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TALKING TURKEY

UNIVERSITY OF MINNESOTA
OCT 1982
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This Bulletin is NOT a turkey encyclopedia. Here is outlined a simple, sensible plan of confinement growing that will help to avoid most turkey troubles. To get the most from it, you should read it from cover to cover. Reading time is one well-spent hour.

By **W. A. BILLINGS**

Agricultural Extension Service

UNIVERSITY OF MINNESOTA
U. S. DEPARTMENT OF AGRICULTURE

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W. A. Billings

In addition to this bulletin, we are in a position to furnish you with brooder house plans, sun porch plans, and range shelter plans. Besides, there are diagrams of feed hoppers and waterers. You are welcome to consider us your consultant or advisor.

A special bulletin on turkey diseases is now available. If you are having trouble with one of the common diseases of turkeys, send for Extension Bulletin 214, "Common Diseases of Turkeys." It is free for the asking.

Greetings

THE PURPOSE of this bulletin is to help you raise turkeys. You may be an out and out beginner without any experience whatever. This need not embarrass you in the least for after all it may even be an asset because you will have no bad habits to forget. Then again, you may be one of those who gave up turkeys many years ago because you found them too hard to raise, but NOW encouraged by the success of so many others you would like to start all over again, this time on the right foot. Should you belong to this very large group of ex-turkey growers, you will find a lot of water has gone over the dam since you used to raise turkeys. However, if you are willing to disregard all the old fairy tales and bedtime stories formerly accepted as gospel, you should get on famously.

Even though you may belong to this newer generation of turkey growers with several years of experience behind you, there should be much of interest and help for you too. Perhaps you have had too heavy losses lately

without knowing just why. Perhaps you have been cutting the corners too closely and need some checking up on your management. Therefore a dress rehearsal of the bare essentials of modern turkey production will not be out of place. But wait . . . to get the proper background and to better understand the reasons for the present New Deal in turkey growing, we will pause to briefly review the old grab-bag methods.

The Story of the Turkey Industry

ANCIENT HISTORY

TWENTY years ago raising turkeys was a gamble. The bulk of the crop was raised by farmers who kept a dozen or so breeding hens and a couple of toms. They wintered themselves astraddle the ridgepole of the barn. Along about the time of the first spring thaw, the hens' maternal instincts got the better of their judgment and they began to seek secluded places to lay eggs. Being retiring in nature, the birds often chose nesting places far from the farmhouse. If a sudden cold spell followed, many of the eggs were chilled or even frozen. Anyway, the entire chore of producing baby turkeys fell upon the hens. They sat on the eggs or even deserted them. However, nature being what it is, many of the hens actually did hatch a dozen or so bright-eyed poults. The race against death now started in earnest. Whenever the turkey hen mothers saw fit to lead their broods on a tour of inspection of the farmyard, the housewife might give them a hand-out of rolled oats, johnny cake, clabbered milk, or cottage cheese. That constituted the feeding program, but even this was short-lived.

Turkey Hens Undependable

Turkey hens always have been notoriously undependable as mothers. They trampled on and often killed half their family. If they had lice, the little ones got them too, and many died during the first few weeks. The mothers

enticed the poults on wild goose chases all over the farm. A sudden shower might drown several on the return trip. The first couple of months were the hardest. After this the survivors were considered able to fend for themselves. They did try, but the odds were too great and many died. Out of a hundred starters, a farmer was lucky to finish the season with 25 marketable turkeys. Even this didn't discourage some farmers because the nation's crop was only a few million birds and the price was often as much as 50 cents a pound. So turkey raising was still considered profitable if one had birds to sell. However, the losses did not always stop at 75 per cent. We know of many who started out with 50 or 60 birds, and before the season was half over only a half dozen remained as evidence. Nobody made any pretense of feeding turkeys after they got beyond a few weeks old. Everyone took for granted they were natural foragers and would pick up their own living.

Was Hit-or-Miss Undertaking

To sum up, turkey raising was a hit-or-miss undertaking. Turkeys got the reputation of being delicate. Each year the crop dwindled. Newspapers continually printed stories saying the national festive bird would become extinct in a few years. The whole situation was a puzzle to the farmer. He liked turkeys well enough, but he was sick and tired of watching them drop off one by one all summer and fall.

He was pretty sure they didn't all die by accident because when some of the sick ones dragged themselves back to the barnyard to die, he often took the trouble to open one or two and almost invariably found the liver covered with greenish-yellow areas like rotten spots in an apple. Of course there might have been other ailments, but this one stood out above all the rest. Since the heads of many of the sick birds frequently appeared dark in color, he soon learned to call the trouble "blackhead." As was perfectly natural, everybody guessed at the cause. Some said blackhead was caused when the little turkeys got their feet wet (you will probably recall the dew-on-the-grass yarn). Heavy losses often occurred in the fall about the time corn is in the milk stage, so the story got noised around that blackhead came from eating soft corn. Some people still believe this nonsense.

THEN SOMETHING HAPPENED

In the late nineties, scientists demonstrated that blackhead was not caused by turkeys' getting their feet wet, eating soft corn, or anything of the sort, but was a distinct infectious disease. A few years passed and other workers pointed out that chickens had something to do with blackhead but didn't know just what this was. From then on a great deal of investigation took place at several experiment stations, but it was not until the early twenties that blackhead was found to be transmitted through the eggs of the common caecal worm of chickens. Now we were beginning to see daylight. There was some hope for the turkey

grower after all. Since that time a revolution has taken place in the turkey world, but before we talk of that, let's take time out for a short description of this disease we call blackhead. This is important because it was the control of this one disease that made possible present-day commercial production.

BLACKHEAD

The proper name for this disease is entero-hepatitis. It means an inflammation of the intestines and the liver. The entero part of the name refers to the intestines and the hepatitis part means an inflammation of the liver. Blackhead is caused by minute protozoa or germs which enter the turkey's body by way of the mouth. Chickens have this disease, but only rarely. Turkeys of any age may become affected, some as young as a month old. As has been mentioned above, the germ of blackhead is carried within the eggs of the caecal worm.

Symptoms Easy to Recognize

Symptoms of blackhead are not hard to recognize. Turkeys may be infected at any age, but they appear to become more resistant as they grow older. The sick birds stand about in humped-up, sleepy attitudes, the normally red head parts become dark in color, and many of the birds have a characteristic greenish-yellow diarrhea. There is loss of flesh. Some of the birds are visibly sick only a few days before they die, while others may drag around for a couple of weeks. Farmers report the heaviest losses occur in the spring and fall.

This is probably due to bad weather at both of these seasons and to the fact that those birds weakened by the disease are not able to withstand sudden weather changes. This partially accounts for the dew and soft corn theory.

One nice thing about discussing blackhead is we do not need to waste much time describing treatment. There is no drug, chemical, or "tonic" of any value either to treat the sick birds or to prevent the well ones from getting the disease. Vaccines, too, are worthless, either to prevent or cure blackhead. There is, nevertheless, no scarcity of supposed cures. We see these advertised in practically every poultry or turkey magazine. None of them are recommended. Many turkey growers like to put "stuff" in the drinking water to prevent this and other diseases. It may salve the owner's conscience, but it merely annoys the turkeys and does no good whatever.

Don't Depend on Medicines

The reader is well aware of the truly remarkable comeback staged by the turkey industry, but don't think for one single minute this was accomplished with medicines. If your success in turkey raising depends on the use of medicines, you are licked before you start. When our hard-working scientists discovered that blackhead was transmitted to turkeys through the egg of the caecal worm, they gave us something far more valuable than all the drugs in the world. They pointed out that all we had to do to whip blackhead was to raise our turkeys away from contact with chickens and on ground where chickens have not been. We must even have soil that

has not been top dressed with poultry manure because it is possible to transmit blackhead to turkeys by merely feeding them chicken manure.

What Then to Do about It?

Now you see, we were getting somewhere. We knew the cause of blackhead. We knew there was and still is no cure or preventive treatment. We learned that blackhead and chickens go hand in hand; therefore, the smart thing to do if we really wanted to raise turkeys, was to DIVORCE the turkeys from chickens. There must be no half-way measure. The divorce must be absolute and uncontested. If we did not do this, the situation was pretty hopeless.

Along about this time, say in the early twenties, the folks at this University decided that if Minnesota was to cut much of a figure in the turkey business something would have to be done to give it new life. This looked easy because all we had to do was to go out into the country and try to persuade our farmers to take advantage of this startling knowledge and raise turkeys scientifically. Actually, this was much easier said than done, because to divorce turkeys from chickens one must keep his turkeys far away from the farm buildings and to keep them there would require fences. Even the suggestion of fences for turkeys brought a smile because nobody thought turkeys would stand confinement. Many thought they would fly over the fences or if they didn't, they would die of a broken heart. Besides that, just think of the feed problem. How could fenced turkeys chase grasshoppers all over the farm and run over the freshly harvested grain field?

This was considered very important because no one dreamed you could make any money if you had to carry feed to the birds. So much for the situation not so many years ago.

Here's What Happened

A simple plan was devised whereby turkeys were to be removed from their old haunts around the farm buildings. We even decided to eliminate the turkey hens as hatchers of eggs and brooders of the poults. This called for a good deal of scoffing because incubators and brooder houses were not commonly used in turkey raising. We did go out to the farms and persuade a number of farm women to throw the old notions overboard and try the new plan. Perhaps they had their fingers crossed, but they were at the end of their ropes and were willing to try anything, even a "crazy" idea. Suffice to say, the plan worked like a charm. We started this statewide program back in 1926, and from very small beginnings, the turkey industry has now

developed into a major farm undertaking. Minnesota raised just short of three million turkeys in 1939.

From year to year the plan of growing turkeys in confinement on chicken-free soil has gained acceptance until it is now safe to say that no successful turkey grower would consider raising turkeys any other way. Blackhead is no longer a menace to the turkey industry. At least it need not be. Of course there are other diseases besides blackhead, but fortunately for us this simple plan of sanitation will effectively control most of them. Diseases such as worms, coccidiosis, etc., are all nicely put in their place if one will but follow the step by step outline. In a nutshell, the whole plan consists in raising the birds far from the farm buildings, artificial incubation, brooding, and confining the growing flock inside 5-foot fences in yards that are changed every few weeks during the season. Always rotate the growing fields from year to year. Never return to the same field the following year. Allow a 3-year rotation if possible.

Here's the Plan

WE WILL now outline the various steps as simply as possible. Do not cut any corners. Everything we ask you to do is sensible. You may be poorer than the proverbial church mouse and still be able to go along with us. You will discover we have ceased to encourage hen hatching and

brooding. The hen method is decidedly out of date and does not fit in with any plan of sanitation. Don't argue with the suggestions, but instead, swallow everything, hook, line, and sinker. We are sure you won't be sorry.



The Breeding Flock

THE BREEDING FLOCK

THERE has been a steadily increasing tendency for growers to buy day-old poults from commercial hatcheries rather than keep their own breeders and hatch their own eggs. They like this idea because it eliminates the labor, expense, and risk connected with wintering a breeding flock. Besides, there is no denying it is mighty convenient to get all the poults on the same day. The large commercial turkey raisers started this practice, but it didn't take the small grower long to catch on. As a result of this trend, southern and far western growers have developed very large flocks of breeding hens, sometimes numbering tens of thousands. These egg producers now annually ship millions of turkey eggs to our mid-west hatcheries. On the other hand, there are many growers who go half way, that is, they keep their own breeding hens, but take the eggs to the hatchery for incubation. Unless poults are dirt cheap, there isn't much question but that a grower could produce his own poults cheaper than he could buy them. Economy, however, does not appear to be the motive for the increase in hatchery poult sales. Growers do not like to be bothered with maintaining breeders and would rather pay a little more and have their poults delivered to them all at one time. So much for this angle.

No Best Breed

There is no "best" breed of turkeys. Select the variety YOU like best. While it is true the vast majority of

turkeys are of the Bronze breed, this does not necessarily mean they are the best for you. All breeds have their good points. All are subject to the same diseases and all respond equally well to the plan we are describing.

There has been considerable interest in "cross-breeds." Crossbreeding always results in a mixture that looks bad, and beside that the crossbred birds have no outstanding qualities that justify this practice. For those who are not satisfied with any of the standard breeds, there is a new type of turkey called the Broad Breasted Bronze. This is a recent development. These birds are short legged, wide through the breast, and make very rapid gains. The breeders of these turkeys pay no attention whatever to feather markings. This new variety of Bronze has met with widespread approval and is much in demand. The grower who crosses the standard breeds to get a better carcass would be far better off to investigate this meatier type of bird.

The best time to select birds to be kept over as breeders is **BEFORE** the best ones have been picked out and sent to market. Some growers have been guilty of selling their best birds and keeping what is left for breeding stock. The early hatched and faster maturing birds are always best. How many breeding hens one should keep will depend on how many poults you want. A safe guess is to figure on about 10 **EARLY** poults for each hen kept. The hens will of course lay many more eggs, but the resulting poults will be pretty late. One tom

should be kept for each dozen hens. It is always a good plan to keep an extra tom or two for "spares." You see, one might die just before the mating season, and at that time it might be difficult to replace him. The breeding flock is better running all together provided the toms do not fight too much. In this case they must be taken out until just before the mating season. It is far easier to have one breeding flock rather than a dozen or more individual pens. Should the toms spend all their time scrapping each other,

the small pens become a necessity.

Since the turkey business has become highly commercialized, pullorum disease has made its appearance and far-sighted growers are testing their breeding flocks early in the fall before final selections are made. All birds reacting to the test should be disposed of. The test should, if possible, be carried out under the supervision of the State Live Stock Sanitary Board. Buyers of both eggs and poults are beginning to insist these come from flocks free of pullorum disease.

Wintering the Breeders

IN MINNESOTA we usually have severe winters, therefore the breeding flock should have some sort of protection. This need not be either expensive or elaborate. A fenced enclosure on the lee side of a grove would be splendid. The fence should be about five feet high. A shed, open to the south, will do very well for extra comfort when it is too cold for the flock to roost outside. In moderate winter weather the birds will prefer to be outside rather than in.

A yard is desirable to prevent the flock from wandering up to the farm buildings. We recall a grower who forgot this point and his breeding flock died off 100 per cent from blackhead before the laying season arrived. The winter yard and shelter should be well outside the limits of the farmyard, but still close enough to be accessible. In snowy weather the birds will appreciate a load or two of straw strewn about the yard. This helps to keep them dry. After a heavy snow, take a pitchfork and shake the snow

through the straw. Turkeys do not have to be coddled, but there is a limit to what they can stand. Comfortable quarters will do a lot to keep up the vitality of the flock and prevent winter colds or an outbreak of cholera.

In an effort to secure January and February eggs, a few growers have housed their breeding flocks throughout the winter just like so many chicken hens. This has not as yet been an unqualified success, but no doubt further experience will iron out mistakes and make this practical if one insists on very early egg production. The main reason for winter housing is to produce one's own early eggs and thus avoid the necessity of importing them from warmer states where early eggs are easily secured without the use of expensive winter shelters. This kind of wintering would of course increase production costs tremendously. Most growers won't be concerned with this extremely early egg program, because a building fit

to house even a small flock would run into a great deal more money than most of us would be willing to spend.

In cold weather, watering the flock presents quite a serious problem. Turkeys will eat snow, but WET water is much more desirable. If the pocketbook permits, one might purchase any one of a variety of water heaters. Otherwise, fresh water must be supplied at frequent intervals. On extra cold days, the birds will enjoy a steaming hot wet mash. Put out just enough to be eaten quickly before it freezes.

We hear a good deal of idle talk about the danger of having the breeding hens too fat for service. This is largely a myth because most hens are far from being too fat. As a matter of fact, the hens should be in tip-top shape BEFORE the mating and laying season comes along. If they aren't then, they most certainly won't be afterwards. At the end of the laying period, most hens are thin, run down, and look pretty shopworn so a good

start will stand them in good stead.

In the fall and early winter the farm flock of breeders may be kept right on their regular growing mash plus 2 per cent cod-liver oil. Continue this until the time comes to make adjustments in the ration preparatory to egg laying. The "five point" ration will do very well up to the time we begin feeding the "laying" ration. The five point mixture consists of equal parts of corn, oats, bran, middlings, and meat scraps or some other suitable protein supplement. Meat scraps contain considerable bone and fill the bill satisfactorily. Any small grain combination may be used along with the mash. This might be corn and oats, wheat and oats, corn and barley, etc. Both whole grain and mash are fed in self-feeders. Do not be afraid the birds will overeat. This seldom happens. During the early winter months our aim should be to put the hens in the pink of condition. They will need extra fat to keep them warm and as a reserve for the strenuous days ahead.

The Laying Season

AS POINTED out in the last section, none but a few commercial egg producers will be interested in completely housing the layers throughout the winter. Most growers will be content to maintain the breeders out of doors, but with a reasonable degree of protection.

The laying flock should ALWAYS be yarded. There is no exception to this rule. Gone are the days when the farmer, his wife, and children must chase all over the farm in search of

stolen nests. This advantage alone will more than justify the expense incurred in fencing the flock, but there are still other excellent reasons. The nests are easily located and the eggs collected at frequent intervals. There will be no more chilled or frozen eggs. Broody hens are quickly spotted and steps taken to break them up. Besides, it is obviously impossible to properly feed and care for a flock when they roost and lay eggs all over a section of land.

About the middle of January or at least by the first of February, the mash should be changed to include a few additional elements the hens will need when they start laying. There are many satisfactory laying mash formulas. The following one has been used successfully. The amounts given in pounds will make 1000 pounds of mash.

Corn	225	Alfalfa Leaf Meal	100
Oats	100	Meat Scraps	125
Bran	150	Dried Milk	75
Middlings	200	Salt	5

20 pounds or pints of good grade, fresh cod-liver oil.

If "fortified" oil is used, only 5 pints will be required. So far as we know now this mash will contain all the essential vitamins. Feed the above ration in self-feeders along with regular scratch grains.

Convenient nests should be provided. One nest for each 2 or 3 hens would be about right. The caretaker will be able to decide whether there are enough nests to supply the demand. Boxes or small barrels are commonly used, but they should not be too big else two or more hens may insist on occupying one nest at the same time. The nests should be just large enough to accommodate a single hen. Proper size nests and at least twice-a-day collection of the eggs will help to prevent egg breakage.

When mating begins, the hens should be fitted with canvas saddles. These are specially designed pieces of stout canvas which are placed on the backs of the hens to prevent bruises and even more serious injuries. Their use will insure the hens against excessive wear and tear, and they will be in much better physical condition when the time comes to send them to market. Most chicken and turkey magazines

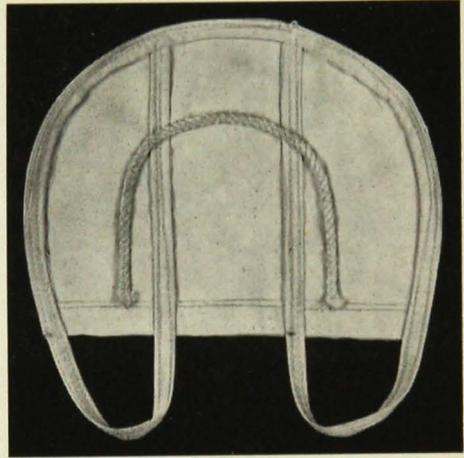


FIG. 1. SADDLE FOR BREEDING HEN

All breeding hens should be provided with these back protectors. If hens could talk, they would demand them. They prevent a great deal of bruising and tearing.

carry advertisements of concerns with saddles to sell. It will probably be cheaper to buy them ready-made. Strong, well-sewed saddles will last for several years and are well worth the investment. We used to polish the tom's toe nails, file his spurs, or put on rubber guards, but the saddles do a far better job. If turkey hens could talk, they would demand them.

Growers are sometimes perplexed as to whether they should allow the entire flock of breeders to run together or separate them into small pens of a dozen or so hens and one tom. It is far easier to have one pen than a dozen or more. One yard is quite all right unless the toms spend all their time fighting one another. In this case the small pens would be a necessity. Some growers even rotate the toms in each of the small pens. By that is meant they permit a tom to remain in a given pen only one day and then replace him with another. If the tom

in a certain pen plays no favorites, this rotation is hardly necessary. Of course a few breeders will use the individual pen for special matings.

COLLECTING AND STORING THE EGGS

Turkey eggs should be gathered often to prevent breakage and possible chilling. Freezing temperatures will injure the germ within the eggs. Many growers do not store eggs properly. They should not be stored in the kitchen. An upstairs spare bedroom might be all right if the temperature could be kept between 45 and 60 degrees. Investigators say 55 degrees is ideal.

Place the eggs in cases and lean them against the wall, either end up. If they are not held longer than two

or three days, they need not be turned, but if it becomes necessary to hold them longer, the cases should be turned end for end once each day. For good hatchability, turkey eggs ought not be stored longer than two weeks. Some people do keep them longer and even report fair hatches. Nevertheless, when eggs are held longer than two weeks, extra care must be taken to keep the temperature as close to 55 degrees as possible.

As one would expect, the medium sized or "average" eggs hatch somewhat better than either extreme in weight. It will probably be wise to discard the very small or the extra large eggs. Those working on the problem of hatchability tells us that eggs weighing approximately 3 ounces hatch best.

Hatching

The use of turkey hens either as hatchers or brooders is discouraged. Hens are entirely unreliable, and the sooner we dispense with their services the better. Besides, they do not fit in with present-day growing methods. The owner of a half dozen hens may continue to use them, but he is best advised to increase the size of his breeding flock to the point where an incubator and brooder house is indicated. When hens are used for hatching, the broods come off at scattered intervals and always result in a flock of many different ages. If hens are used for hatching, one must of necessity use the same hens for brooding and this always leads to further trouble. Portable brood coops must be provided for each hen and these individual coops must be lined up in a

row far from the farm buildings. Furthermore, each hen must be de-loused before the poults arrive, and even after that there is a good chance the little ones may become infested with worms from association with their mothers.

It is far easier to manage one brooder house with say, 225 poults than feed and keep track of 15 or 20 obstreperous hens. The small flock owner who persists in the use of hens either as hatchers or brooders or both is merely carrying on an ancient practice that nearly wrecked the turkey business. The successful grower of today has long since abandoned the hen except for egg production. In this day and age, one must "keep up with the Joneses" or be left hopelessly behind.



FIG. 2. INDIVIDUAL BROOD COOP

When hens are used for brooding (we discourage this practice), the hen mother and the young should be confined as shown FAR from the farm buildings. Be sure to delouse the hen before the babies arrive.

ARTIFICIAL INCUBATION

There are three common ways one may secure poults. First, keep your own breeding stock and hatch your own eggs in your own incubator. Second, buy eggs from another breeder and either hatch them yourself or take them to a nearby hatchery for incubation. Third, buy day-old poults from a breeder or a commercial hatchery. This last method is a short cut and one which is becoming more popular each year. Many market growers do not like the "drudgery" connected with maintaining a breeding flock, and besides they like to buy a given number of poults and have them delivered on the same day so they all start and finish at the same time. So much for that. You will have to take your choice. Assuming you will hatch your own eggs, we will briefly discuss the process of incubation.

Turkey eggs may be hatched at home as well as in the commercial hatchery. Until a few years ago practically all eggs were hatched in small home-operated machines. As a general

rule, any good, well-constructed machine that has done a good job of hatching chicken eggs will do as well with turkey eggs. Both kinds of eggs, however, should not be incubated in the same machine at the same time.

It is always rather dangerous to give advice concerning the operation of incubators. It is usually best to follow the directions of the maker of the particular machine in use. It is a common human failing to blame all "poor" hatches onto the incubators, whereas there are other factors involved, such as improper care and feeding of the breeders, failure to maintain the correct temperature, moisture, ventilation, etc. Then, too, don't expect the machine to hatch infertile eggs. In general, the small home-operated machine should carry a temperature of 100.5 degrees the first week, 101.5 the second, 102.5 the third and not to exceed 103 during the fourth and last week.

In the better class of machines the ventilation is satisfactory provided it is not set up in some such place as a root cellar. Supply moisture accord-

ing to directions of the maker. The text books tell us the relative humidity should be about 60 per cent up to the time hatching starts and then boost it up to about 70 per cent.

The eggs should be turned several times a day. Start early in the morning and turn at regular intervals up until bedtime. Three to five times a day would be about right. Handle the

eggs with care. Start turning the eggs about the second or third day and continue until the 22nd or 24th day. Last, but not least, be sure your incubator thermometer is accurate. If you are not sure, take it to the creamery or hatchery and have the operator check it with his accurate one. Do not neglect this.

Brooding

ARTIFICIAL brooding is far superior to the old style hen brooding. Except in the case of a very small farm flock, it has entirely supplanted the hen. The brooder house makes it possible to house a large number of little turkeys under one roof. Lest I forget later on, NEVER put poults of different ages in the same house. This will be true even though you may try to separate them with a wire partition. They do not mix. Just because you have a modern brooder house does not mean that you can operate it a stone's throw from the kitchen door. Skids were put under brooder houses so they can be moved. Remember, we are divorcing turkeys from chickens and therefore the house should be hauled at least a couple of hundred yards from the farm yard on clean ground where chickens have not roamed.

Some folks ask if the orchard isn't a good place for the brooder house. No, it is not. The sun seldom does a good job of natural disinfection. The chickens love to congregate here in hot weather. Besides, it is almost impossible to plow it satisfactorily.

You can't make a piece of ground safe merely by turning it over. No

halfway measures will do—set the brooder house out in an alfalfa field if possible. If you insist on brooding in the farmyard, your battle to raise healthy turkeys is lost from the very beginning. Experiments indicate that it is possible to carry the germs of coccidiosis on your shoes for half a mile, so what chance have you when your house is in the back yard. As much as we advocate the use of a sun porch, we do not recommend it be set up too close to the farm buildings. The first commandment of successful turkey raising is to keep the brooder house away from the farmhouse. Don't forget this. Next thing will be to discuss brooder houses.

THE BROODER HOUSE

Now that you have decided on a brooder house, you will be asking what is the best size and shape. There are a great variety of styles in brooder houses. Space won't permit a debate on the merits of each. Personally, I wouldn't advise a house smaller than 10 x 12 nor larger than 12 x 14. If much larger than this, they become a

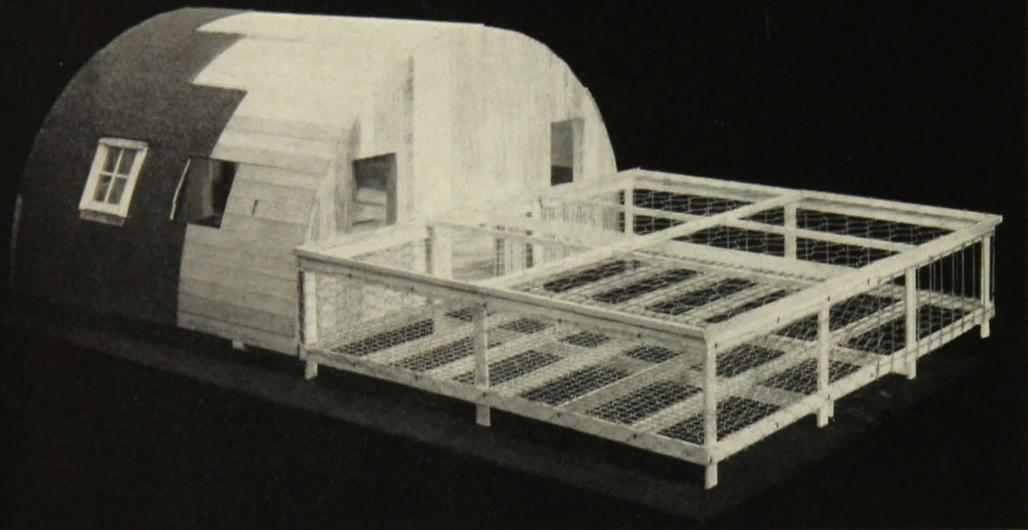


FIG. 3. ROUND TOP BROODER HOUSE

This picture illustrates the round top house and sun porch combination. This house is rather popular because it has two windows on each side. This prevents undue crowding. We didn't invent it, but growers almost invariably like this style of house. May we send you a plan of this outfit?

problem to move and besides, they rack badly.

The shed roof type is generally popular as is also the round top house which is pictured. The round top house has windows on all four sides. There is plenty of head room. It deflects wind very well and will not tip over as easily as some of the others. The all-metal houses are apt to be very hot in warm weather and the reverse in cold weather. There is still another house which is perfectly square with no side windows at all. The windows are all in the roof. This style is very satisfactory. The overhead lighting does a lot to prevent undue crowding. The same is true of the round top house with the windows on all four sides.

We prefer a floor in all brooder houses. It is far easier to keep the birds comfortable and maintain good sanitation. In wet weather, a brooder house with a dirt or gravel floor is a problem. Will you or won't you have a wire floor in the brooder house? They are supposed to be more sanitary,

but our observation is quite the opposite. We don't care for them. A cement floor is a decided liability because this means the house will never be moved. Summed up then, we prefer the 10 x 12 or 12 x 14 house, on skids with a wood floor. The general design of the house may vary. A plan for either the shed roof or the round top house is available for the asking.

Large commercial growers have recently developed long stationary brooder houses. Some are a hundred or more feet long. In the hands of experienced specialists, these may be all right, but for the average farm flock owner, they are unnecessary. The long houses are always provided with wide sun porches in front to keep the birds off the ground for the first few weeks. Should trouble start in one of these long houses, the losses are often extremely heavy. With the single 12 x 14 unit, the disease can be held down to the one house without the danger of spreading through several hundred or even thousands of birds.

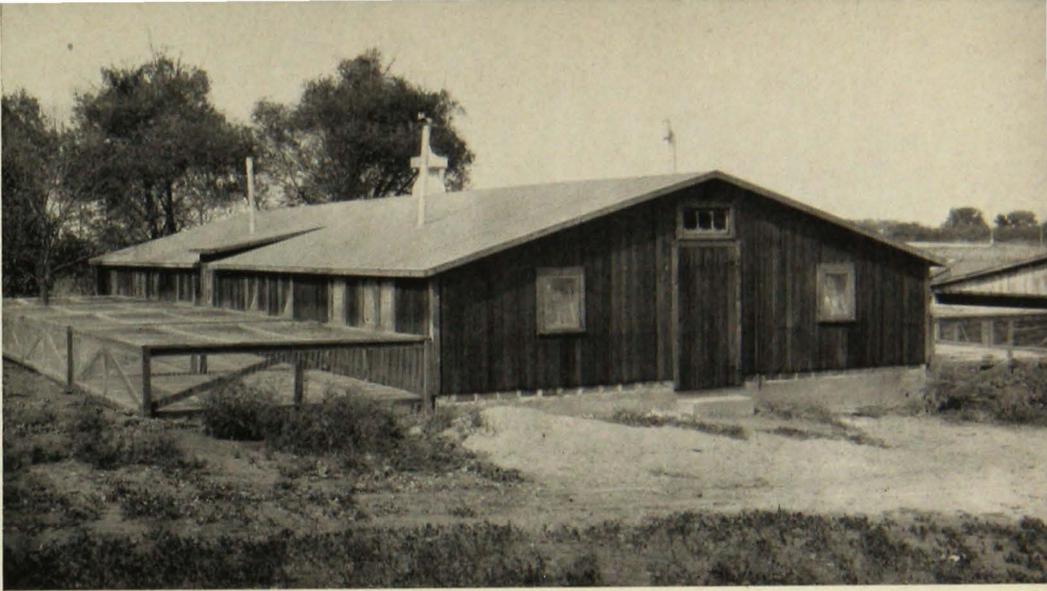


FIG. 4. LARGE PERMANENTLY PLACED BROODER HOUSE

This type is frequently used by commercial growers. For the average grower, they are not necessary. They have both desirable and undesirable features. Note sun porch extending from both sides. An alley passes through the center of the house.

BROODER STOVES

There are a great many different makes of brooder stoves. Most of them are good. Early brooder stoves were operated on coal and even wood at times. The coal burners are quite all right, but a few years ago the kerosene stove came on the scene. These have given an excellent account of themselves and are still being bought in large numbers. With the advent of rural electrification, the electric hover was bound to appear and sure enough, it is here. Along about the same time the gas brooder arrived. The gas brooder operates on what is known as "bottled" gas such as many rural people use for operating the kitchen gas range.

Both the electric and gas brooders make use of what is known as the "cold room" principle of brooding. That is, the heat is confined to the space UNDER the hover with little attention being paid to the temperature on the outside of the hover. The birds run under the hover whenever they get chilly and come out to feed when they

get hungry. With cheaper electric rates and reasonable prices for gas, this type of brooding is likely to gain in popularity. It should be ideal for late spring and early summer brooding when it is often difficult to keep the temperature down in the brooder house—especially in the middle of the day. Their operation is entirely automatic. Any brooder—coal, kerosene, gas, or electric—is recommended. Try to buy the best of its kind. As with any type of heater, the first few hours after the birds are placed in the house they should be watched and shooed up to or even under the hover if they show a tendency to pile up in a corner. When they learn where the heat is, they will run under the hover whenever they require heat. Also, the first day or two the feed hoppers should be placed close to and even under the edge of the hover. This is especially important when the cold room type of brooding is used because the birds get heat ONLY when they are UNDER the hover. At first they may be afraid to venture far from the edge of the hover. So when using either the elec-

tric or gas burners do this until the poults know enough to come in out of the cold.

INSIDE THE BROODER HOUSE

The very first thing we must decide on is the litter or floor covering. Newspapers are just about the world's worst. They are always dirty, even an hour after they are laid. The droppings accumulate on the surface and are anything but sanitary.

Some people like sawdust, shavings, ground corn cobs, or straw. Others insist on a so-called permanent litter such as peat or cotton seed hulls. Still others cover the floor with a certain type of litter and then spread feed sacks over it for fear the poults will eat the litter. The peat advocates say peat is best because it absorbs much moisture and even a large part of the droppings and, therefore, doesn't require changing oftener than once a month or perhaps longer. That sounds fine but, as a matter of fact, the dirt is there just the same whether you see it or not.

To play safe, litter should be changed frequently regardless of the kind used. After seeing all kinds of litter in use, my vote is cast for coarse sand or very fine gravel. Spread it over the floor an inch or more deep. Rake it over each day and change once a week. Sand or gravel is cheap, but it does have the disadvantage of being rather bulky and heavy. Critics often say the birds will eat too much sand. Poults will eat any litter at times and I would far rather they eat a little sand than to fill up with indigestible sawdust, corn cobs, etc. If the feed hoppers are plentiful and the birds not half starved, they won't eat too much

sand. It is not necessary to cover the sand with cloths even the first few days. Sand is not dusty and is fire-proof, too.

Don't ever forget that the floor of the brooder house should always be kept free of boxes, pails, or half-empty feed sacks because poults are naturally snoopers and many have climbed or crawled into such things and smothered. Keep the corners clear. Round them off with a section of hardware cloth to prevent them from piling up in the corners. If you must keep a pail or feed sack inside the house, be sure to hang it up well off the floor. As pointed out in a previous section, wire floors inside the brooder house are no advantage.

Always provide plenty of hoppers—not tiny toys. Three or four of them about a yard long would be fine to start with. A superabundance of feeders will often prevent litter eating. The small mason jar waterers may be all right for the first few days, but the poults soon outgrow these. The larger porcelain drinkers are better because they do not require filling so often. Make a square frame of 2x2 material about 18 inches each way. Cover this with hardware cloth (one-inch mesh) and set the waterers on these. Any water that slops over falls through the wire and the birds don't have to stand in a puddle when they drink.

Roosts should be set up. The sooner the better. These will be quite low at first, just high enough to get the birds off the floor. These may be a couple of short blocks with a length of lath across. Later on a higher roost is provided. This may be a very simple arrangement hinged against the side-wall so as to be easily raised for cleaning underneath. The roosts will begin

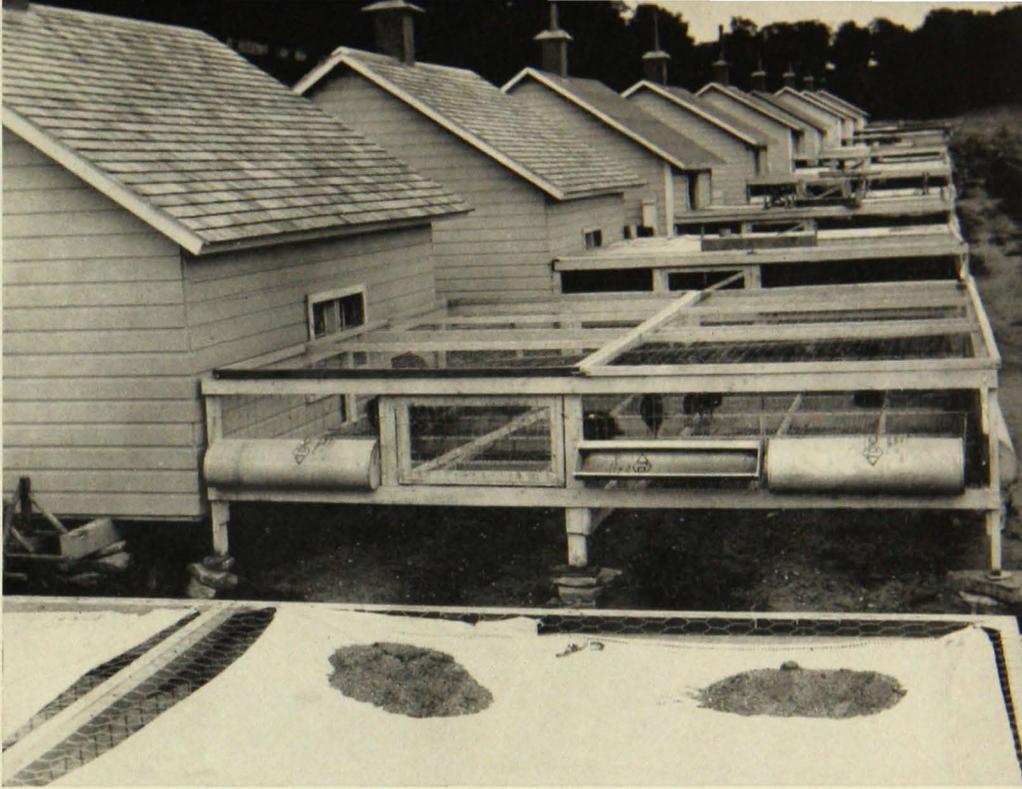


FIG. 5. A LONG ROW OF CONVENTIONAL BROODER HOUSES

Note outside feeders and waterers attached to the sides of the porches. These make it unnecessary for the caretaker to enter the porch. In the foreground you will note the canvas cover on top of the porch to give the poults protection from the hot sun. This entire arrangement is quite shipshape.

low down and gradually increase in height from the floor. The sooner birds learn to roost, the fewer there will be to crowd or pile up in a corner.

THE SUN PORCH

The sun porch is one of the grandest aids ever devised to make the job of raising poults safer and easier. As the name indicates, it is merely a wire platform with wire sides and a wire top where the birds may run out in the sun and still be off the ground. The sun porch is always built as a separate unit and simply placed up against the brooder house. The opening from the brooder house leads directly onto the porch. Some porches have been built high enough for the caretaker to walk around in. This is a mistake. The

porch is for the birds, not the owner. It should be of satisfactory size, proper height, and, of course, built on skids so as to be easily moved and stored when not in use. A 12x14 porch would be about right for either a 10x12 or a 12x14 brooder house. It may be larger, but is then apt to be awkward to move. When built on skids, the porch makes an ideal means of moving the birds out to their summer range when the time comes for them to leave the brooder house. Simply shoo the poults out onto the porch, close the entrance and hitch the truck onto the porch and away they go to that waiting alfalfa field.

The size of the mesh for the floor of the porch bothers many. The wire mesh should not be smaller than 1x1-inch square. Some growers prefer the

1x2-inch opening. Smaller than this, the droppings do not pass through freely. Regardless of the size of the mesh opening, a bird will now and then get tangled up in the wire and must be released. A sun porch plan is available for the asking. There are also metal feeders and waterers which may be attached to the outside of the porch. Here the birds feed and drink through suitable openings in the sidewall wire. These make it unnecessary for the caretaker to enter the porch itself.

Birds may be kept on a sun porch for five or six weeks depending on the size of the porch and the number of birds in the house. As a rule, one may guess when it is time to abandon the porch. When you notice feathers lying on the brooder house floor or under the porch, or you find the birds picking one another and losing part of their tail feathers, they are overcrowded, and it's now time to graduate.

Remove Manure Frequently

Accumulated manure under the porch itself should be removed frequently so as not to attract flies. In early spring and summer the warm sunshine beating directly down on the porch will do the birds a lot of good and no porch cover is needed, but when brooding in late June or July when the weather is very hot, a piece of cloth or canvas thrown over the porch cover will provide welcome shade.

A word of warning. Just because you have a sun porch does not mean that you may set the brooder house in the farmyard and never move it again. The sun porch-brooder house combination should be placed outside the range of the farm buildings. If set up

in the backyard, there is always the danger of tracking in disease germs on your feet. This would cancel all the other benefits. To avoid this, keep a pair of rubbers just inside the brooder house door and slip them on when entering the house. The sun porch is a marvelous aid to safe and sane turkey raising, but it should not be abused. If constructed of substantial material, the porch will last many seasons. You always know just exactly where your birds are. No more chasing out in the rain to round up the little ones. If the opening into the brooder house from the sun porch is good and wide, the birds will dash inside at the first sprinkle of rain. Once used, you will wonder why you waited so long to acquire one.

MAKING READY THE BROODER HOUSE

Before loading the brooder house, it should be thoroughly cleaned and disinfected. First, remove all last year's litter and then scrape the floor with a hoe or some other sharp edged implement. Take a broom and sweep the ceiling and sidewalls to get rid of cobwebs, loose dirt, and dust. The cheapest way to cleanse a brooder house is to use lots of boiling hot lye-water. Mix the lye-water solution according to the directions on the lye can. Be sure the water is THUMPING hot. Lukewarm water won't do. Be careful not to splash the lye-water solution on your clothing and wear a pair of rubbers that do not leak. With a stiff brush, give the floor and sidewalls (up a foot or two) a first class going over with the steaming hot lye-water. After this, if you care to, the floor may be



FIG. 6. FAR, FAR AWAY FROM THE FARMHOUSE

The owner of these birds took no chances. He set the brooder houses in the alfalfa field far from the farm flock of chickens. The soil is clean. A sun porch may be unnecessary here, but it would still be handy and a labor saver.

sprayed with any good disinfectant. Allow the floor to dry and then cover it with an inch of coarse sand or fine gravel. The feeders and waterers should be removed and given the same cleanup. Glass or porcelain vessels may be boiled.

Give the brooder stove a thorough checkup and then operate it for a day or two to make sure it works satisfactorily. Check the thermometer also to see that it registers accurately. You may do this by comparing it with the ordinary family fever thermometer.

BROODER HOUSE FEEDING AND MANAGEMENT

Regardless of what might be told you in advance, there are some things you will have to learn by doing. Here are pointed out a few of the essentials, but even with these warnings, it is easily possible to forget and get into trouble. On the whole, the suggestions given will help you to avoid most of the common pitfalls. **FIRST OF ALL, LET ME REMIND YOU AGAIN**

THAT YOUR BROODER HOUSE MUST BE PLACED ON CLEAN GROUND AT LEAST A COUPLE OF HUNDRED YARDS FROM THE FARM BUILDINGS. Let no one talk you out of this. If you do, you are whipped before you start.

When a sun porch is used one may brood closer in, but without one, moving 'way out is an absolute necessity. We will assume that you have the brooder house set up in the proper place, the litter on the floor, the stove set up and going and the feeders and waterers in position. You are now ready to install the poults. **DO NOT OVERCROWD.** You will receive a great deal of advice as to the right number of poults for a house of a certain size. Even hatcherymen have been guilty of recommending too many. A 10x12 house is not safe for more than 165 or 175 at the most. A 12x14 house should not house more than 225 poults. Some growers do put in more than this and, strange to relate, some of them get away with it, but they are just plain lucky. Don't tempt Providence too much.

When using the ordinary oil or coal burning brooder stove, the temperature at the edge of the hover will range from 90 to 95 degrees. Most growers start at 95 degrees, but it makes very little difference because the poults adjust their own comfort by moving closer to or away from the hover. This so-called hot room type of brooding is the one in common use today. However, gas and electric brooders show great promise and are increasing rapidly.

A word of caution.—When using either the gas or electric brooder, remember the space OUTSIDE the hover is actually COLD. The poults do not form a ring around the outside of the hover as in the hot room type of brooding. To keep warm the birds must go UNDER the canopy. They come out to feed and then if the temperature outside the hover is chilly and they are not hardened to it, they dash back to warm up. When first placed under a gas or electric hover, it may be so cold outside the canopy that the birds may refuse to go outside and feed. Some of them may starve. To avoid this and to get the poults accustomed to the source of both warmth and feed, be sure to set the ends of the feeders close to or even UNDER the edge of the hover. Do the same with the waterers. After a few days the feeders may be moved a short distance from the canopy. The birds will soon learn to go out to eat and when they get cold, run back under again.

Regardless of the type of brooder stove used, it is always good practice to set up a ring of wire or stout building paper a few feet from the outside edge of the hover. This will prevent the poults from straying too far from

the source of heat. After a few days, they will catch on and the fence will not be needed. As I warned you before, be sure to keep the floor of the brooder house free of empty feed bags, boxes, pails, etc. Poults love to crawl into these and smother.

Starting Feed

When the poults are first placed in the brooder house, the feeders and waterers are full and waiting. No more STOP and GO feeding these days. Remember how they used to advise you to withhold all feed for 72 hours and then feed them on a shingle for a few minutes several times a day? That's ancient history. Nowadays, the feed and water are waiting and to further encourage the birds to pitch right in and eat, it is a good plan to sprinkle crumbled hard boiled eggs over the surface of the feed. This will often attract their attention and encourage them to eat sooner. Sometimes we even put in "teachers" to get them started. Teachers are poults a few days older that have already learned to eat. When put in with baby turkeys, they set a good example which the newcomers are quick to follow. You may be worrying about the unabsorbed yolk-sac if the birds are fed right away. No one has proved to anyone's satisfaction that the unabsorbed yolk-sac means a thing. It will be absorbed by and by. If it isn't there is no harm done.

If sand is used as litter, there is no need of covering it up with paper or opened feed sacks. What little sand the birds pick up, won't hurt them. The main thing is to get them eating, then they won't fill up on sand or any other litter for that matter.

You may buy a ready mixed commercial starter or mix one yourself. If you have only a few turkeys, it may not pay you to bother mixing one of your own. Most of the well known commercial brands are good. Do as you wish about this. You most certainly can mix your own starter if you want to. The following formula will do very well, but you must not leave out anything. This one is given in pounds on the basis of one hundred pounds.

Corn	20	Alfalfa leaf meal	5
Wheat bran	10	Meat scraps	21
Flour midds	15	Soybean oilmeal	10
Ground oats or		Dried milk	5
barley	10	Salt	1
Oyster shell	1	Cod-liver oil	2

If you use the "fortified" oil, add one-half pound instead of 2 pounds. When you read this, you may remark to yourself, "What, no drugs or medicine in it?" Of course not. You need *nothing but good, wholesome ingredients*. Some starters are loaded with a lot of useless things that serve no purpose other than to increase their cost. For example, tobacco dust is sometimes added to the starter to keep the birds from becoming infested with worms. It is worthless for this purpose. Your sun porch or moving the brooder house FAR out in the alfalfa field on clean ground WILL prevent worms.

How about Beverages?

Now for the beverages. Shall you feed ALL water or all milk or will you keep both in front of the birds? Milk is hard to beat as a beverage for any young thing. It is nature's nearly perfect food. If milk is plentiful, you may safely feed all milk and no water, or you may keep both handy. Some grow-

ers object to milk because the birds get themselves all plastered up with it. Milk feeding may require more careful attention, but, outside of that, is quite all right. Milk may be fed either sweet or sour. It must sour for digestion anyway, so it makes very little difference. In cool weather, it may be more convenient to feed it sweet. Later on, feed it sour. Shall you feed it in glass, porcelain, or metal vessels? One hears a good deal of talk as to the danger of feeding milk in galvanized containers, but I have never seen any trouble resulting from this practice. True, the souring process does discolor the metal trough or whatnot, but as far as I have been able to observe or find out, this won't kill your poults. If you are still scared, use glass or crockery dishes.

If your starter contains plenty of bran, for example, it won't need the addition of what is often called "chick manganese." Starters lacking this element may cause what is called perosis or slipped tendon. Your homemade starter will contain plenty of all the necessary mineral elements. Therefore additional mineral mixtures are quite a useless expense. The starter must contain cod-liver oil as long as the birds are in the brooder house. The same goes for alfalfa leaf meal.

Lawn Clippings May Cause Death

Never feed lawn clippings to poults. It frequently matts in the crop and causes death. If coarse sand or fine gravel is used as litter, no other source of grit is required. Otherwise, fine chick-size grit is used after the first two or three days. Finely ground oyster shell is provided right from the start. Recent information tells us that

clam shells are fully equal to oyster shells and often much cheaper.

Using Whole Grain

When the poults are four or five weeks old, they will handle whole oats and coarsely cracked corn. Getting them accustomed to whole grain is VITAL should you plan to change over to the "cafeteria" style of feeding after they leave the brooder house. They must become used to the sight and "feel" of whole grains while they are still inside. Besides, the feeding of whole oats will do much to prevent excessive feather picking or even cannibalism. If your birds begin picking one another while still in the brooder house, it is likely the result of overcrowding or perhaps keeping them too closely confined after they have gained considerable size. Sometimes they appear to do it for pure deviltry.

Picking, once established, is very difficult to correct. Feather picking and other forms of cannibalism often result in a condition known as "blue backs." The base of the feather stalk becomes broken and the coloring matter oozes out into the surrounding skin. This black pigment is actually indelible and forms a black and blue spot of varying size. The spot is impossible to remove, and when the birds are dressed for market, they will grade very low. The exact cause of this picking isn't definitely known, but it would appear that it might be a combination of poorly balanced feed (this leads to depraved appetite in other livestock too) and overcrowding in the house or on the porch. To avoid blue backs, be sure your feed is right, be sure you have the safe number of birds in the house, and don't keep them con-

fined on the sun porch too long. When you notice picking or see too many little feathers on the house or porch floor, it's time to move the birds out to their range enclosure.

Crowding into corners is the bane of some turkey growers' existence. The birds pile up in a corner and smother. Sudden changes in temperature of the brooder house will often cause it. Crowding toward the light is another common cause. That is why the overhead lighted brooder house and the ones with lights all around (round top house) are popular. The cold room type of brooding seems to do away with crowding to a large degree. A lantern or electric light kept burning all night is favored by many growers. Corner guards will prevent piling into the corners.

Perhaps you have been thinking, "What shall we put in the drinking water to prevent disease?" The answer is NOTHING at all. There is no medicine, drug, or tonic which, when dissolved in the drinking water, will do your birds one bit of good. Save your money. Keep things clean and see to it you are following these common sense sanitary precautions. If your birds are placed in a clean house and this house is on clean ground, they are not apt to have coccidiosis, and they most certainly won't have worms. Both of these diseases, you know, are picked up from contaminated soil. Worms do not rain down. Therefore, save the money so many folks waste on drugs, medicines, and shotgun tonics. All you really need is good food and management. The turkey industry didn't reach its present state through the use of drugs. If you can not raise turkeys without filling them up with medicine, you are due to retire

before very long. Funny isn't it, how some people are not content unless the drinking water is red or blue or green?

Keep a pair of rubbers at the door of the brooder house. Slip these on when you enter the house and take

them off when you leave. They will save a lot of trouble because it is quite possible to track in disease on one's feet. Also paste a sign on the brooder house door, "No Visitors Allowed Inside."

Rearing Ground Management

FROM THIS point we will discuss the management of your turkey flock from the time they leave the brooder house until they are ready for market. If everything has gone well so far, your troubles are largely over. There will be much hard work of course, but the worry attendant with the brooding season is behind you. From now on it is relatively smooth sailing.

You will perhaps recall that we have always preached confinement of turkeys from start to finish. There is no "semi" about it. We started out with the idea of yarding and still advocate it. Yarding has several advantages. It will conserve the pasture space. It will insure that you move the flock at regular intervals (or whenever the yard gets dirty). You will know where the birds are at all times. This is important in the event of sudden storms.

When deciding on what pasture to use, be sure it is one that has not been recently top dressed with chicken manure and also that it is far enough from the farm buildings. It must not have been ranged over by the chickens. This is very important.

Any clean pasture is all right, but one with a fine stand of alfalfa is hard to beat. Sweet clover is not relished by turkeys. It has little feed value and becomes very woody. The other clovers are quite satisfactory. If the

turkey enclosure is moved frequently, the birds will not kill the plants. If pastured too long in one place, they will mow it down to the bare dirt. Rape makes an excellent one-year pasture crop. If sowed quite early and allowed to get a good start (knee high) the birds will have difficulty keeping it down. Given average soil and fair rainfall, rape does very well.

However, do not be discouraged if you have none of these pastures. Plain sod will do if it is clean. Of course, this will not have the feed value of the above pastures. Whatever field you select for the first year, plan at least a three-year rotation. By that is meant you should allow two full years to elapse before turkeys are permitted to graze here again. Meanwhile the sun and other elements will have had time to do a thorough clean-up job.

Moving to the Pasture

When your poults have outgrown their brooder house and the weather is right, it will be time to move the flock to their first pasture plot. In this discussion we will speak of only one house, but should you raise one or several thousand turkeys the program is the same. Let us suppose you will raise but one brooder house of turkeys this year. This might be 225



FIG. 7. MOVING DAY

When poults are ready to be moved to their summer range, they may be chased out onto the sun porch. A team or a tractor now hooks on and hauls the birds to the alfalfa field.

poults in a 12x14 house. The birds are six to eight weeks old and the weather is mild. If the sun porch is built on skids, you might chase the poults from the house out onto the sun porch. Close the opening and then hitch on with a team or tractor and haul the porch (birds and all) out to the selected pasture. Should this be a 5 or 10-acre piece of alfalfa, **DO NOT FENCE THE ENTIRE FIELD AT ONCE**. Should you allow the birds to have the run of such a large field, they would be lost in it, and besides you wouldn't have any place left to move to should trouble start. Rather than that, simply fence in about an eighth of an acre with 5-foot woven wire. Use steel fence posts if possible. They save the labor of digging post holes. In the center of this enclosure you will have placed the movable roost shelter (see picture, page 31). These roosting shelters should be on skids so as to be easily moved when it comes time to change yards. Set up a convenient watering arrangement, and that's all there is to it (see figure 7).

The first night, while the new environment is still strange, the birds will require rather careful watching to see they are all on the roosts. They

may have to be set up by hand. As the season advances and the birds become larger, the size of the yard will need to be increased, perhaps to half an acre. To be sure, if the number you raise is more than one brooder houseful, the size of the yard will naturally be increased. At first, the size of the yard is not so important.

The birds are allowed to remain in the first yard until the greens are well cropped or until the yard becomes dirty. You are the best judge of that. Some yards require moving once a week, while others need changing every two weeks. The size of the yard and the number of birds therein would be the deciding factor. There is much discussion as to whether the outdoor roost should be covered or not. Most people prefer the covered one. Some put a set of roosts on top of the roof as well as underneath. In mild weather the birds seem to prefer to sit on the roof. The covered roosts also provide needed shade in hot summer weather. We recommend the covered shelter for best all-round satisfaction. A post card will bring you a plan of the one illustrated on page 31.

Your neighbors may say it is not necessary to change the yards. They



FIG. 8. SMALL FARM FLOCK RANGE YARD

This shows a simple fenced-in enclosure with crude (but effective) outside uncovered roosts made of saplings. The use of steel posts would save the labor of digging post holes.

would have you leave them there all summer. If you do, you won't be in the turkey business very long. I have heard some of the traveling experts tell growers that if a certain feed or medicine is used, the yards won't ever require changing. This is sheer nonsense and a definite show of ignorance. It takes only a few hours to pull up stakes and change the yarded enclosure whenever it becomes pastured too short or very dirty. The saving in birds will more than repay you for the

time and effort required. The above routine is the same whether you have one brooder houseful or ten. Never place birds of different ages in the same yard. Birds even two weeks apart do not do well together.

Feed Hoppers

Feed hoppers are of many shapes and sizes. Some are covered and others are not. This seems to be a matter of personal preference. Either is all

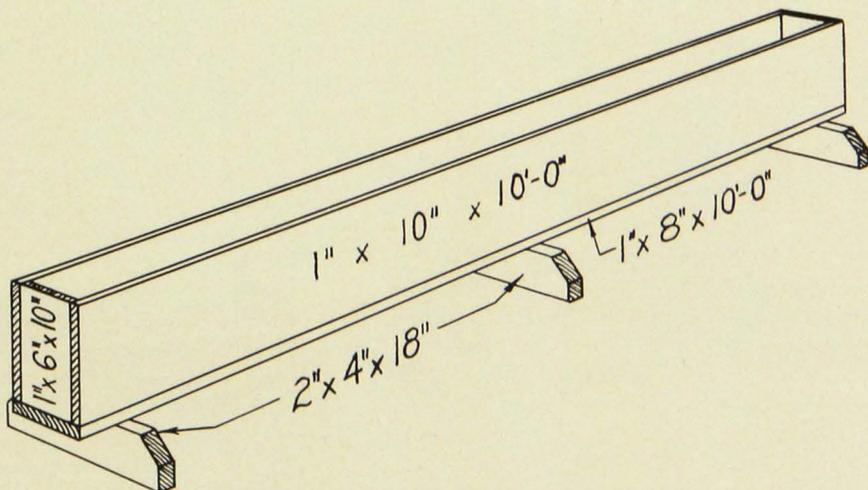


FIG. 9. RANGE FEEDER

This is a simple homemade wooden feeder 10 feet long. The depth will do much to prevent loss from wind. The blocks underneath will keep down accumulation of molds. Provide at least one of these 10-footers for each 100 birds.

right. The simple box type of hopper is cheaply built and quite satisfactory. It might be about 10 inches deep, 4 or 5 inches wide and 10 feet long. This size hopper is right for each 100 birds. It will feed from both sides of course.

An extra hopper won't hurt a thing. Most growers have too few feed hoppers. The hoppers should be moved onto new spots every few days to avoid the accumulation of molds underneath the feeders. Moving the hoppers about the yard will also tend to spread the turkeys out so they will graze the yard evenly. Otherwise they tend to stick too close to the feeders and avoid the far corners of the yard.

Waterers

These are of many varieties. Some small flock owners use an ordinary milk can inverted in a shallow dish pan. The water siphons out through the holes in the lip of the can. It

makes a fair automatic waterer. Others use empty barrels of all sorts. With a pipe fitting, they attach a drip valve or other homemade contrivance. These barrels hold a good supply of water and save steps. In very hot weather, the metal barrels get pretty warm, so it is best to place some sort of shade over them. The water will stay cooler much longer.

There are also a great variety of commercial automatic waterers available, but the homemade ones do very well. The outfit pictured in this bulletin is merely a suggested one. Maybe you can figure out one that is still better. Whatever the source of the water, the drinking SPACE should be generous. A 4 or 5-foot wooden trough placed under the drip valve or faucet is not too much. It is NOT NECESSARY TO ADD DRUGS OR CHEMICALS OF ANY SORT TO THE DRINKING WATER. This is pure waste of money.

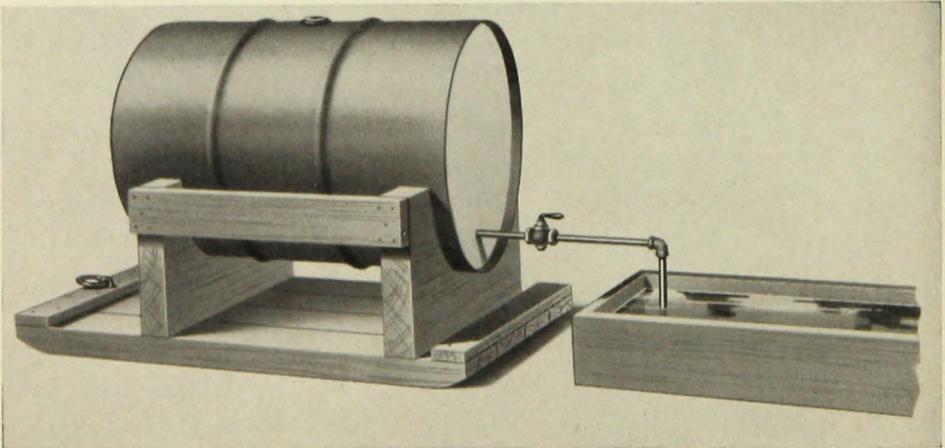


FIG. 10. RANGE WATERER

A cleaned gasoline or cod-liver oil barrel set on a sled and rigged as shown makes an excellent source of water. The faucet may be left open to allow the water to siphon out. The water trough itself may be several feet long.

Feeding after Leaving Brooder House

TURKEY growers spend much time hunting new feed formulas. There are literally hundreds of slightly different growing mash. Most of them are excellent because basically they are much the same. Whenever poults or even half-grown birds begin to die, it is often attributed to the feed. While feed is important, it isn't even half of the battle. Given a good plan of sanitation, you and I could raise good turkeys with any of a dozen different feed mixtures. It wasn't the lack of feed knowledge that put your grandmother and mine out of the turkey business. It was because she insisted on running her birds all over the farmyard. I am not belittling the importance of a well-balanced ration, but entirely too much time is spent arguing about the value of this or that pet formula. If you ever get disgusted and quit raising turkeys, it will be because disease got the best of you, or you were not able to keep your production costs down to the point where you could make money at the prevailing turkey prices.

Economy, the Watchword

These days, with national production mounting each year, economy **MUST** be the watchword. It will avail you little if you have the so-called "best feed in the world" if you end up the year in the red. Don't get all excited about growing rations, developing rations, and fattening or finishing rations. There isn't enough difference in these to talk about. The ration we will soon give you has been used for many years and has raised literally MIL-

LIONS of top grade turkeys. It is purposely kept very simple so you will be encouraged to mix it yourself and therefore utilize as much of your own home-grown grains as possible. Some say you cannot mix a ration satisfactorily at home. Of course you can. Given the proper ingredients, all you need is a smooth floor, a scoop shovel, and a strong back.

Change Mash Gradually

While in the brooder house you will have fed a ready-made starter or one you mixed yourself. When the flock is ready to go on range, we begin to change over **GRADUALLY TO THE REGULAR GROWING MASH**. This mash will now be fed right through the season without change. Here's the ration—equal parts of corn, oats (hulls and all), bran, middlings, and meat scraps. One per cent salt is added. When your flock is on some such range as alfalfa, rape, clover, etc., and in bright sunshine, there is no need of adding alfalfa leaf meal or cod-liver oil to this mash. While meat scraps furnish a large part of the protein portion of this ration, should it be high priced and soybean oil meal attractively priced, you may replace a portion of the meat scrap with the oil meal, but not over half. Corn gluten meal or fish meal could also be used to replace part of the meat scraps. Since meat scraps normally contain plenty of bone, no additional bone meal need be added to this mash. Should soybean oil meal or some other vegetable protein be used to offset part of the meat scraps, it will be necessary to



FIG. 11. LARGE COMMERCIAL FLOCK

This picture illustrates a grouping of the single roost shelter in multiples. They are placed back to back. This set-up could be further improved by placing roosts on TOP of the roofs. On very hot days, the space under the roof is cool and breezy.

add 2 per cent of a good grade of steamed bone meal.

Keep in mind always that turkeys no longer have a halo over their heads, but are now in active competition with chicken meat, beefsteak and pork chops; therefore, one must forever keep his eye on feed costs. The old balmy days of high priced turkeys are DEFINITELY gone. If we are going to raise perhaps 50 million turkeys each year, they must be produced economically and sold to the consumer at a price he will pay. Therefore we still recommend the use of the five point ration from the time the birds leave the brooder house until they are dressed for market. You will notice there is no charcoal or medicine of any sort in the mash.

If you have been educated to the theory of growers, developers, fatteners, and finishers, simply change the name on the feed sack from time to time and you may feel relieved. The mixture inside the sack will remain the same. Should you live where corn is not grown, use barley.

Whole Grain

When on range your flock will have its mash and also several hoppers filled with whole corn, whole oats, whole barley, or almost any small grain combination. If your flock is introduced to corn and oats while still in the brooder house, they will consume large quantities of these grains when they go to pasture. Speltz makes an excellent adjunct to the mash.

Grasshoppers

There are still a few growers in the midwest who believe the old fairy tale of grasshoppers feeding turkeys. They have somewhat the same feed value as peanut shucks. I am told it takes about 3,269 grasshoppers to produce a pound of turkey. I won't vouch for that, but I do discourage a grasshopper diet. There are also a few owners who feed their flocks well until they graduate from the brooder house and then they turn them loose to shift for themselves. This is poor business. The smart

grower feeds his flock right through from start to finish without any semi-starvation periods.

Cafeteria Feeding

This is nothing more than the use of a very high protein mash plus liberal use of the common farm grains such as oats, barley, and corn (fed whole). In a preceding section we described the standard mash and scratch method of feeding. The main difference between this and the cafeteria method is in the percentage of protein in the mash. In the cafeteria plan the mash is referred to as a "concentrate." Concentrates range in percentage of protein from 32 to 38 per cent. Advocates of the cafeteria system insist that the poults be initiated to the taste and sight of whole grains while still in the brooder house, otherwise they are apt to shy at them when suddenly confronted with something new. This point is vital to the success of the plan. Still another point to keep in mind is to use a long narrow hopper, perhaps 10 feet long. This is divided into three sections about equal in size. The concentrate is placed in the center section. One end section will contain the whole oats or barley and the other end whole corn. The grain combination is not so important, but they should always be fed along with the concentrate in the SAME hopper. The birds have a tendency to work back and forth the full length of the hopper. This system is said to be unsuccessful when the concentrate is fed in a separate isolated hopper. Some growers like this method while others do not. There is no good reason why it should not work quite satisfactorily. It does have the virtue of encouraging full

use of locally grown grains, thus keeping down feed costs. A concentrate may be purchased or it may be mixed at home. The following formula will serve very well. The amounts given in pounds will make up 1,000 pounds. The percentage protein will run about 38 per cent.

Meat scraps	175	Bran	100
Fish meal	210	Bone meal	120 20
Soybean oil		Ground limestone	30
meal	175	Salt	25
Dried milk	125	Fortified cod-liver	
Alfalfa leaf		oil	15
meal	125		

When flock is on range, the cod-liver oil may be omitted.

Grit

When turkeys are running on soil that contains a fair amount of gravel, there is no particular need for any additional grit. If, however, there is no loose grit available, it must be supplied. A great deal of money is wasted by growers in the purchase of grit. Good, hard grit from a nearby creek bed or gravel pit is often actually better than some of the soft grits so often used. There is absolutely no point in spending a lot of money on grit. One hears a good deal of talk about "sharp" grit. This is largely talk because no grit is sharp for very long after it reaches the turkey's gizzard. There it must be smooth and round to do a good grinding job. The birds always eat large quantities of soft grits and the owner thinks he must be on the right track. As a matter of fact, the grit is so soft it passes right through the bird and consequently must be replaced frequently. Good, hard, round pebbles about pea size are as good as any and better than some.



FIG. 12. A FINE MIDSUMMER LAYOUT

This is a very neat arrangement of field shelters. You cannot see the fence around this unit, but it's there just the same. This yard would be changed every week or two.

Pellets

The mashes are sometimes passed through a special machine and come out as a hard pill or pellet. There is no special advantage in pellet feeding except that the pellets do not blow out of the hoppers as much as the loose mash. Great claims have been made for feeding of mash in pellet form, but the fact of the matter is the ton cost of the feed is greater with not enough advantage to warrant the increase in cost. The mash may be fed either in the loose form or in pellets as you prefer. The home mixer of course will not use pellets.

Wet Mash Feeding

Some turkey raisers like to give their flocks one good fill of wet mash each day. This would be in addition to the ordinary feeding program. The regular mash is used. This is moistened with either milk or water. Not soupy wet, but rather crumbly. Only enough is fed so that the birds clean it up promptly. When you first try birds on wet mash they may look at it and back away as though it were so much poison. After they get up nerve enough

to try it, they pitch in and seem to love it. Never allow it to remain in the hoppers until it sours or molds. Feeding wet mash is somewhat messy and requires careful attention to cleanliness so as not to attract flies in large numbers. When the wet mash hoppers are empty they should be removed, scraped clean, and sunned to dry. Feed the mash at the same time each day because the birds look forward to this special treat.

Milk

We always feed milk to starting poults either in the mash or as a beverage. If plenty of liquid milk is available, it may be left out of the starter. Many growers do not like liquid milk for the growing flock on range because of the extra work involved. Otherwise the practice is quite all right. We have not included dried milk in the growing ration mainly for the reason of economy. Some growers wait until toward fall at which time they add a small percentage of dried milk so they may advertise the birds as "milk fed." If dried milk is available at reasonable prices, a portion of

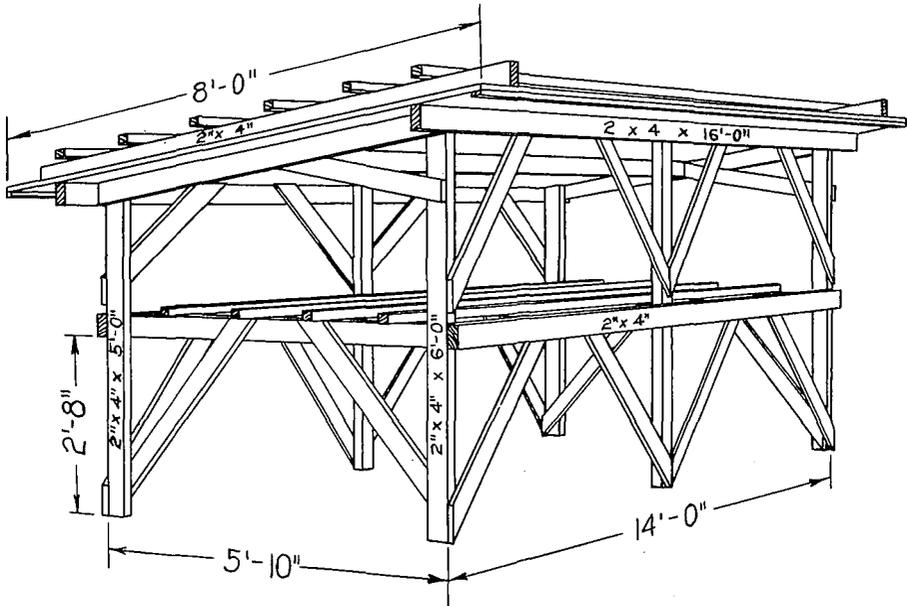


FIG. 13. PLAN OF RANGE SHELTER

There is a solid roof on this shelter with additional roosts set on 2x4's. Birds will take to the roof in good weather so one might as well provide something for them to sit on. Many growers build this shelter on skids for easy moving. In a large flock, these shelters may be set up back to back as shown in the picture on page 28.

the protein part of the mash may be composed of dried milk. However, it is quite possible to get along without it. My main objection to liquid milk for growing birds is the labor involved, cost, and the fly problem.

Milk Flushing

Some growers do not use either liquid or dry milk in their daily feeding program but resort to what they fondly call a milk "flush" once a week or perhaps every couple of weeks. Their birds are taken off their regular feed and given nothing but ordinary

milk or buttermilk. This procedure makes the bowel movements very loose and is definitely weakening to the birds. We have seen some flocks so upset as to require several days to recover from their orgy. This stunt is said to prevent coccidiosis and a few other diseases. Actually, it is nothing more than a pretty severe physic, and if only this is desired, it can be done much more cheaply with a few cents' worth of Epsom salts. This is not to be taken as a slap at milk feeding, but rather the method of use. Flushing will not prevent or cure any known disease of turkeys.

Medicines, Cure-Alls, and Whatnot

MONEY spent on turkey tonics and the like is money wasted. There is no drug cure for blackhead or any of the common diseases of turkeys. When one gets into trouble, it is easy to turn to this or that guaranteed cure-all for relief. Even bright, smart growers often fall for the seductive claims made for many of these shotgun panaceas. All I can say is this—the backbone of the turkey industry is based on common-sense sanitation and proper feed and management, NOT on patent medicines. Should you have trouble with disease in your flock, why not call on your local veterinarian rather than waste time and money on these fly-by-night concoctions.

VACCINATION

The vaccination of a turkey flock to prevent fowl pox is an excellent practice. The vaccine is very effective as a preventive but of little or no value as a cure. The grower who finds his flock and premises infected with this disease will do well to vaccinate his poults early in the growing season. Unfortunately, there are numerous other vaccines offered to turkey growers that have extremely questionable value. In fact, some of them are 100 per cent worthless. There are the so-called "mixed infection" vaccines and bacterins designed to prevent cholera, roup, and a few other diseases. In our hands they have been valueless. Besides that, there is no such disease as mixed infection and we can't see

how one can vaccinate for something that doesn't exist.

INSURANCE

It is always a good plan to have a flock of turkeys insured against accidental losses such as wind, hail, fire, etc. Such policies may be had at very nominal cost. See your local banker or insurance agency for more information. No company will insure against losses from disease or theft. The reader will understand why.

TO SUM UP

This whole plan of turkey raising is really very simple. Let's repeat it in very few words. A clean brooder house on clean ground. Perhaps a sun porch would make this part easier. From the brooder house the birds are moved out to their range and fenced. These yards are changed at regular intervals. Here we feed a simple growing ration. Mix it yourself. There is no medicine or folderol of any sort. Just good, plain cleanliness. After the first year, and we are ready to start another, select a new field for the growing pasture. In other words, rotate the field of operation from year to year. A 3 or 4-year rotation would be almost disease-proof. If you stick to the outline above, you will come through with flying colors. Don't forget economy of production. Good luck to you, but if, in spite of all our admonitions, you do get into trouble, drop us a line and we will do our best to help.

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Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Division and United States Department of Agriculture Cooperating, P. E. Miller, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914.

25M-6-40