UNIVERSITY OF KENTUCKY

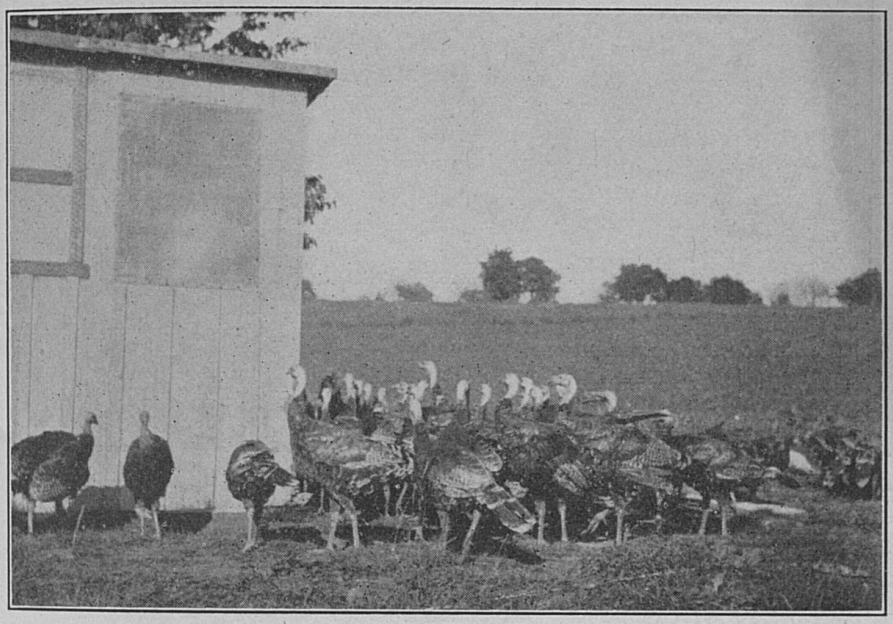
COLLEGE OF AGRICULTURE

Extension Division

THOMAS P. COOPER, Dean and Director

CIRCULAR NO. 217

RAISING TURKEYS



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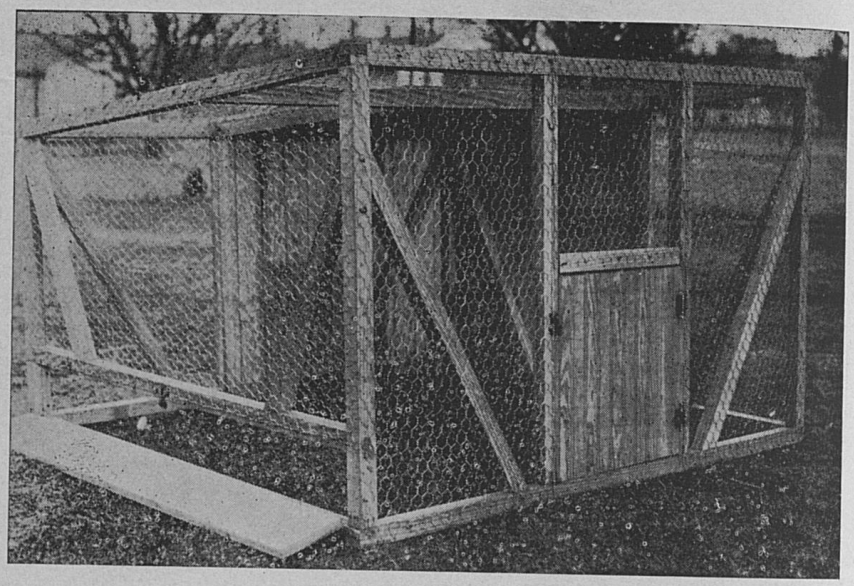
Ten Essentials for Successful Turkey Raising

1. Use only strong, mature breeding stock.
2. Feed a balanced ration to the breeders.
3. Do not feed poults until forty-eight hours old.
4. Do not overfeed the young poults.
5. Keep the poults and mother hen free from lice.



Turkey Brooding Coop for hen and 20 poults. The coop is 5 feet square, and has one corner protected with top and sides.
(See page 8 for plans)

6. Do not let the poults get chilled.
7. Do not raise turkeys in the same yard or pasture with chickens.
8. A brood coop or brooder house to confine hen and poults should be provided for each brood.
9. Do not let turkeys eat green corn.
10. Do not try to cure blackhead. AVOID IT.

EXTENSION CIRCULAR NO. 217

Raising Turkeys

By J. HOLMES MARTIN

According to the 1920 census Kentucky ranks fifth among all the states in turkey production. The turkey industry is on the decline in Kentucky, as well as in many other sections. The following census figures show that this unmistakably is true in Kentucky:

Year	No. Turkeys in Kentucky
1900	279,949
1910	188,292
1920	168,326

Disease (most frequently blackhead) is given by many as the cause for the decline in turkey raising. Restricted range areas have frequently caused people to discontinue raising turkeys. If the turkey industry is to continue in Kentucky the haphazard methods of care must be forsaken and partial confinement combined with due sanitary precautions adopted. The mortality of poults can be lessened by the adoption and practice of such methods.

The Bronze variety is the most popular in Kentucky. However, flocks of Narragansetts, Bourbon Reds and White Hollands are numerous. The following standard weights of the common breeds show their comparative size:

Breed	Adult Tom	Cockerel	Hen	Pullet
Bronze	36 lbs.	25 lbs.	20 lbs.	16 lbs.
Narragansett and Bourbon Red	30 lbs.	20 lbs.	18 lbs.	14 lbs.
White Holland	28 lbs.	20 lbs.	18 lbs.	14 lbs.

It is usually considered that the Bronze turkeys are the most difficult to confine, and are exceptionally good rangers, and that the Bourbon Reds, White Holland and Narragansett are easy to confine to pens. This statement is generally taken as true, but any breed of turkeys properly managed can be confined to pens, their range limited and good results secured, provided certain essential sanitary precautions are taken.

SELECTION OF BREEDING STOCK

In selecting breeding stock, constitutional vigor is of most importance. Many turkey raisers make the mistake of keeping late hatched, undersized hens for breeders, because they will not bring as much on the market as the good hens. It is better to use old hens instead of pullets for breeders, tho well-matured pullets may be used. Hens may be kept for five or six years, if they continue to lay well. Cockerels, if well-matured, are as good to use as old toms, but should never be mated to pullets. Twelve to 15 hens can be mated to one tom and good results secured. Only one mating is necessary to fertilize a clutch of eggs. Toms weighing twenty-five to thirty pounds (when not fat) are best, as birds weighing forty or more pounds frequently injure the hens.

MANAGEMENT OF BREEDING STOCK

Do not have the breeding stock too fat. A ration consisting only of corn should never be fed. It is advisable to add other grains to the ration and some mill feed, such as bran and middlings. During the breeding season the turkeys should be given a dry mash. A good mixture consists of 100 pounds of mill feed (bran and middlings) and 25 pounds of a good grade of tankage (60% protein). The mash and oyster shell should be kept before the hens at all times. They should also be given a grain feed.

HATCHING TURKEY EGGS

Turkey eggs may be saved as long as 4 weeks, provided they are kept in a cool place (40° to 65° F.) and turned daily. However, it is best not to hold them over two weeks unless unavoidable.

Turkey eggs require 28 days to hatch. A 68 per cent hatch was secured in 1923 by 16 turkey demonstration flocks, setting 2,383 eggs. The eggs may be set under chicken hens, turkey hens or in incubators. For Kentucky late April and May are best for hatching. However, many breeders get good results with early June hatches.

A chicken hen usually will cover 10 turkey eggs and a turkey hen from 18 to 20. There is little if any difference between the chicken and turkey hens for hatching. Do not interfere with the hen during natural incubation, only make sure that she gets sufficient feed and water.

Any good, well-ventilated incubator will hatch turkey eggs if carefully operated. Leave the thermometer on the tray in the same position as used in hatching chicken eggs, and run the machine at 100 to 101 degrees. In artificial incubation it usually helps to add a little additional moisture. Dashing warm water (100° F.) over the eggs about the twenty-seventh day (just when ready to pip) aids the hatching. Use about a tea cup of water to 100 eggs.

METHOD OF BROODING

Poults may be raised in brooders the same as chickens, but the most general practice is to use turkey or chicken hens. A *brood coop* is a necessity in raising poults. The College of Agriculture has prepared plans of the turkey brooding coop illustrated on page 2. Working plans are given on page 8-9. A number of turkey breeders in the state have used these brood coops with outstanding success. The coops should be placed in a good pasture and kept several yards apart with only the ground as a floor. A turkey hen with 15 to 20 poults should be placed in each coop. It is a good plan to confine them to the coop until the poults are a week old, moving the coop to fresh ground at least every other day. If the weather is suitable during the first week the long, narrow door may be opened to let the poults out while the hen is still confined to the coop. After the first week the hen may be let out with the poults in the morning, if the weather is suitable. The hen with her brood should always

be put back into the brood coop at night and the doors shut to keep out prowling animals. If the brood is fed a light feed morning and evening in the coop they will return without any difficulty. The coop should be used as a shelter until the poults are large enough to roost in the trees or on high poles. A wagon wheel placed on the top of a pole makes satisfactory roosts, since each spoke serves as a roost. Because no houses and costly equipment are needed for turkeys every person raising them should at least invest in brooding coops.

FEEDING POULTS

Probably there are as many different methods of feeding poults as there are turkey raisers. Most of these methods have proved at least fairly satisfactory where certain precautions are taken. Some of the most *common causes of losses in young poults are* chilling, feeding sooner than 48 hours, overfeeding, and using wet, sloppy or spoiled feed.

The following ration fed by many successful turkey raisers should serve as a guide.

For the first 48 hours nothing is fed, the poults remaining quietly in the nest for the first 24 hours. Having first cleaned out the shells remaining in the nest the hen and her brood are transferred to the pen that has been made ready for them. If the coop in which the hen is to be confined has been used before, it should be cleaned and disinfected. On the morning of the second day that the poults are in their pen, they are fed a piece of stale light bread two inches square and one inch thick for every twenty poults. The bread is soaked in sour milk, as one can always have the milk sour, although sweet milk would be just as good. Squeeze as much of the milk out as possible, leaving the bread so it will crumble well. Add to the bread a third of a teaspoonful of clean sand. A pinch of some good poultry regulator may do some good. Many successful turkey raisers prefer to start the poults on a good baby chick ration. Excellent results have been secured by feeding one of those rations recommended in Extension Circular 157, "Brooding Chicks Artificially." The

all-mash chick ration has proved quite practical for the feeding of young poults.*

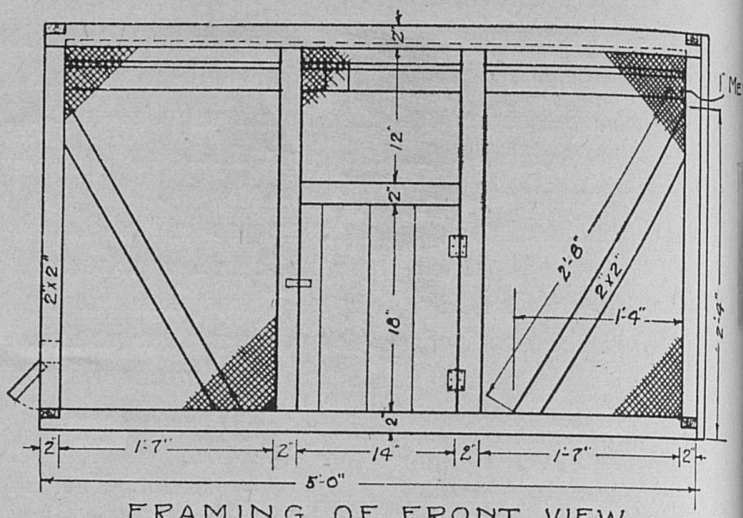
The crumbly bread is given the poults four or five times a day for the first ten days. Spread the feed on a clean board about three feet long and six inches wide, so that all poults can get to the feed and not overcrowd. At the first meal it is sometimes necessary to teach the poults to eat. Do this by allowing some of the bread to stick to the fingers and holding it so that the poults can see it. It will not take them long to see what is wanted. After the first ten days feed only two times a day, giving them as much in the two feeds as formerly in four or five.

After the poults are four weeks old continue feeding two times a day, chick grain at night and soaked bread in the morning, increasing the amount of bread as the poults grow. Here one must be careful not to overfeed. The poults should be kept hungry. If the clover or grass sod is not very good, feed a small amount of green feed. If the sod is fresh and good, they will get all the green feed that is necessary. One important thing is not to feed the bread on the ground or allow any of it to lie there and become moldy. The feeding trough or board must be kept clean. Wash it often and set it in the sun to dry. A small pan of chick size charcoal is very good; keep it in the pen all the time. Let the poults have water or milk, milk preferred (either sour or sweet) for the first six weeks. It is a good plan to add one tablespoonful of Epsom salts to each quart of drinking water frequently and keep before the poults half hour.

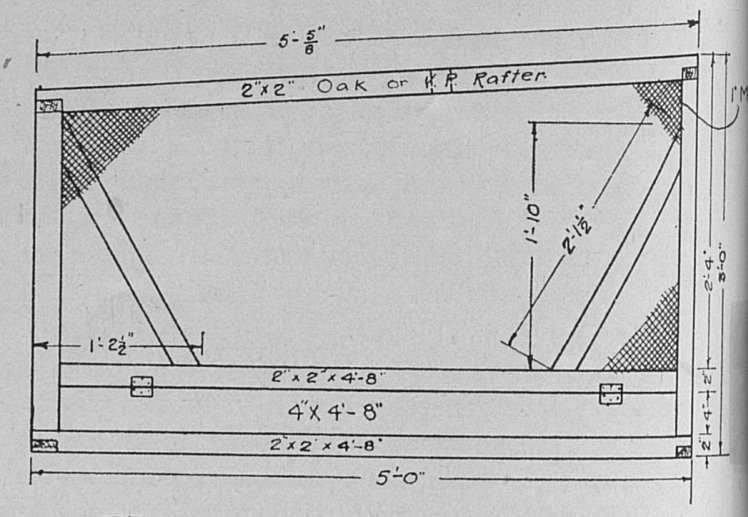
NEW CORN

It is generally known to turkey raisers that new soft corn will kill young turkeys. Early in the fall it is best to keep the turkeys out of the cornfield, if possible, but if they get green corn and have indigestion, usually a tablespoonful of castor oil given to each turkey will save them. However, they must be treated as soon as they show signs of sickness. New corn should never be fed turkeys until it has dried out thoroly. Consequently, they should be fed and fattened in the fall on old corn. If it is

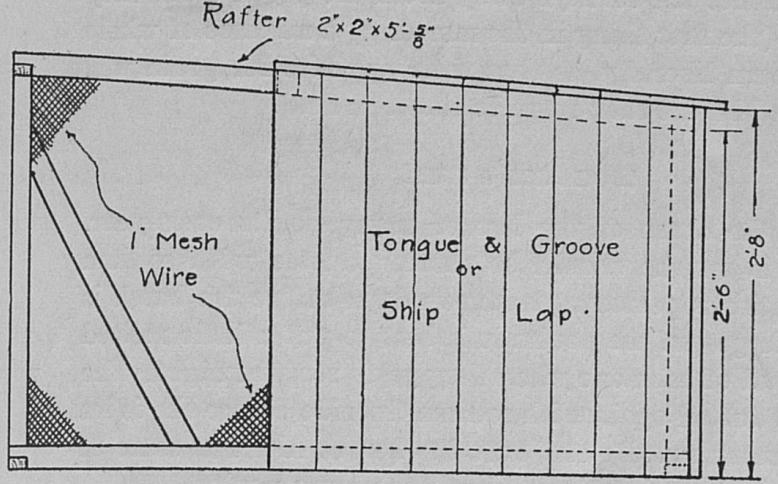
* A copy of Extension Circular 157, describing these rations may be secured upon request.



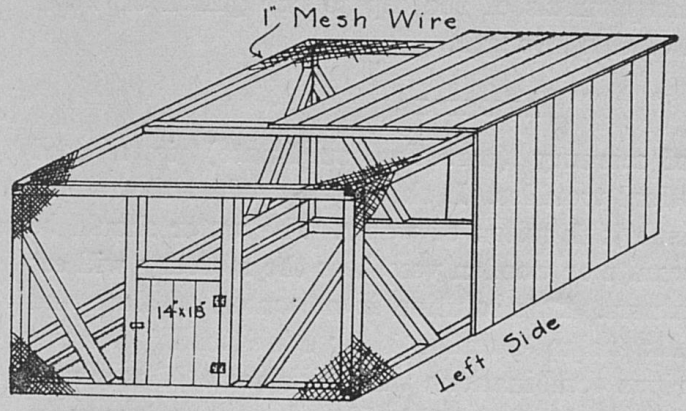
FRAMING OF FRONT VIEW
Scale 1½" = 1'-0"



FRAMING OF RIGHT SIDE
Scale 1½" = 1'-0"



FRAMING OF LEFT SIDE
Scale 1½"=1"



FRONT ISOMETRIC VIEW
Scale ¾"=1'-0"

No. C-7-75-1
KY. TURKEY BROODING COOP EXTENSION WORK IN AGRICULTURAL ENGINEERING COLLEGE OF ABRICULTURE UNIVERSITY OF KY DRAWN BY W.N.S. APPROVED BY J.H. Martin / J.B. Kelley 3/12/24

impossible to fence the turkeys away from the green corn, they should be fed (the first thing in the morning) a mixture of whole oats and old corn liberally, so that their appetite for grain will be well satisfied before they roam to the corn field.

LICE AND MITES

Lice are the cause of the loss of many poults each year. When a hen is set she should be thoroly dusted with sodium fluoride* and this repeated at least two days before the hatch is due. If lice do get on the poults it is best to put a little melted lard on the head of each one when they go to roost at night. The hen should be dusted again with sodium fluoride before she is let out the next morning. Do not dust the hen at night as some of the fluoride might get into the eyes of the young poults.

The brood coops should be kept clean and free from mites. This can be done by spraying the coops thoroly with a 5 per cent solution of some good stock dip before the hen and poults are put in. Thirteen tablespoonfuls of the dip to one gallon of water makes a solution of this strength.

REMEDIES

Bichloride of mercury (corrosive sublimate) is a good remedy for intestinal troubles. It should be used at the rate of 1 gram (15 grains) to 1 gallon of water. The water should be in a crock or a granite or wooden vessel, as the mercury will eat tin or iron containers. This solution is poisonous to stock and human beings. Extension Circular 165 "Blackhead" contains formulas for various combinations with bichloride of mercury.

Calomel (which is the monochloride of mercury) may be used in place of the bichloride as an intestinal antiseptic and preventive of indigestion. A one-tenth (1/10) grain tablet should be given each young poult twice a week from the third week to the ninth when it should be increased to one-half (½) grain twice a week till the poults have "shot the red" at three months. These tablets should be dropped into the young poult's mouth.

* Sodium fluoride powder may be purchased at any drug store for 30c to 50c a pound.

Epsom salts (1 tablespoonful per quart of water, before the poults 30 minutes)) may be used as a mild laxative for the young poults. For mature birds 1 pound may be added to about 10 pounds of dry mixture of bran and shorts for 50 turkeys.

Castor oil is the best purgative for turkeys. The proper dose is 1 to 2 tablesponfuls for a mature bird; a tablespoonful for poults the size of a Leghorn hen; and two to five drops for the baby turkeys. Place the bottle (cork removed) in real warm water to make the oil flow freely. A paper funnel may be placed in the turkey's mouth and the oil poured directly from the bottle.

Crop bound may be helped by washing the coop out with hot water bottle syringe. It will require the insertion of about a foot of rubber tubing down the gullet to reach the crop. For a large turkey it may be necessary to inject as much as two quarts of warm water. The crop should then be gently massaged with the bird's head down. Then immediately administer a calomel pill (¾ grain) and follow this with castor oil the next day.

The best remedy for tapeworms is kamala. Kamala may be purchased in capsules at the drug store. The standard dose is one gram (15 grains) to each mature turkey, and one-half (½) gram to a poult half grown. Nicotine sulphate capsules or pulvules are best to eliminate round worms. In order for the treatment to be effective against both tape worms and round worms the two remedies should be used.

Fluid extract of ipecac administered thru the vent* apparently has given good results in treating poults which show signs of indigestion or appear droopy. The standard dose is 8 drops in one tablespoonful of water for a baby poult, increasing up to 16 drops in 1½ tablespoonfuls for a poult the size of a Leghorn hen.

BLACKHEAD**

Blackhead may be much more easily recognized by the condition of the liver than by the appearance of the head. In many

*A small bulb syringe for this purpose may be purchased at any drug store for 50c or less.

Blackhead is caused by a protozoan microorganism, **Histomonas meleagridis.

cases of blackhead there is no change whatsoever in the appearance or color of the head. In other words, the dark color in the appearance of the head means nothing more than that the bird is "off feed," resulting in a slow movement of the blood in the head parts. This may or may not be the case when the actual disease of blackhead is present. The general symptoms of the presence of the disease are the unthrifty appearance, ruffled feathers, and drooped wings. A greenish yellow diarrhea frequently accompanies the disease, but it is only a symptom and not the disease itself. The only way to positively diagnose a case of blackhead is to open the young poult affected and examine carefully the liver and the blind ceca. Blind ceca, or blind guts as they are frequently called, are found at the very end of the intestinal tract just a short distance from the vent. In bad cases the ceca are greatly enlarged and inflamed, usually containing a firm, bloody, cheesy material. The liver is usually enlarged and has on its surface spots or areas which appear very much like rotten spots on an apple. These may vary in size from a pea to a half dollar. The areas are firm and appear slightly sunken. If the liver is cut, it will be observed that these spots extend deeply into the tissue.

Vaccination has been attempted for blackhead, but it has not proved a practical method of avoiding the disease. If one has had a large mortality in past seasons and the poults become affected with blackhead, it is advisable to put into practice the recommendations given herein. Sanitary measures give more promise for the control of blackhead than any medicines, vaccines or tonics which are commonly used at the present time.

THE REAL DANGER

One of the greatest dangers in turkey raising is contaminated soil. The importance of raising young turkeys on fresh ground away from the chickens cannot be over-emphasized. Many farmers say that it is impossible for them to provide a special rearing ground for the young turkeys. In such cases they may then find it practically impossible to raise turkeys. There is no doubt that one may successfully raise turkeys and chickens to-

gether and perhaps do this for several years; but this is the exception rather than the rule. Recent findings have shown that the organism which causes blackhead lives over from season to season in the soil. Consequently, if the turkeys are raised on old ground, the soil will in all probability be contaminated. A large share of this danger may be avoided by raising the poults on fresh ground each year. If, however, the young poults should actually become infected with the blackhead organism, the danger would be greatly minimized if the soil was free from the common intestinal parasites of chickens. Chickens have been found to be carriers of blackhead and yet not show symptoms of the disease.

Recent experimental findings have shown that the tiny intestinal worm known as the cecal* worm, which is found so commonly in chickens, also infests young turkeys. The cecal worm by itself does not greatly harm the young poults. However, the young turkeys eat the eggs of this worm and these eggs hatch out in the young poult's intestines. It is believed that this worm in some way injures the inner lining of the intestinal wall and thus enables the blackhead organism to enter the blood vessels, and thus cause the dreaded blackhead disease. Careful trials have shown that it is quite possible to raise turkeys even when the flock is infected with blackhead, provided the poults are kept entirely free from intestinal worms. This is in all probability because the blackhead organism is in such cases unable to go from the digestive tract into the blood of the young poult, and consequently is passed off in the droppings. The importance of avoiding intestinal worms in young poults cannot be over-emphasized. The surest method of controlling cecal worms is by rearing on clean ground which has not been used for either chickens or turkeys the previous season. However, even if the ground is uninfested, it may easily become infested if chickens are allowed to run with the turkeys. This means that if chicken hens are used to brood young poults, they should be kept confined to the brood coop, which in this case should have a floor. This floor should be thoroly cleaned at least once

*This worm is usually found in the caeca or "blind guts" which are sometimes called the fowl's appendix.

a week and the soiled litter and droppings removed out of reach of the poults.

The conclusion should not be drawn that the cecal worm itself causes the disease (for it is in no way responsible for blackhead). This worm merely opens up the path which permits the blackhead organism to get from the intestinal tract into the blood stream of the young poult. Once the organism is in the blood, there is *no known way to cure or control the disease of blackhead.*

ARTIFICIAL BROODING

Turkeys can be raised in large broods of from 100 to 200, if artificial methods such as those recommended for chicks are used. (See cut on cover of circular.) A coal-burning colony brooder stove is to be preferred for artificial brooding. It should be placed in a brooder house such as the one 10 ft. x 10 ft. pictured in Extension Circular 157. The method of operating the stove is described in that Circular.

If a brooder house is used, four yards should be constructed around it. The brood of poults should be alternated in these yards, being allowed in a yard ten days and then moved over to the next yard. Under this plan each yard would be used for ten days and would then remain idle for thirty days before it is used again. It may be more feasible to construct a temporary yard on one corner of the brooder house. On the 10th day the yard should be changed to another corner of the house. In other words the yard is moved from one corner of the house to another every 10th day, until all four corners have been used. Care should be taken to make sure that the new yard does not overlap on the old yard and thus allow the poults access to contaminated soil. A strip of 36-inch poultry netting 15 to 20 feet long will be very satisfactory for this temporary movable yard, since it only cares for the poults until they are six weeks of age. If permanent yards are desired, turkeys may be kept confined within a 58-inch fence. Some breeders have kept mature turkeys confined within yards surrounded by a 32-inch hog fence with three strands of barbed wire, stretched above the top bar of the fence.

COST OF FEEDING

This plan of confinement may seem to some undesirable because the turkeys must be fed. However, recent figures published by the Nebraska Experiment Station* show conclusively that it is quite profitable to provide all the feed for turkeys and raise them in semi-confinement. The following table gives total feed consumed by a brood of ninety-eight turkeys, ninety-three of which were raised to maturity. The dry mash which was fed consisted of three parts yellow corn, two parts shorts, one part bran, and one part meat and bone meal, by weight. One per cent of salt was added to this mixture. The Nebraska results are given herewith:

FEED CONSUMPTION—98 TURKEYS

Week	Infertile Hen Eggs	Chick Scratch	Dry Mash	Skim Milk
1st	25	.25 lb.	6.8 lb.	11 gal.
2nd	30	1.6 lb.	16.2 lb.	8 gal.
3rd	4	1.9 lb.	30 lb.	11½ gal.
4th		2.0 lb.	41.2 lb.	11½ gal.
5th to 8th		11.0 lb.	330 lb.	35⅓ gal.
9th to 12th			560 lb.	43¾ gal.
13th to 16th			706 lb.	38 gal.
17th to 20th			1040 lb.	155 gal.
21st to 24th		401* lb.	564 lb.	7 gal.
Total		417¾ lbs.	3294.2 lbs.	321 gal.

* Yellow shelled corn.

92 surviving turkeys weighed 1143 lbs. which meant an investment of 3¼ lbs. of feed (grain and mash) and ¼ gal. of milk per pound of turkey.

These figures show that the average turkey consumes very much less than farmers generally suppose. When it is considered that one is almost always sure of getting more than 25c a pound

* Nebraska Experiment Station Circular 34.

for turkeys in the fall, it is readily seen that there would be a considerable profit even if a very high priced feed were used. This means that it would be wise to use only the best quality of feeds in the turkey ration. The average weight of turkeys raised in the experiment from which the above figures are taken is also very enlightening.

AVERAGE WEIGHT PER TURKEY
Average of Brood of 98.

Age in Weeks	Female	Male	Average
At hatch	1.7 oz.	1.8 oz.	1.7 oz.
1	3.1	3.4	3.2
2	5.1	5.8	5.4
3	7.9	9.3	8.6
4	11	13	12
8	1 lb. 14.4 oz.	2 lbs. 6.4 oz.	2 lbs. 2.4 oz.
12	4 lbs.	5 lbs. 1.6 oz.	4 lbs. 8.8 oz.
16	6 lbs.	8 lbs. 9.6 oz.	7 lbs. 4.8 oz.
20	7 lbs. 14.8 oz.	12 lbs.	9 lbs. 14.4 oz.
24	9 lbs. 9.6 oz.	15½ lbs.	12 lbs. 8.8 oz.

FATTENING FOR MARKET

Turkeys do not fatten well during hot weather and therefore fattening for market should not begin until after the first of October when the weather becomes cool. Feed lightly at first, giving two feedings of equal parts of wheat and oats. Increase the quantity until about the first of November when a third feeding should be added. By the middle of October start adding corn* to the wheat and oat ration and increase the amount of corn until by November 1st the mixture contains equal parts of wheat, oats and corn. From this time on gradually decrease the wheat and oats in the mixture and increase the corn until a few days before marketing when the birds should be getting all the corn they can eat three times a day. During this time give them all the skim milk or buttermilk they will drink.

* Old corn should be used.