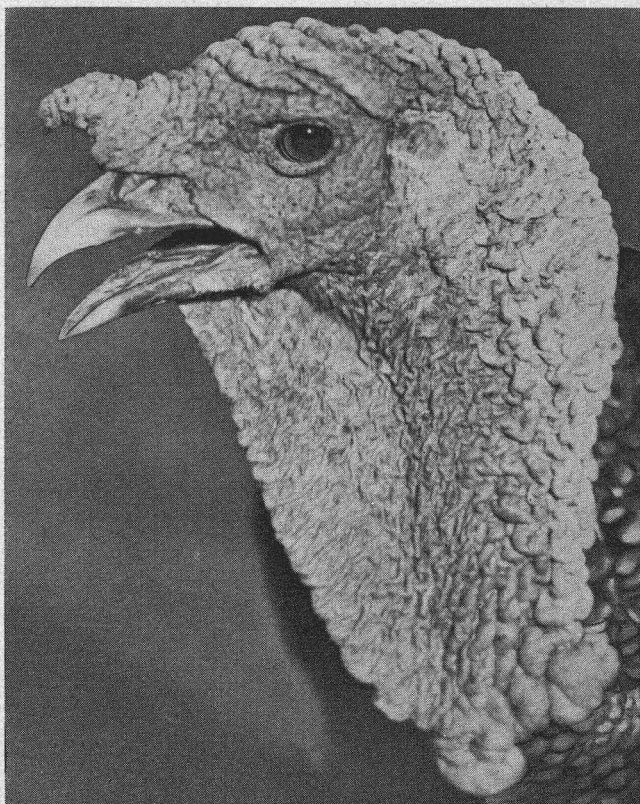


Brooding and Rearing



T U R K E Y S

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Oregon State System of Higher Education
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SUMMARY

1. Personal preference, market demand, available stock of good quality, and market outlets are important factors to consider in selecting a breed. Poultz of good quality should come from a breeding flock that is vigorous, broad-breasted, fast-growing, early-maturing, and free from transmissible disease.
2. To brood poultz successfully it is necessary to have a good brooder house, equipped with a reliable brooder or heating system, adequate feeders, watering devices, suitable litter, and an artificial sun porch.

The brooder house must be thoroughly cleaned and disinfected before the poultz arrive and kept reasonably sanitary during the entire brooding period.

3. The most generally used system of feeding poultz during the brooding period is that of leaving starting mash, cracked grains, grit, and water before the poultz at all times. After the poultz have been moved from the brooder house to range they should have free choice of a growing mash or pellets, or a protein concentrate along with mixed whole grains.
4. Poultz from 6 to 8 weeks of age should be moved from the brooder house to clean range that provides an adequate supply of green feed.

In comparing five different methods of feeding turkeys at the Umatilla Field Station the results were similar.

5. In Oregon there are three distinct methods used in marketing turkeys: cooperatively; independent agencies; and individual initiative.

The killing, cooling, packing, and grading of turkeys have shifted from the farm to centralized processing plants.

It is a mistake to market turkeys before they are in prime condition and poor economy to hold them after they are ready for market.

6. To produce disease-free poultts the breeding stock must be free from transmissible disease, sanitation must be practiced in the incubators, hatchery, and brooder house, and poultts must be raised on clean range. In case of a disease outbreak, the sick birds should be isolated. If the outbreak occurs in the brooder house, it should be thoroughly cleaned; and if on range, the flock should be moved to clean ground. An accurate diagnosis should be obtained as soon as possible.

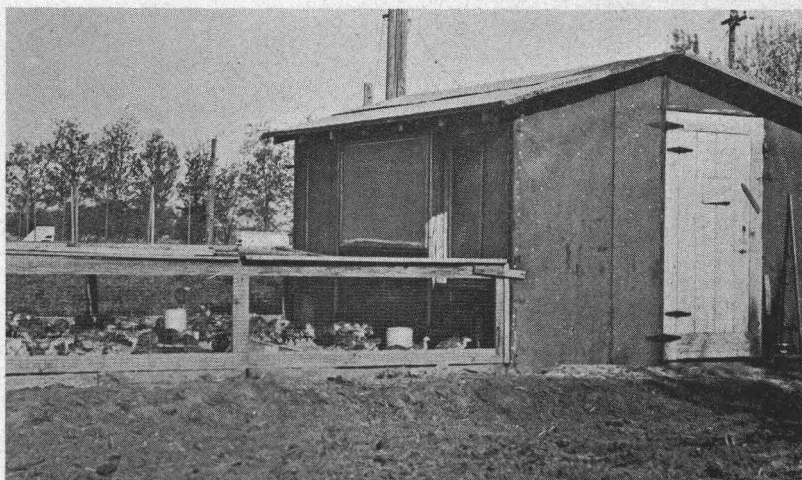


Figure 1. A colony brooder house equipped with a detachable wire sun porch.

Brooding and Rearing Turkeys

By NOEL L. BENNION, Extension Poultryman

INTRODUCTION*

FROM 1930 to 1940 the turkey industry in Oregon increased approximately 175 per cent. According to the 1940 census Oregon raised 1,677,851 turkeys and ranked fourth among the states in number of turkeys produced. While this expansion has been large it has been on a sound economic basis. In recent years the cash farm income from turkeys has been between four and five million dollars and comprises from 3 to 4 per cent of the cash farm income in the state.

Most of the turkeys in Oregon are raised by commercial operators in large flocks. Some turkeys are produced in every county, but the industry is more intensified in the Willamette Valley, Douglas County in southern Oregon, and Umatilla and Deschutes counties in eastern Oregon.

OBTAINING POULTS

Selecting a breed. The six varieties of turkeys that are commonly called breeds are: Bronze, Narragansett, White Holland, Black, Slate, and Bourbon Red. The Broad Breasted Bronze is not listed in the American Standard of Perfection, but it is considered a separate breed and predominates in Oregon.

There are good and poor individuals in all breeds. The strain or breeding behind the stock purchased is much more important than the breed. Personal preference, availability of replacement stock, and market outlets are important factors to consider in the selection of the breed.

Selecting poults. The first essential in successful brooding is to obtain poults of good quality. Experienced growers either keep their own breeding stock or depend upon reliable breeders or hatcherymen for their poults. It is a protective insurance to know the breeder or hatcheryman, the type of business conducted, and the quality of the breeding stock from which the poults are produced.

A good breeding flock should consist of vigorous, broad-breasted, well-balanced, early-maturing birds, free from transmissible dis-

* The author wishes to acknowledge the help and suggestions received from Professor H. E. Cosby, Head of Poultry Department, in preparing this publication.

eases. Poults should come from breeding flocks that have been tested and free from pullorum disease.

The inexperienced grower will profit by discussing with established producers the various factors to consider in purchasing poults, and other problems on turkey management.

Time to start poults. The four main marketing periods during which turkeys are sold are the preholiday, Thanksgiving, Christmas, and freezer markets. It requires from $5\frac{1}{2}$ to $6\frac{1}{2}$ months to finish turkeys in prime condition. As a rule, the hens will be ready for market two or three weeks before the toms. The grower therefore should plan to start his poults in time to produce birds in prime condition for the market on which he elects to sell.

It is not a sound practice to hold turkeys after they are ready for market. The amount of feed required to produce a pound of gain with turkeys gradually increases up to market maturity. On the average it requires about $4\frac{1}{2}$ pounds of feed to produce a pound of gain during this period. After a bird reaches market maturity, however, approximately ten pounds of feed are required to produce a pound of gain. This emphasizes the importance of finishing turkeys in the shortest possible feeding period and of marketing them when they attain prime condition.

BROODING OPERATIONS

Brooder houses. Commercial operators in Oregon generally brood in stationary brooder houses that accommodate several thousand poults each. One type of house used on many farms is 30 feet wide and from 50 to 150 feet long. It has a 6 to 10 foot alleyway down the center with a series of 12' x 14' or 10' x 12' pens located on both sides. A unit of 150 to 200 poults is brooded in each pen depending on the available floor space.

Portable brooder houses are used mainly by growers who raise turkeys in lesser number. These houses are usually 12' x 12' or 12' x 14' and built on skids so they may be moved to clean ground to avoid the diseases resulting from soil contamination.

Artificial yards. Any stationary brooder house should be equipped with an artificial yard or sun porch. It provides additional floor space, gives the poults an opportunity to get in the sunshine and helps to control diseases and parasites. It may be a wire porch, a porch made from lath, or of cement. Porches vary in width from 6 to 16 feet. Wire or lath porches should be constructed so that cleaning underneath them may be conveniently done. Arrangements should also be made to provide both feed and water on the porch to

induce the birds to spend more time out of the brooder house.

The floors of wire porches are made from $\frac{1}{2}$ inch, $\frac{3}{4}$ inch or 1-inch mesh. Most growers use the $\frac{1}{2}$ inch mesh. A 16 or 17 gauge wire is more expensive, but more durable than lighter wire. For the sides and top a lighter weight and less expensive hexagonal mesh wire is used. For the sides a 1-inch mesh, 19 gauge wire can be used, and for the top covering of the porch, 2-inch mesh, 19 gauge wire is satisfactory. If feed and water are located on the outside of the porch, some growers space slats through which the poults eat and drink. (See Figure 2.)

Lath porches can be made from $1\frac{1}{2}$ inch slats placed from 1 to $1\frac{1}{2}$ inches apart. This type of porch should be oil treated and frequently cleaned.

A cement yard or porch should slope away from the building at the rate of about 1 inch to the foot. Provisions should be made for hosing off cement porches every few days in order to keep them clean and sanitary.

Brooders. Several different types of brooders and heating systems have been used successfully in brooding poults. The type of equipment selected should maintain temperatures and ventilation at which the poults will be comfortable.

Feather or flannel board brooders are used quite extensively in Oregon where poults are brooded on wire runs. Supplemental heat is provided by heating the entire room. Wood or sawdust is the most common source of fuel; however, a few oil burners are used.

Hot water brooding systems are used successfully in long continuous brooder houses. The initial investment of good equipment is relatively high but generally operating cost is comparatively low.

Oil brooders work satisfactorily, where fuel oil can be obtained at reasonable prices. If they are used in a long continuous brooder house several stoves may be connected to the same oil supply. Due precaution should be taken against creating fire hazards. It is important that burners be kept clean and working properly to prevent formation of carbon monoxide gas due to improper combustion.

Coal brooders and flues must also be kept clean and in good repair to prevent the formation of carbon monoxide gas due to poor combustion. In Oregon gas briquettes are generally used as fuel in coal-burning brooders.

Wood brooders require a little closer supervision, but work satisfactorily if good hard wood is used.

Electric brooders have been used much more extensively in brooding chicks than poults. Some difficulty has been encountered

with electric brooders in getting early season poults out from under the hover due to the contrast of low room temperature. This objection has been overcome by using supplemental heat in the room the first few days until the poults have learned to eat. Electric brooders with overhead fans, that provide better distribution of heat and ventilation, have also done much in overcoming the tendency of poults to remain under the hover.

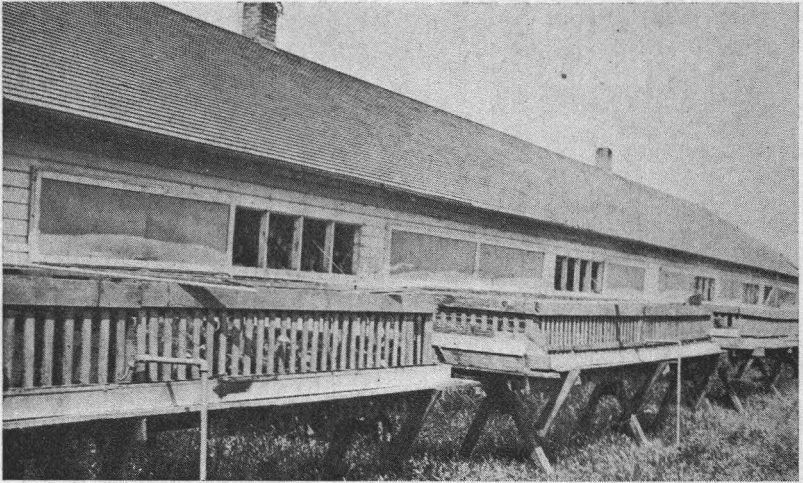


Figure 2. A wire sun porch with slats spaced through which the poults eat and drink. Porches should be constructed so that cleaning underneath them may be conveniently done.

Battery brooders provide a satisfactory method of starting poults for the first two or three weeks. Poults are then usually moved to a regular brooder house for the remainder of the brooding period. The main objection to battery brooders is that this plan requires two complete brooding setups and difficulty is sometimes experienced in getting the poults adjusted when moved from the batteries to their new environment.

Brooder equipment. In brooding, the following equipment is essential: two sets of feeders, watering devices, roosts, thermometer, and a hover enclosure if poults are brooded on the floor.

For the first two weeks a shallow feeder 4 inches wide and 4 feet long, edged with lath to prevent wastage, should be provided for every 100 poults. For use after two weeks, two feeders 4 inches wide, 4 feet long and 4 inches deep, with a reel across the top, should be provided for each 100 poults.

There are several types of watering devices in general use. At least one container should be provided for every 50 poults and it is desirable to set the water container on a low wire platform to prevent the litter from getting wet.

Poles about two inches in diameter make desirable roosts during the brooding period. If the roosts are to be made from sawed lumber, they should be 2" x 2" or 2" x 3" material with the broad

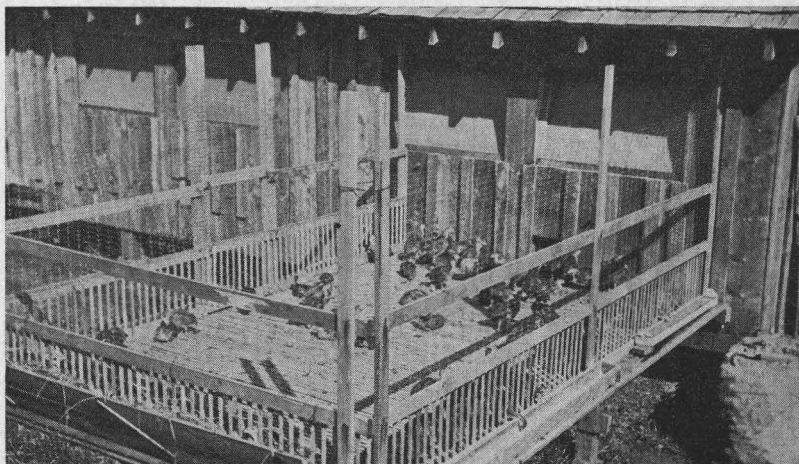


Figure 3. A lath sun porch equipped with green-feed rack, feed trough, and water container on the outside.

side up. If the roosts are slightly tilted or sloping, the upper edges should be beveled.

If poults are brooded on the floor, a hover enclosure is a valuable aid in keeping the poults close to the source of heat during the first few days. It can be made from fine mesh wire, 1" x 12" boards hinged together in pairs, or from corrugated paper.

Preparing the brooder house. Ten days or two weeks before the poults arrive, the brooder house should be thoroughly cleaned and disinfected. The floors and walls should first be dry cleaned, swept, and then scrubbed with a 3 per cent solution of hot lye water. The interior should then be liberally sprayed with a good disinfectant. The brooder equipment should be cleaned, checked, and test operated, to see that all parts are in good working order.

Litter. Several different kinds of litter are used for brooding poults. Some of the most common are cut straw, sawdust, shavings,

peat moss, and coarse sand or fine gravel; but many prefer to brood poults on wire floors. Regardless of the type of litter used, it should be covered with burlap or cotton sacks, or a wire platform inside the hover-enclosure for the first few days until the poults have learned to eat and drink. This practice will aid in preventing the poults from eating litter instead of the feed.

The majority of wire floors for brooding poults are made from $\frac{1}{2}$ inch mesh.

Brooder management. Poults should be placed under the brooder and taught to eat and drink the day following their removal from the nearby incubator and as soon as possible in case they arrive by shipment. If poults are being brooded on the floor, a hover enclosure should be placed a short distance from the edge of the hover. This will keep the poults close to the heat and aid in teaching them to bed down properly. During the first week the temperature at the edge of the hover, just above the poults, should be approximately 95 degrees. After the first week the temperature should be gradually lowered 5 to 7 degrees per week, or in accordance with the comfort of the poults. While the experienced grower relies largely on the action of the poults in regulating temperature an accurate thermometer is always a valuable guide.

The enclosed circle about the hover should be gradually enlarged after the first few days and may be removed by the end of the first week. When poults are a week or ten days of age they should make use of the sun porch. Fresh air and sunshine will enliven the birds, stimulate their appetites, and aid in feather growth. Low roosts should be provided in the brooder house for poults at about two weeks of age.

With feather or flannel board brooders, where supplemental heat is provided, the room temperature should be about 85 degrees during the day, but lowered about 10 degrees at night to encourage the poults to stay under the hovers. The room temperature should be gradually reduced after the first few days according to the action of the poults. If feather or flannel boards are being used on wire, burlap or cotton sacks should be placed under the hovers during the early stages of the brooding period.

It is essential that the brooder house be kept clean and well ventilated. Two hundred poults should be the maximum number brooded in one group. Each poult should be provided with one square foot of brooder house floor space in addition to the sun porch, and allotted 14 square inches of heated area under the brooder hover. Contact with older turkeys, other poultry, or contaminated soil

should be avoided by both the poults and the attendant, as a safeguard against the introduction of diseases.

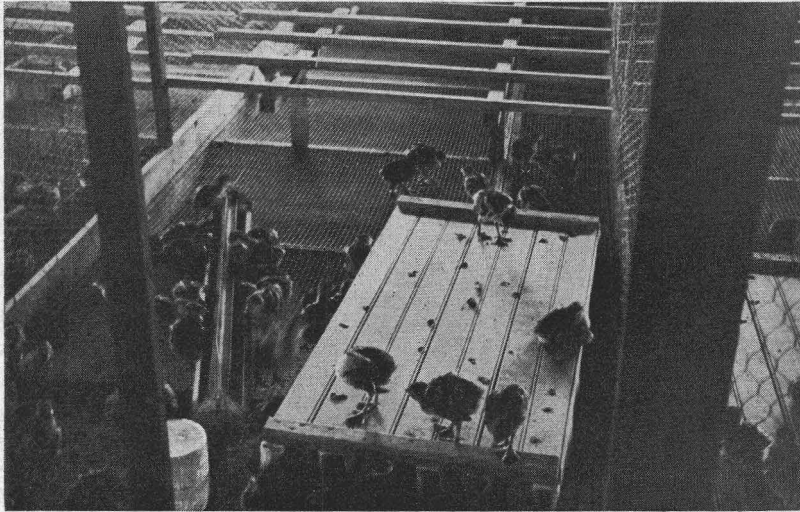


Figure 4. A wire brooding pen equipped with flannel board brooder, low roosts, feed and water containers.

Feeding poults. A well-planned program of feeding and management should be adhered to throughout the entire brooding period. The most widely accepted feeding system is that of keeping starting mash or pellets before the poults at all times. Starting the second week they should have, in addition, free access to cracked grains and grit. The poults will balance their own ration and make satisfactory growth under this method of feeding. After the first week chopped succulent green feed should be fed liberally each day.

A critical and important problem in brooding poults is to teach them to eat and drink. Dipping their beaks in skim milk or water will help to get them started. Additional feeders such as egg case flats or shallow paper plates should be provided until the poults are all eating from the regular feeders. Skim milk or cottage cheese mixed with a small amount of mash will often encourage them to eat. Rolled oats or fine scratch moistened with milk sprinkled on the mash will stimulate feed consumption. Bright colored marbles placed on the feed will attract attention and induce the poults to pick at the feed. Plenty of light is necessary to induce poults to eat.

Poults consume the greater part of their ration in the form of mash during the first few weeks of brooding because the mash con-

tains the additional proteins, minerals, and vitamins essential for proper growth and development. The amount of mash consumed decreases and the consumption of grain gradually increases as the birds advance in growth and age.

It is desirable practice to keep a feeder full of whole oats before the poults after they are three weeks of age. Oats add fiber to the ration, aid in the control of feather picking, and promote growth.

When the poults are transferred from the brooder house to range they should be gradually changed from a starting to a developing mash. If turkeys on range have free choice of mash or pellets, or a protein concentrate, along with mixed whole grains, they will balance their own ration and make satisfactory growth and gains. They should also have access to grit and oyster shell. If the ration contains an adequate supply of calcium, the shell can be eliminated.

Six weeks before turkeys are to be marketed they should be gradually changed from a developing mash to a finishing mash. To avoid any fishy-flavor hazard to the industry, all fish and fish oils should be eliminated from the finishing ration.

Table 1. OREGON STATE COLLEGE TURKEY RATI0NS*

Ingredients	Starting mash	Developing mash or pellets	Protein concentrate mash	Finishing mash
	Pounds	Pounds	Pounds	Pounds
Bran	300	300	250	120
Ground yellow corn	300	300	400
Ground wheat	325	330	500
Ground oats	100	200	300
Ground barley	100	200	100	200
Meat scraps	200	100	100	200
Fish meal	180	200	200
Dry skim milk	100	50	50	50
Dried whey	100	50	50	50
Alfalfa leaf meal	200	200	200	130
Oyster shell flour	20	20	20	20
Steam bone meal	5	30	30	30
Salt	20	20	10	20
Vitamin-bearing oil 400 D—1,000 A or its equivalent	12	4	4
Manganese sulphate	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
TOTALS	2,007	2,004	1,014	2,020

* These rations, which were developed over a period of years in experimental and field trials, will of necessity have to be modified from time to time in order to meet best the emergencies arising from the changing conditions incident to war.

SCRATCH GRAIN MIXTURES

Starter	Developer
1,000 pounds cracked wheat	1,000 pounds wheat
1,000 pounds cracked corn	400 pounds corn
	300 pounds barley
	300 pounds oats

Rations. There are many good commercial rations on the market. Table 1 contains the turkey rations recommended by Oregon State College. These rations have given good results under both experimental and commercial flock conditions. The birds should have in addition free access to mixed scratch grains, a hard insoluble grit, and oyster shell or limestone unless otherwise provided.

There is very little difference in the feeding values of wheat, corn, oats, and barley, except that oats are higher in fiber. A combination of two or more grains is superior to any one fed exclusively. If any particular grain gets out of line as to price, the amount used can be reduced and replaced with other grains.

Barley is not as palatable as the other grains; if turkeys learn to eat it at an early age, however, they will readily consume it.

RANGE MANAGEMENT

Moving poults to range. When poults are 6 to 8 weeks of age, depending upon weather conditions and the time of year hatched, they should be moved from the brooder house to the range. Roosting or range shelters are valuable aids in weaning and hardening poults from the brooder. They not only provide a place to roost, but give weather protection and furnish shade.

Poults are moved from the brooder house to the range in regular turkey or market crates, or in open trucks. They should be placed on range in the morning so they will have the day to become accustomed to their new quarters. The feed hoppers should be placed close to the shelters for the first few days to induce the poults to remain nearby. It is a good practice to use some of the same feeding and watering equipment that has been used in the brooder house until they became accustomed to the range equipment.

One important range problem is that of getting the poults to roost at night. If they refuse to roost for the first night or two, precautions must be taken to see that they bed down in small groups to avoid piling. Range shelters are usually equipped with low roosts to encourage the poults to roost. The regular roosts that will be used the rest of the season should be placed in front of the shelters, and the poults will gradually leave the shelters and use them.

Range equipment. The following equipment for handling turkeys on range is desirable: range shelters, roosts, feeders, and water devices. Some growers do not use either shelters or roosts. In Oregon, however, almost all producers do use roosts, and especially so after the fall rains start. Growers who use shelters feel that they

are a worthwhile investment. They are used not only for the growing stock but can also be used to provide shelter for the breeders during the winter months.

The most common shelter used is a shed roof type, open at the front and sides, 16' long, 10' wide, 7' high in front, and 4' in the back. It is built on skids so that it can be moved readily.

Roosts should be made from smooth poles, $2\frac{1}{2}$ to 5 inches in diameter, or from 2" x 3" or 2" x 4" material with the broad side up. Roosts should not be over 2 or 3 feet from the ground. High roosts are a potential source of injury, especially with heavy turkeys. If



Figure 5. Range shelters are a valuable aid in weaning and hardening poults from the brooder. They should be constructed so they can be easily moved.

trouble is experienced from predatory animals, better protection is the solution rather than high roosts. Sufficient roosts should be provided for all birds. They should be built on skids so they can be moved easily. About 1 linear foot of roosting space should be provided for each mature bird.

Range feeders should be constructed so they can be moved, to protect the feed from the elements of weather, and to prevent the turkeys from getting into or wasting the feed. A feeder 10 feet long, 12 inches wide, 18 inches high, with a hinged top, makes a desirable feeder. The trough part should be 12 inches wide and 10 inches deep, and edged with lath to prevent feed wastage. This leaves a space 6 to 8 inches high that is lined with slats through which the birds eat. If both mash and scratch are kept before the birds at

all times, one 10-foot feeder, with feeding space on both sides, should be provided for each 100 turkeys.

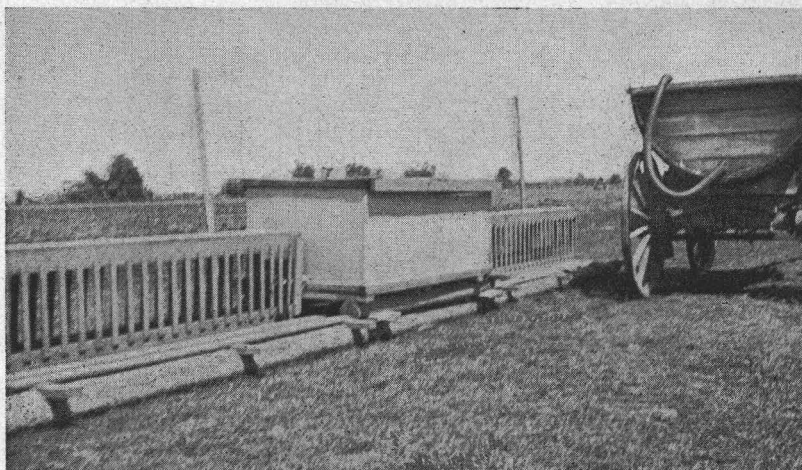


Figure 6. Water equipment built on skids so it can be moved easily. Water wagon used to fill storage tank.

Many different watering devices are used, but any type should provide an adequate supply of water, be portable, and easily cleaned.

Feeding methods. Some growers prefer (1) to feed mash and scratch grains to birds on range, while others prefer (2) to feed pellets and scratch grains. An increasing interest has been shown in (3) feeding a protein concentrate and more home-grown whole grains. Some growers prefer (4) to feed mash and scratch supplemented with pellets, while others are of the opinion that much better gains are obtained (5) if the ration is supplemented with a daily feeding of barley soaked in milk and alfalfa meal.

Table 2 shows a comparison of these five different methods of feeding turkeys. These trials were conducted at the Umatilla Field Station at Hermiston, Oregon. Five hundred Broad-Breasted Bronze poults were divided into five groups. During the first seven weeks, the birds were all fed identically the same ration. At seven weeks of age the birds were moved to the range, divided into groups, and each group fed to market age by one of the five methods of feeding. The amount of feed consumed during the brooding period was included in figuring the cost, and amount of feed required to produce a pound of gain, for each lot.

Pen 1 had free choice of growing mash and scratch grains.

Pen 2 had free access to pellets and scratch grains. The formula for the pellets was the same as the growing mash.

Pen 3 had free choice of a 30 per cent protein concentrate mash and scratch grains. The protein concentrate was the regular developing mash with 1,000 pounds of the ground grains removed.

Pen 4 had free choice of growing mash and scratch grains; and during the last three months of the growing period received what pellets they would clean up in 30 minutes fed daily at noon as a supplemental feed.

Pen 5 had free choice of growing mash and scratch grains; and during the last three months of the feeding period received a 30-minute, mid-day supplemental feed of milk-soaked barley mixed with alfalfa meal. A hard insoluble grit and oyster shell were kept before each pen at all times.

The birds were all marketed at 207 days of age. Many were ready for market before this age, but for experimental cost study records all were held until in prime condition. The mortality was approximately 10 per cent in each pen from the time the poults were placed in the brooder house until slaughtered. There was no significant difference among the five systems of feeding in the amount of feed required to produce a pound of gain, or the feed cost per pound of gain. The feed consumption was heavy, but the hens and toms were large. It is interesting to note that the per cent of mash or pellets and grains consumed was similar in each pen except in pen 3,

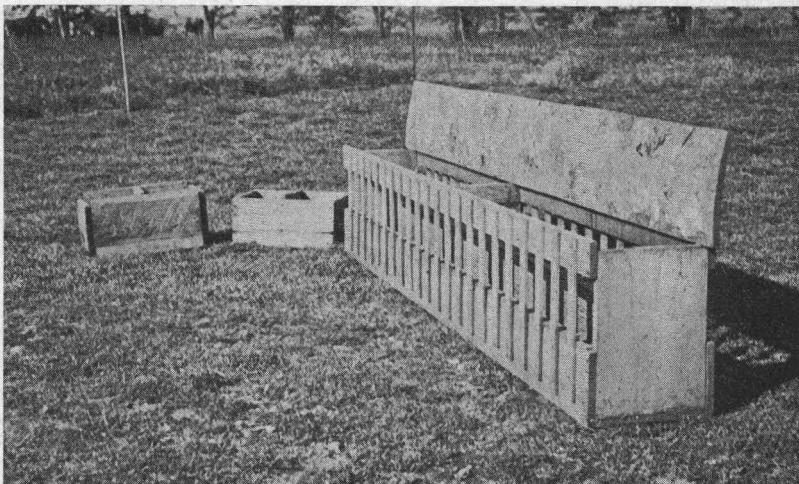


Figure 7. A range feeder designed to protect the feed and prevent wastage, and also grit and oyster shell containers.

which received the higher protein concentrate mash. The amount of grit and shell consumed per bird was similar in each pen. There was no significant difference in the per cent of U. S. prime birds in the various pens.



Figure 8. Growing turkeys on ladino clover with sunflowers in the background.

Table 2. ONE YEAR'S RESULTS ON METHODS USED IN FEEDING TURKEYS AT THE UMATILLA FIELD STATION, HERMISTON, OREGON

	Pen 1	Pen 2	Pen 3	Pen 4	Pen 5
	Mash and scratch	Pellets and scratch	Concentrate and scratch	Mash scratch plus pellets	Mash scratch plus soaked barley plus alfalfa
Age at marketing—days.....	207	207	207	207	207
Feed per pound of gain—pounds	4.46	4.25	4.40	4.44	4.66
Feed cost per pound of gain	11¢	10.7¢	10.8¢	11.2¢	11.1¢
Total feed consumption—pounds	93.89	94.65	95.00	97.21	102.15
Per cent mash	64.83%	64.62%	48.77%	68.42%	60.44%
Per cent scratch	35.17%	35.38%	51.23%	31.58%	39.56%
Oyster shell per bird—pounds	1.29	1.41	1.49	1.15	1.22
Grit per bird—pounds	2.86	2.38	2.79	2.84	2.38
Average live weight of toms—pounds..	26.4	26.2	26.2	26.6	27.3
Average live weight of hens—pounds	16.4	16	16.1	16.6	16.3
Per cent U. S. Prime	96.5%	100%	96.7%	97.7%	100%

- (1) \$2.80=cost of mash per 100 pounds.
- (2) \$2.85=cost of pellets per 100 pounds.
- (3) \$3.12=cost of concentrates per 100 pounds.
- (4) \$1.885=cost of scratch grains per 100 pounds.
- (5) \$1.48=cost of barley and alfalfa per 100 pounds.
- (6) \$0.25=cost of liquid skim milk per 100 pounds.
- (7) Feed cost and gain figured on a live weight basis.
- (8) The starting mash and scratch consumed by each pen during the brooding period is figured in the cost and feed required to produce a pound of gain.
- (9) Pen 4 consumed 900 pounds of supplemental pellets, which is included in the mash.
- (10) Pen 5 consumed 935 pounds of barley and alfalfa plus 160 pounds of skim milk on a dry basis as a supplemental feed. The barley and alfalfa are included as scratch and the dry matter of milk added to the mash in these calculations.

These results indicate that the method of feeding was not of economical importance as long as the birds had free access to an adequate supply of a well-balanced ration. No beneficial results were obtained from supplementing the regular ration with pellets or milk-soaked barley mixed with alfalfa meal.

Green feeds. An adequate supply of green feeds will reduce feed costs from 10 to 20 per cent, depending upon the source and quality. Alfalfa and clovers are probably the best sources of green feed where they can be successfully grown. In adaptable areas sunflowers and oats are used extensively for turkey shade and range. For each 100 turkeys $\frac{1}{2}$ acre of oats and $\frac{1}{2}$ acre of sunflowers should be provided. This combination provides green feed, shade, and some feed from the sunflower seeds and oats. Vetch is sometimes planted with the oats.

Common ryegrass is used by many growers on the higher dry lands. The seed is cheap and it thrives on most types of soil. Sudan grass will thrive on about the same type of soil and is used by some producers. The seed is also reasonable in price. Both of these grasses need to be seeded every year.

If an adequate supply of green feed is not available on range, a good grade of alfalfa hay, clover hay, alfalfa meal, or alfalfa pellets should be kept before the birds. Five to ten per cent of molasses by weight mixed with alfalfa meal increases palatability.

Range practices. A good range will care for about 100 turkeys per acre. To provide clean range it should be used not more often than every other year and every third year would be more desirable. The range shelters, roosts, and feeders should be moved frequently during each growing season to avoid soil contamination, killing of green feed, and to obtain a more uniform distribution of the fertilizer.

If range shelters are the principal source of shade, a sufficient number should be available to provide adequate shade for all birds. They should be placed close enough together to keep the entire flock from trying to use the same one, especially during periods of high temperatures. Some serious losses have occurred from turkeys piling around a small amount of shade.

There are some advantages in separating the sexes at 16 to 18 weeks, or as soon as they can be identified. Hens reach maturity and are ready for market from 2 to 3 weeks earlier than toms. If they are not separated the hens are usually held until the toms are ready for market, which increases the cost of production. Separating the sexes will reduce feather picking and blue backs. Regardless of

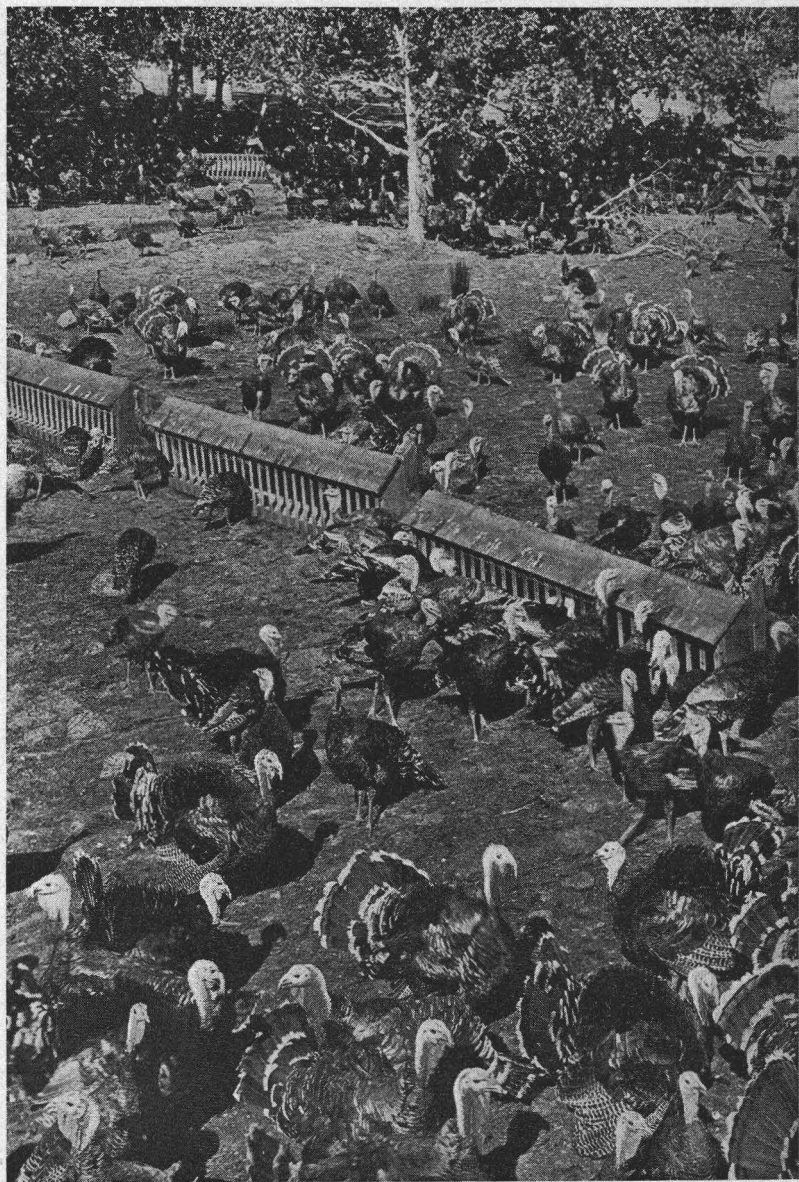


Figure 9. Turkeys on range should be provided with adequate feeders and shade.

the system of management, turkeys do not all reach prime condition at the same age. For this reason as the fast-growing birds reach maturity the flock should be topped and the prime birds marketed.

Water is the cheapest, yet one of the most neglected phases of the feeding program. Turkeys consume large quantities of water, especially during hot weather. Enough drinking facilities should be provided so the birds can obtain an abundance of clean fresh water at all times. Ditch banks, sloughs, and stagnant pools should be fenced off because they are a source of contamination.

MARKETING

Methods of marketing. Three distinct methods are used in marketing turkeys in Oregon: (1) cooperatively, (2) by independent agencies, and (3) by individual initiative. The commercial turkey-producing areas in Oregon are being efficiently served by the co-operatives and several independent dealers. A few turkey growers located close to centers of population dress their birds or have them custom processed at one of the killing plants and sell their birds direct to jobbers, retailers, or consumers. These three systems of marketing, operating in the same territory, lead to efficiency and help to stabilize the industry.

Condition. It is a mistake to market turkeys before they are in prime condition and it is poor economy for the producer to hold them after they are ready for market. For this reason, the flock should be examined at intervals and the prime birds marketed. This procedure will help to reduce cost of production and increase the percentage of birds in top grades.

The experienced turkey grower can readily identify the ones ready for market by handling the birds. The amount of flesh on the breast, over the back, around the tail head, on top of the neck, under the feather tracks, and the color of the skin are all indications of condition. Birds that are ready for market should be reasonably free from pin feathers, especially on the breast.

Killing, cooling, grading. During recent years practically all the killing, dressing, cooling, and grading has shifted from the farm to centralized processing plants. These plants are equipped to carry out the semiscald method of dressing and to provide immediate refrigeration for cooling. Most of the turkeys in Oregon are purchased, graded, and packed according to government grades.

A few dealers are eviscerating and selling fully drawn halves and parts of turkeys. It is anticipated that much progress will be made in processing and selling turkeys in the future.

Moving turkeys to market. Practically all turkeys in Oregon are moved to market in turkey crates loaded on trucks. With large birds a regular crate will handle 10 hens or 6 toms. For handling turkeys, a catching chute is desirable. The birds should be driven into the chute slowly and handled with care to avoid crowding and bruising, which results in lowering grades. If a catching chute is not available, a large pen or corral should be provided that will accommodate the flock or at least several hundred birds. A small pen should be adjacent that will handle 40 to 50 birds. The entire flock can be worked over, a small group at a time, with this system.

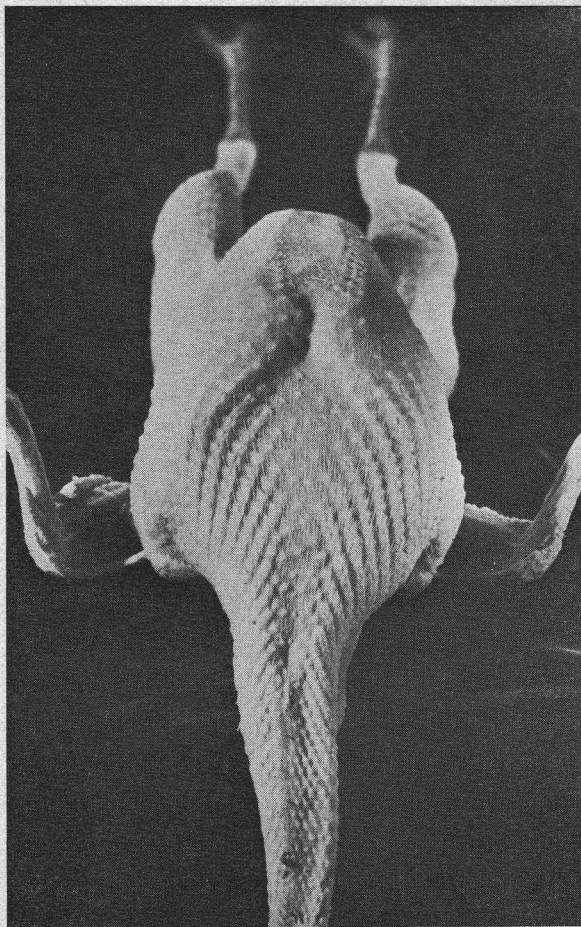


Figure 10. A broad-breasted hen in prime condition.

Any feed in the crop causes rapid deterioration of the dressed bird and results in no grade unless the crop is properly and promptly removed. Hence before the birds are slaughtered all feed should be taken away from them—the mash 12 hours and grains 24 hours in advance of killing. They should have free access to water. A simple procedure is to feed only mash the day before the birds go to market. Producers should bear in mind that after turkeys have been denied feed for 12 to 15 hours they begin losing weight at an increasing rate each hour and should not be held in crates any longer than necessary before being slaughtered. On the average, a turkey loses about 10 per cent of live weight in bleeding and picking and approximately 15 per cent more in drawing.

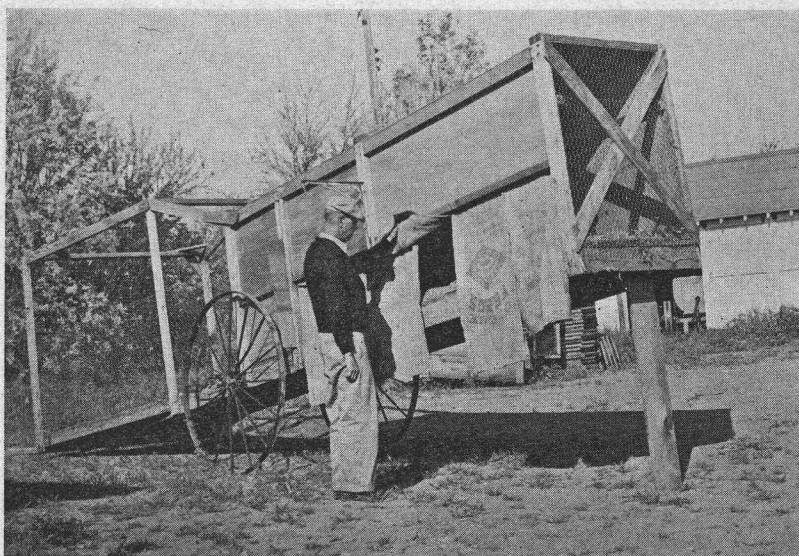


Figure 11. A catching chute is frequently used in handling market turkeys.

DISEASE PREVENTION

Sanitation. Proper preventive measures have long been recognized as the main factor in the control of turkey diseases. The disease hazard increases where large numbers of turkeys are brooded and reared on the same farm. Reasonable sanitation of soil and equipment is imperative throughout the entire life of the bird.

Sanitation must be practiced in the hatchery to produce healthy, vigorous poults. The incubators should be thoroughly cleaned and

disinfected before and between hatches. Turkey hatching eggs should be cleaned before being placed in the incubator, to protect against possible sources of contamination. Fine sandpaper or steel wool are commonly used for cleaning. They should never be hatched in the same incubator or in the same room with chicken eggs.

The brooding and rearing equipment should be thoroughly cleaned and disinfected before the poults arrive and kept reasonably sanitary during the entire growing period.

Older turkeys and chickens frequently act as healthy carriers for several diseases and parasites that affect young poults. For this reason brooding and rearing operations should be carried on entirely separately from older turkeys or chickens.

Turkeys should not be allowed to come in contact with soil where poultry manure has been spread within 2 years. To prevent infection or contamination from building up, the roosts, feeders, and watering equipment should be moved frequently.

Disease outbreaks. In case of a disease outbreak the sick birds should be isolated. If the outbreak occurs during the brooding period, the brooder house should be thoroughly cleaned; and if on range, the flock should be moved to clean ground. An accurate diagnosis should be obtained as soon as possible from the poultry disease laboratory at Oregon State College or from a qualified veterinarian. Treatment other than isolation and sanitation before a diagnosis is obtained should not be given. Sick birds may be taken or sent by express to the poultry disease laboratory. Five to seven live poults or two or three live mature birds should be selected that show typical symptoms of the disease. If birds are shipped to the laboratory, they should be accompanied by a letter that includes total number of birds on the farm, age and number of birds in each group, number of birds that have died since the disease started, how long the disease has existed, number of sick birds and symptoms, feed and system of feeding, and whether or not the birds have received any treatment.

Turkey growers should bear in mind that the normal mortality during the brooding and rearing period is from 10 to 15 per cent, and that, aside from being alert, they should not become unduly alarmed at the death of one or two birds.

If fowl pox has occurred in the area, poults should be vaccinated from 8 to 12 weeks of age. Most growers vaccinate when the poults are moved from the brooder house.

OREGON STATE COLLEGE FEEDING SCHEDULE

Age	Mash	Grain	Drink	Other factors
Hatching to brooder	None	None	None	Locally hatched poult should be held in poult boxes 24 hours after hatching before placing them under brooders.
First week	Starting mash or pellets before poult at all times.	None	Fresh water at all times. Avoid use of drugs and medicated water.	Many poult die of starvation because they do not learn to eat and drink. Cover the litter with wire frame or cloth until all birds are eating.
Second to eighth week	Starting mash or pellets at all times before birds.	Free access to cracked grains. Include whole oats on and after third week. Gradually increase size of cracked grains.	Set water containers on wire covered frames to avoid damp litter and contaminated areas.	Provide hard insoluble grit on and after second week. Feed chopped succulent green feed daily. Gradually reduce brooder temperature. Induce poult to go out on sun porch. Provide low roosts in brooder house the third week. Provide additional feeders of larger size by third week.
Ninth to about 22nd week	Gradually change from the starting to developing ration. Keep mash or pellets or protein concentrate before birds at all times.	Change from cracked to mixed whole grains, including oats, and leave before the birds.	Clean fresh water. Avoid natural watering places such as ditches and sloughs.	Move poult from brooder house to clean range from 6 to 9 weeks of age. Move range equipment regularly to avoid soil contamination and diseases. Give birds free access to grit and oyster shell. Supply adequate green feed and shade on range.
22nd week until marketing	Gradually change from developing ration to finishing ration free from fish meals and fish oils.	Keep mixed whole grains before birds.	Clean fresh water.	Beginning six weeks before turkeys go to market, they should be fed a finishing ration free from fish meal and fish oils to avoid a fishy-flavor hazard to the industry.