hours before churning, so the butter granules will be firm.

HAWKINS: What's the best way to cool it?

EXPERT: Well, the cream may be cooled by running cold water into the kettle. Or you can set the cream cans in a tank such as is commonly used for cooling cream. Better still, you can run the cream over a surface cooler. And after the cream has been pasteurized to kill the bacteria that might produce bad flavors in the butter, you must be especially careful to prevent bacteria from getting into the cream while it is being cooled.

HAWKINS: How do you mean, prevent them getting in?

EXPERT: Why, see to it that all the utensils that come in contact with the cream are cleaned with a dairy cleaner and rinsed thoroughly with boiling water a short time before they are used.

HAWKINS: Just how do you make butter when you use fresh, sweet cream?

EXPERT: Practically the same way you do when you use sour cream. The churning temperature, should be regulated so that the butter granules come firm, but not hard. When making butter in the summer for fall or winter use, it is especially desirable to have it come firm enough so that the body will be waxy. When butter comes soft and slushy both the flavor and body are likely to be greasy or oily and to get worse with age. It is also important that the butter come in firm granules so that the buttermilk may be washed out easily. When the granules are the size of kernels of wheat, stop the churn. To keep keep on churning until the butter is in large masses gets too much buttermilk in the butter which causes bad flavors to develop.

HAWKINS: Well, what is the proper temperature for churning?

EXPERT: It may be as low as 52 degrees on one farm in one section of the country and as high as 60 degrees on another farm or in another section of the country; depending mainly on the feed of the cows and the length of time they have been in milk. The temperature should be regulated so that it takes about thirty

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minutes churning to get butter in firm granules. When the churning temperature is such that the churning period is thirty minutes or longer more of the butter-fat is churned into butter than when the churning temperature is high and the churning operation completed in a short time. By using a thermometer to take the temperature of the cream at churning time, it is an easy matter after a few churnings to tell just what temperature gives best results.

HAWKINS: How warm should the wash water be?

EXPERT: Usually about the same temperature as the cream. However, if the butter granules are too soft or too hard the temperature of the wash water may be either a few degrees colder or warmer than the cream. Warm wash/will have the same effect upon the body of the butter as a high churning temperature. When you use proper temperatures and methods, the butter is still in little granules after being washed.

HAWKINS: How much would you work the butter?

EXPERT: After you add the salt, work the butter just enough to distribute the salt evenly. Too much working injures the keeping quality of butter.

HAWKINS: Well, supposing I do make the butter out of pasteurized sweet cream, and churn it at a low temperature, and wash out the buttermilk thoroughly. And supposing I do keep the utensils clean and just work the butter moderately, how about storing it? How does butter keep best?

EXPERT: Why, butter keeps best in brine.

HAWKINS: How do you store it that way?

EXPERT: Make the butter into rolls of any convenient size. Then wrap them in parchment butter paper. Then pack them in a big stone crock and completely cover them with brine. If you don't pack them tight, however, some of them will float. In that case, put a weight on them to keep them entirely under the brine.

HAWKINS: How strong a brine do you use?

EXPERT: One part salt to three parts water. It is better to use too much salt than not enough.

HAWKINS: Where would you store the crocks of butter?

EXPERT: Store them in the coolest place you've got, and remember Hawkins you can get all this information in printed form from Leaflet Number Nine of

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the Department of Agriculture. It is called "Making and Storing Farm Butter for Winter Use."

ANNOUNCEMENT: Besides that Leaflet Number Nine on "Making and Storing Farm Butter for Winter Use, you can also get three printed pamphlets on "The Business of Farming", Marketing of Farm Products", and "Cooperative Marketing". All these bulletins may be obtained through this Station free of charge.

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U. S. DEPARTMENT OF AGRICULTURE

U. S. RADIO FARM SCHOOL

Mon. April 23, 1928

Crops and Soils Meeting No. 30.

SUBJECT: Protecting the Farm Woods.

NOT FOR PUBLICATION

ANNOUNCEMENT: This is the last week of our farm club this season.---- Yes, the meeting has already started. Some of the members there are just asking the Department of Agriculture man a few things about farm wood lots --- That's Bob Scott talking now ----

SCOTT: You say that each acre of farm woods can add one or two cords of timber each year?

EXPERT: I said it was capable of adding that much. The average farm woods is not adding one-half a cord.

SCOTT: Why's that?

EXPERT: Principally because of neglect. The owners don't seem to know they can grow a good crop if the timber is given reasonable care and attention.

SCOTT: Just what is reasonable care of a wood lot?

EXPERT: Well, among other things, is the protection of the woods from livestock. Damage from cattle, horses, hogs, sheep, and goats is worse in the small farm woods of ten to forty acres. Too commonly all the livestock on the farm are given the free run of the farm woods.

SCOTT: How does that hurt?

EXPERT: Just the way you would expect. The young trees from a few inches to a few feet tall are eaten, broken, stripped of bark, bent, or trampled out of existence. Not only that, but the soil becomes packed so that the rain water doesn't soak in well. The roots of the bigger trees become exposed and badly skinned. Rot enters the trees through the injured roots. The older trees gradually die in the tops and finally lose life completely. Eventually, the farm woods become simply a pasture with scattered old trees.

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SCOTT: But you get the use of the woods for pasture, all that time.

EXPERT: Yes, but the timber in the woods is more valuable than the forage. If it is pasture you want, the land will produce better pasture, if you cut all the timber off and give the area full sunlight.

SCOTT: I figure that two acres of common farm pasture and one acre of woods will support a cow and a suckling calf during a five month grazing season. The cow and calf will take only about a tenth of their food from the woods.

EXPERT: Yes, but heavily pastured woods make little or no net growth. Well-managed, unpastured farm woods will produce each year cordwood, posts, and lumber worth considerably more than the forage grazing animals can get from them.

SCOTT: Maybe so, but livestock need shade on hot days. And during the cold spring and fall weather they prefer to stand and browse around in the woods where it is warmer than in the open.

EXPERT: That's true, Scott. It apparently is advisable to give the livestock shelter. Two or three acres should be enough for that, however. You could fence off two or three acres of the woods and give the livestock the run of that. The rest of the farm woods should not be pastured. It will pay better as timber crop land.----Another thing, Scott, do be careful with fires in the woods. Fires kill, scar, or slow up the growth of trees. Not only that, they burn the leaves and twigs on the ground. If those leaves and twigs were left, they would rot and improve the soil.

SCOTT: Loss from burning leaves and twigs isn't much, is it?

EXPERT: Well, the fertilizer value of one year's crop of leaves is as much as \$3.00 to \$5.00 an acre.

SCOTT: I didn't realize it would be that much ---- but you can't always prevent fires.

EXPERT: You can prevent most of them. More than ninety per cent of woods fires are due to carelessness. You had better burn brush, rubbish, leaves, potato vines, meadows, and so forth, after four o'clock in the afternoon.

SCOTT: Why wait until four o'clock?

EXPERT: The air is damper at that time than in the middle of the day. A fire is less likely to run if it gets away.

SCOTT: --There may be something to that -- I had a fire get away from me and burn into the woods one day, when I left it to go in to dinner---

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EXPERT: Yes, it is especially dangerous to leave a fire during the noon hour. Many a fire has escaped and burned into the woods that way during the meal. Never leave an out-door fire untended at any time.

SCOTT: I guess I've learned that much. Nowadays, I'm always sure to have enough help around to take care of a fire if it breaks away and starts across the field. And I don't set fire to a number of big brush or rubbish piles one right after the other, particularly on a dry windy day. When you do that, I've found, the fire is likely to get away from one or more of the piles.

EXPERT: Yes, and when you burn brush or other material in a risky location, watch for a change or increase in the strength of the wind. If the wind threatens trouble, put out the fire at once and wait for a safer time to burn. And never build a fire at the base of a wooded or grassy steep slope. If fire gets away from such a location, it is almost certain to run to the top of the slope.

SCOTT: Well, I always have water handy.

EXPERT: That's a good idea, you can use the water most effectively if it is in a spray or sprinkling can of some kind. But buckets of water are a whole lot better than none at all. And, Scott, be careful with matches and tobacco. Be sure they are not burning when you throw them away. Carelessly discarded burning matches and tobacco are responsible for many woods fires. You should be as careful with them out doors as you are in the house. Also be very careful of camp and cooking fires in the woods. Be sure they are well out before you leave them.

SCOTT: Well, how about the damage insects and diseases do to timber? How can we avoid that?

EXPERT: Well, one thing you can do is to discriminate against the trees attacked by insects or diseases.

SCOTT: How do you mean?

EXPERT: Why, cut them out of the woods and favor those species that are not so susceptible to that kind of damage. When that kind of danger threatens, however, you should call for expert advice. Consult your state agricultural college or your State Forester; and I'll tell you where you can get a lot of useful information about managing the woodland.

SCOTT: Where's that?

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EXPERT: Write for Farmers' Bulletin 1177 on the "Care and Improvement of the Farm Woods".

ANNOUNCEMENT: Did you get the number of that bulletin? "Care and Improvement of the Farm Woods" is Farmers' Bulletin 1177. You can get it through this Station. We also have three other pamphlets specially printed for our radio listeners. These are "The Business of Farming" "Marketing Farm Products" and "Cooperative Marketing" and they may be had for the asking.

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U. S. RADIO FARM SCHOOL

Wed. April 25, 1928

NOT FOR PUBLICATION

Farm Economics Meeting No. 30.

SUBJECT: The Members' Part in Cooperative Marketing.

ANNOUNCEMENT: This is the last time this season that our farm club is going to talk cooperative marketing. It looks as if they were trying to get a lot of talk in this time though. Just listen to that bunch around the Department of Agriculture man --- Hear them?

STONE: --- It is up to the management, I claim. We've joined up -- but I haven't seen those better prices -----

EXPERT: Just a minute, Stone, just a minute! Do you members realize what must be done before you can get the better prices?

STONE: What d' you mean?? I know the association should be able to get more for our stuff than any one of us could by ourselves. If we could get enough members we should be able to force the buyers to meet our own terms ---

EXPERT: Well, now, Stone, did it ever occur to you that you may be depending too much on that increased bargaining power of the association or on that possible monopoly influence without seeing your own special job?

STONE: What do you mean "our job"?

EXPERT: Why, the job of the members of a marketing association is to modify production practices so as to bring them into line with changes in marketing methods and demand.

STONE: You mean that marketing problems begin with production?

EXPERT: That's it, exactly. Marketing at the present time is more than simply making a sale or sales at the highest possible price. It involves obligations to the buyer, and the better those obligations are understood and appreciated by the members of the cooperative the better the management can carry out sound operating policies and improve marketing services.

STONE: That looks like a job for the management.

EXPERT: Not entirely. -- The Division of Cooperative Marketing of the Department of Agriculture has been making studies during the last two years of the relations of cooperative members and their associations.

STONE: What kind of studies?

EXPERT: Well, more than 2,000 farmers have been interviewed, as well as cooperative leaders and members of the trade -----

STONE: What did they find out that way?

EXPERT: Those studies certainly show that there is a lot to be done by the members of some cooperatives before they will work efficiently.

STONE: What can the members do?

EXPERT: You members select the management, either directly or indirectly. You get the kind of management justified by your interest in the association and the degree of your understanding of marketing problems and marketing methods and practices.

STONE: Yes, but the management decides what shall be done.

EXPERT: When you vote for directors, you have a chance to approve the previous management policies or to reject them by voting for directors committed to definite changes.

STONE: In our co-op when we asked for changes, they claimed we were trying to wreck the association. The management fights any changes tooth and toenail.

EXPERT: I know that's been the case in a few co-ops. But gradually, they are coming to see things in a new light. Some things we used to consider fundamental don't seem so essential now.

At any rate, the members are the association. Because the members are the association, they are entitled to determine the policies and methods of operation and express themselves regarding them.

STONE: I'm glad to hear you say that ----

EXPERT: The cooperative association exists for the members, and for the members alone. The wants and wishes of the members should have supreme authority in determining the policies of their association.

STONE: I wish you would tell that to our management. They tell us that if we had our way, the association would blow up. They say our ideas are not sound --

EXPERT: Of course, if what you members want is not in keeping with sound economic principles, than, disaster may come -- and probably will. That makes it important for the members to be informed ----

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STONE: Informed about what? ---

EXPERT: About the fundamental economic principles of marketing. About the limitations of cooperative marketing as well as its possibilities. You members also have close connection with the quantity and quality of products handled by the association. In associations handling the produce of members only, the members have the final say-so.

STONE: How's that?

EXPERT: Why, the members alone can make production fit in with marketing plans. You are the ones who must make the changes in production practices so as to better meet the market demands.

STONE: What kind of changes in production do you mean?

EXPERT: Well, changes in production practices may involve changes in the varieties you raise. Or they may involve better handling and care of the stuff you raise before you deliver it to the association.

STONE: The association decides the quality of the stuff we deliver to them ----

EXPERT: Yes, and it is up to you individual members to help the association create consumer preference for your product and good will by improving and standardizing its quality.

STONE: Don't you think it should be one of the jobs of the management to teach us how to do that?

EXPERT: It certainly should. Cooperatives are democratic organizations. The business of marketing is not left entirely to the management. The members play a distinct part in making improvements in marketing by means of cooperative effort. For that reason, it is most important to educate the membership in marketing problems and policies.

ANNOUNCEMENT: This is the last of the series of talks on cooperative marketing of farm products. The information contained in this series is included in the pamphlet entitled "Cooperative Marketing" which can be had for the asking on application to this station. Other free pamphlets now available are "Marketing Farm Products" and "The Business of Farming." Send us your name, if you wish any or all of these printed radio lectures.

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U. S. RADIO FARM SCHOOL

Fri., April 27, 1928.

NOT FOR PUBLICATION

Livestock and Dairy Meeting No. 30.

SUBJECT: Cottage Cheese Making.

ANNOUNCEMENT: This is the last meeting of our farm club this season. That bunch down front there have been talking things to eat and ways to use some of the skim milk at home on the farm. Listen -----

EXPERT: Yes, that's right, Parker. Cottage cheese furnishes a convenient way of using skim milk, for human food. It is economical, too.

PARKER: What equipment do you have to have to make it?

EXPERT: You don't need any special equipment. Cottage cheese is very easily made. It is highly palatable and nutritious product, I'll tell you.

PARKER: You have to eat it fresh, don't you?

EXPERT: Ordinarily, cottage cheese is eaten fresh. But you can keep it several days.

PARKER: It will get sour in that time, won't it?

EXPERT: Not if you store it in a cool place. However, if you are going to keep it several days, you had better store it in an earthenware crock or something made out of glass rather than anything made of tin or wood.

PARKER: Well, just how do you make cottage cheese?

EXPERT: You take clean, well-cared for milk and put it in a pail or in a shotgun can. Then warm the milk to 75 degrees and let it stand at that temperature until curdled.

PARKER: Do you have to be very exact about that temperature?

EXPERT: Yes, if you expect to get uniform results, you should always use a thermometer.

PARKER: How much cheese will a gallon of skim milk make?

EXPERT: About a pound and a half. In making cottage cheese, you must sour or ripen the milk.

PARKER: Would you let it sour naturally or would you use a starter?

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EXPERT: If you have used care in the production and handling of the milk, you can make a good grade of cottage cheese by allowing the milk to sour naturally. But you can get better and surer results by using a starter. Starters speed up acid fermentations and tend to keep down undesirable fermentations.

PARKER: What do you use for a starter?

EXPERT: You can make a starter by letting desirable acid-forming bacteria grow in a quantity of milk until they make the milk sour. About a cupful of starter of good sour milk is enough, although you can use more or less.

PARKER: How long does it take for curdling?

EXPERT: That depends on the freshness of the milk and whether or not you use a starter. With a starter the skim milk will curdle in ten or fifteen hours. Without a starter the milk may not curdle for twenty-four hours or even longer. The more starter the shorter the time.

During the setting period, it doesn't need any special attention. When a smooth, firm curd has been formed, it is ready for cutting.

PARKER: How do you cut it?

EXPERT: Oh, just cut the curd crosswise into one or two inch squares with a long-bladed knife. Then heat the mixture of whey and curd particles to about 100 degrees and stir at intervals for about half an hour,

Stirring and heating gradually reduce the size of the curds until they are a little smaller than a pea. When they get that size, the curd is ready to drain. The degree of heating, the size of the curd particles and the acidity developed largely determine the texture of the cheese.

PARKER: How do you drain the curd?

EXPERT: Pour the curd on cheese cloth and let it drain into a pail for fifteen to twenty minutes. Don't disturb it during that time or it may get mushy and if it does the whey will be harder to get out of it. Then after that preliminary draining, you should raise and lower the sides of the cloth several times, in order to get the whey out quicker.

PARKER: How long would you keep draining it?

EXPERT: Until very little whey separates upon standing. Then it is ready for salting.

PARKER: How much salt would you use?

EXPERT: Oh, just salt to suit the taste. A little over one teaspoonful is ordinarily used for each pound of curd. You just sprinkle the salt on the curd and then work it in with a spoon or a paddle. Then the cottage cheese is ready to eat.

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PARKER: How about using rennet or junket tablets in making cottage cheese?

EXPERT: That makes a cottage cheese with fine, uniform texture.

PARKER: But how do you make it?

EXPERT: Oh, the same way I just told you, except you dilute two or three drops of liquid rennet in a tablespoonful of cold water and stir it in the milk. If you don't use a starter, it is best to allow the milk to stand several hours at about 80 degrees in order that it may ripen a little. When rennet is not available, one-eighth of a junket table can be dissolved in a small quantity of cold water and added to each gallon of milk.

PARKER: Do you have to cut the curd and heat it?

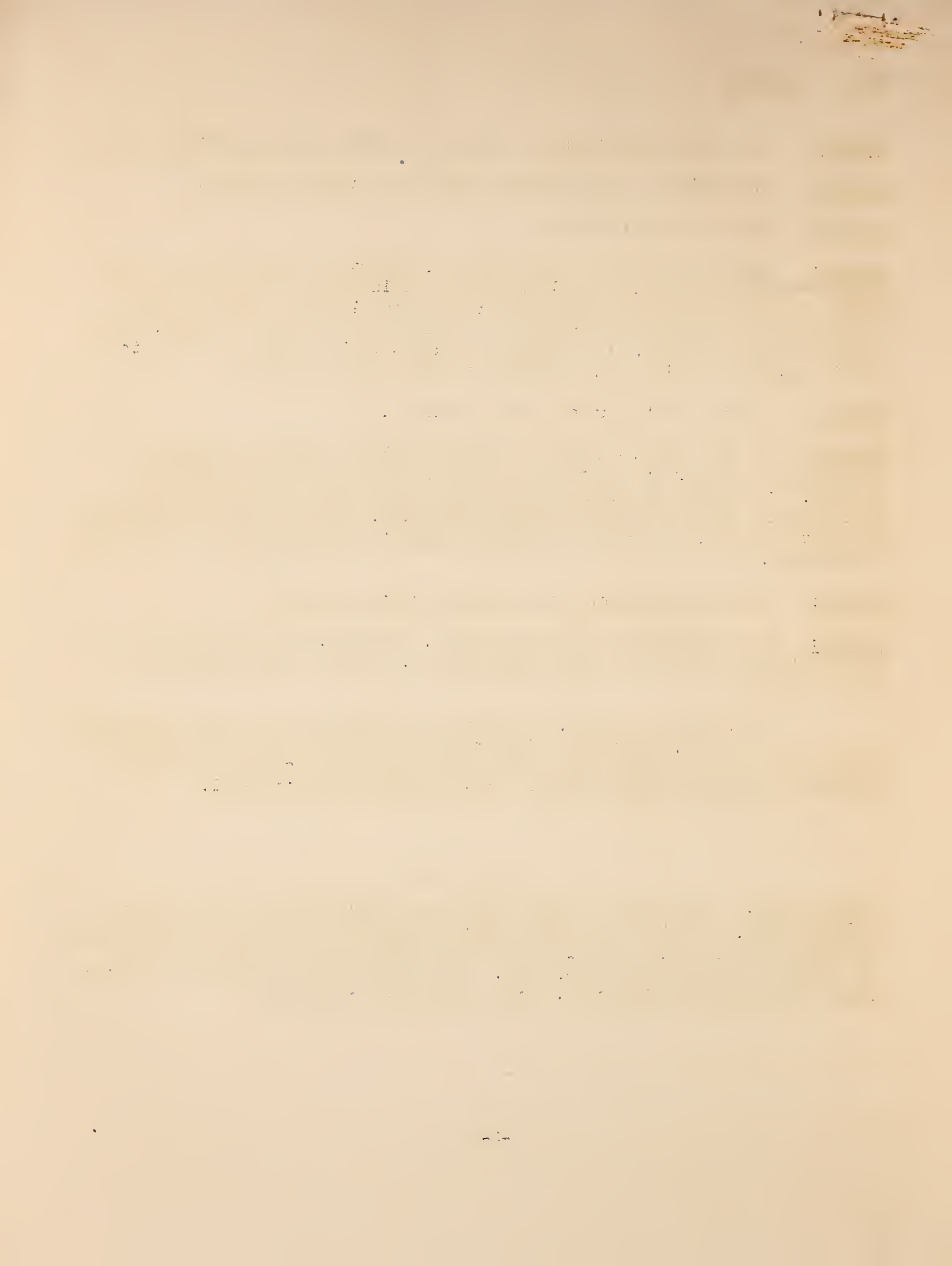
EXPERT: No, when you use rennet or junket tablets, after the milk has coagulated, you pour it directly upon the drain cloth without cutting or heating. On account of the fineness of the curd, you need a fine, heavy drain cloth. After a short preliminary draining, draw the ends of the cloth together, tie them, and put on enough pressure to bring the curd to the right consistency.

PARKER: Would you pasteurize the milk for cottage cheese?

EXPERT: It is better to do it, if you can. However, if you pasteurize the milk just before you use it for making cheese, you will absolutely have to use a starter.

And remember, Parker, the flavor of cottage cheese can be controlled by the use of clean, sweet skim milk and a good starter, but the texture depends upon careful manipulation during the making. You can get a Farmers Bulletin on Cottage Cheese making, It is Farmers' Bulletin 1451.

ANNOUNCEMENT: The number of that bulletin on cottage cheese was Farmers' Bulletin 1451. We also have three printed pamphlets which have been specially prepared for our radio farm listeners and which may be had for the asking by applying to this station for them. The titles are "The Business of Farming", "Marketing Farm Products," and "Cooperative Marketing".



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U. S. RADIO FARM SCHOOL

Mon. Apr. 30, 1928.

Crops and Soils Meeting No. 31

NOT FOR PUBLICATION

SUBJECT: This is the last meeting of our farm club this season. Before we disband for the summer the Department of Agriculture man said he would answer some questions about soil fertility. Hodgkins there is asking him about legume bacteria now --- Listen -----

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HODGKINS: --- Sure I've seen those knots on the roots of clover. Beans and peas have them too. So does alfalfa and vetch ----

EXPERT: --- Well, those were what I was referring to as nodules or tubercles. Those knots are caused by certain legume bacteria, microscopic organisms which live in the soil and enter the roots of their favorite plants when they get a chance. The plants and the bacteria are partners. The bacteria take nitrogen gas from the soil air and manufacture it into compounds which the plants use in growing and in return the plants furnish the bacteria with food.

HODGKINS: Does that go on all the time?

EXPERT: Yes, as long as the plant is alive. When the plant dies the knot-making bacteria pass back into the soil. Under favorable conditions, they can live there indefinitely.

HODGKINS: How much nitrogen do legumes add to the soil?

EXPERT: Oh, legumes and bacteria add nitrogen in proportion to their vigor, and their adaptability to conditions, and the length of time they are growing. A main crop adapted to the soil and climate and on the land for a long season may store 150 to 200 pounds of nitrogen to the acre. On the other hand, crops that are only on the ground a few months may store only 60 to 70 pounds of nitrogen to the acre.

HODGKINS: Do legumes get all their nitrogen from the air that way?

EXPERT: No, legumes, like non-legumes, can take nitrogen from the soil. On real rich soils you may be able to grow good crops of legumes without the help of the knot-making bacteria. On the other hand, soils poor in nitrogen are usually much improved by legumes with their proper bacteria. Without the help

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of the bacteria, in fact, you can't expect improvement in either rich or poor soil.

HODGKINS: Do legumes all have those knot-making bacteria naturally?

EXPERT: Well, it is a rare thing, when moisture conditions are right to find a wild-growing legume without those nodules. Of course, you understand, nodule bacteria vary in their ability to produce nodules. Some are adapted to red clover, some to alfalfa, some to cowpeas, some to vetch, some to soybeans, and so on.

HODGKINS: Why is it then that cultivated legumes don't always have those knots?

EXPERT: Well, in the case of cultivated legumes, they don't choose the soil in which they are grown. If soil or drainage conditions are unfavorable, you have to correct the conditions before you can expect the plant or the bacteria to do their work well. If a new legume is introduced it is often necessary to bring the proper bacteria to the soil in which the seeds are sown. That was the case with the first plantings of alfalfa and soybeans in this country.

HODGKINS: How can you tell whether a field needs bacteria or not?

EXPERT: Plant the legume. If nodules form on the plant roots, it is evidence of the presence of the proper bacteria in the soil. If the nodules are very scarce on the plants it may be an indication that the soil needs lime or some other treatment to make it a more favorable home for them. If no nodules form on the roots, the bacteria are probably not in the soil.

HODGKINS: I'll have to decide that for myself, eh?

EXPERT: Yes, unless I knew your local conditions, I couldn't advise you correctly whether you needed to inoculate with bacteria or not. In a general way, however, I might say that red clover bacteria are usually plentiful in good soils of the northeastern United States. Cowpea nodule bacteria are quite universally prevalent in the southeastern states. Soils west of the 95th meridian and east of the Pacific coast region are well supplied with alfalfa bacteria.

HODGKINS: How would you inoculate plants with the proper bacteria? Would you just haul in soil from a field where that particular legume was successfully growing with those nodules on the roots?

EXPERT: Well, that's the way it used to be done. But that took quite a bulk of soil, from 500 to 1,000 pounds, and there are always chances of transferring crop pests and plant diseases that way.

HODGKINS: I'm not looking for extra work ---

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EXPERT: You could apply a dry, well inoculated field soil to seed which have been treated with glue solution. That would take only about a quart of soil for a bushel of seed. Or you could just mix the soil and seed in equal proportions and sow the mixture. That gives satisfactory results. However, you can get preparations in sand, soil and agar jelly which are used in small quantities for treating seed. Such preparations are sold by commercial concerns and also distributed by some of the Agricultural Colleges and Experiment Stations.

HODGKINS: Do those preparations just contain the bacteria of the particular legume for which they are intended?

EXPERT: Well, that's all some of them contain. Others have in addition to the nodule bacteria, harmless foreign organisms; and some consist of field soil unsterilized and apparently reinforced with some other materials. But there is danger of spreading disease with those unsterilized soil sorts. Rather than buy material of that kind, you should select your own material from well inoculated spots in your own or your neighbor's field. If you can't do that, you can inoculate a small, well-limed, well-drained patch of good soil and plant it with the legumes you wish to inoculate. Then the soil from that plat can serve as an economical and satisfactory source of inoculation.

HODGKINS: How much of that kind of soil would you use?

EXPERT: Oh, apply it at the rate of about a pint to a bushel of seed. --- But if you want to know about inoculation of legumes, why don't you write the United States Department of Agriculture for Farmers' Bulletin No. 1496?

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ANNOUNCEMENT: Did you get that number? Farmers' Bulletin No. 1496. It is called "Inoculation of legumes and non legumes with nitrogen-fixing and other bacteria. You can also get those three pamphlets for radio listeners, on farm economics. One is called the Business of Farming; another is entitled Marketing Farm Products; and the third is Cooperative Marketing. If you haven't already done so, just drop us a line here at this Station. The booklets are free, they may be had for the asking.

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