

AGRICULTURAL EXPERIMENT STATION
OREGON STATE AGRICULTURAL COLLEGE
W. A. Schoenfeld, Director

Corvallis

Circular of Information No. 63.

April, 1932.

RAISING TURKEYS IN SEMI CONFINEMENT

by

H. K. Dean, Superintendent of Umatilla Station, Hermiston, Oregon and
H. E. Cosby, Extension Poultryman, Oregon State College.

Oregon produces a surplus of turkeys and its growers must produce high quality turkeys in order to meet the competitive requirements of export markets.

Growers who practice a safe program of soil sanitation in the effort to reduce disease factors to a minimum make more profit in favorable years and are better able to stay in business while the price cycle is at a low point.

Turkey growers who follow a method of feeding which best meets the nutritional needs of the rapid growth of turkeys produce birds of higher quality with which to meet competition. Turkeys on free range need supplemental feeds. A stunted turkey is not profitable. Turkeys reared in confinement have to depend upon feeds provided by the owner. There will never be profit to the turkey producer who violates the rules of soil sanitation and nutrition. Growing quality turkeys for an export business is a real business problem.

Experiments on the Umatilla Experiment Station were continued in 1931 for the purpose of obtaining practical information on the following phases of turkey management:

- (1) Disease prevention by use of small areas of clean ground.
- (2) Use of outside wire porch during entire brooding period.
- (3) Relative value of dried, chopped, pasture and no greens in the ration.
- (4) The use of a relatively high animal protein mash for growing turkeys.

Two hundred fifty day old poults were purchased and were shipped by express 200 miles from the hatchery to the Experiment Station. They were artificially brooded in a well-ventilated 12' x 12' house and had outside access to a wire porch which also was 12' x 12'. They were not allowed on the ground until they were taken on the range at the age of eight weeks. They were confined on the range in small yards enclosed with a six foot poultry fence with steel posts.

Feed Formula Used During Brooding Period

Poult Starting Mash

- 240 pounds wheat bran
- 600 pounds ground yellow corn
- 300 pounds ground wheat
- 150 pounds ground whole oats
- 200 pounds meat scraps
- 200 pounds fish meal
- 150 pounds powdered skim milk
- 100 pounds alfalfa leaves ground
- 40 pounds bone meal
- 30 pounds oyster shell flour
- 20 pounds grit
- 20 pounds lime salt

Scratch Grain

- 1000 pounds cracked wheat
- 1000 pounds cracked corn

2000 pounds. (Vitamin D was supplied by adding 1/2% of fortified cod liver oil.)

Feeding Schedule During Growing Period

Age	Scratch	Mash	Drink	Other
To 48 hours	none	None	None	Brooder Ready
First feed to end of week	Add light grain feed to last feed on 5th day	5 thirty minute feeds daily. 4 thirty minute eggs added to days mash makes it crumbly moist. Add pinch of grit. Gradually eliminate eggs as soon as poult learn to eat.	Warm water	See that each poult has opportunity to eat. Cover what ever litter is used with sacks until poult learn to eat. Use hinged boards or wire frames to keep poult near brooder. Enlarge area daily.
Second week to fattening time	Gradually work towards leaving grain on hoppers before them at all times.	Leave dry mash before poult as soon as all eat and know source of heat	Water. Avoid dampness around all water fountains. Set water vessels on frames made of 1 x 3's covered with 1/2" mesh hardware cloth, after first few days.	Get poult outside on porch. Supply succulent greens if available. Use windbreaks on windward sides of porch. Supply hard grit, oyster shell, granulated bone; charcoal if desired. Provide temporary roosts in brooder room 3 - 5 weeks.

Mortality

The 250 poult ordered for one time delivery were sent in two lots which caused some inconvenience with only one brooding equipment. Twelve were lost early from weakness; four from "spraddle legs", 16 from necrotic enteritis and 11 from accidents.

Received April 25, 1931 104 poult
 Received May 5, 1931..... 152 poult
 Total number received 256 poult
 Total mortality..... 43
 Total number marketed..... 213 mature turkeys
 Total per cent reared and marketed 83.6

Description of the Four Range Lots Used

Lot	Number taken to range	Number Marketed	Lost	Acres Used	Explanation
1	25	23	2	.055	From 8 weeks to market, Lot 1 received no dried greens in the mash or no succulent feed of any kind. They were kept in a sand yard 20' x 60' and moved only once to another yard of same area.
2	55	55	10	.3	From 8 weeks to market, Lot 2 received no succulent greens of any kind, but 200 pounds of ground alfalfa leaves were added to each ton of the basal mash. They were confined to a dry sand yard 80' x 80' and moved only once to another yard of same area.
3	69	67	2	.3	From 8 weeks of age to October, Lot 3 received no dried greens in the mash but received all the chopped green alfalfa they wanted twice each day. In this climate succulent green feed is not available through the fattening periods. This lot had no green feed then. They were confined to a dry yard 80' x 80' and were moved only once to another yard of same area.
4	70	68	2	.4	From 8 weeks of age to October, Lot 4 picked its own green feed from growing alfalfa, and received none from any other source. They were confined on 1/10 of an acre and were moved four times to new alfalfa.
Totals	229	213	16	1.06	

Apparent Need for Relatively High Protein Feed

A previous year's work at this Station was conducted using a mash containing the average protein level commonly used in growing chickens. The results seemed to indicate that the turkey could utilize economically in its rapid rate of growth a higher percentage of animal proteins.

The work this year was based upon a higher animal protein poult starting mash and a higher protein developing mash than was used previously. The results secured thus far are very promising. There is no disposition here to conclude that the rations used are at the correct level. The cost of producing a pound of turkey and the grade of the turkey produced indicate that the high protein feed was in fair balance and more nearly met the requirements than did the lower protein feeds used in 1931.

The developing mash formula which was fed to all four lots as a basal ration as well as the scratch formula was as follows:

Basal Developing Mash (No greens)

240 pounds bran
 400 pounds ground yellow corn
 300 pounds ground whole oats
 300 pounds ground wheat
 180 pounds ground barley
 200 pounds fish meal
 200 pounds meat scraps
 100 pounds powdered milk
 30 pounds bone meal
 30 pounds oyster shell flour
 20 pounds salt
 2000 pounds

Scratch

1000 pounds cracked wheat
 600 pounds cracked corn
 400 pounds cut whole oats
 2000 pounds

Amount of Mash and Grain Consumed

Lot	Mash	Grain	Ave. Mash cost per 100 lbs.	Ave. Grain Cost per 100 lbs.
1	1750	1433	\$ 1.91	\$ 1.44
2	3400	3800	Same	Same
3	3100	3300	Same	Same
4	3250	3900	Same	Same
		11500 lbs. 12953 lbs.		

Mash and Grain Costs per Live Pound

Lot	Lbs. Mash per Live Lb.	Lbs. Grain per Live lb.	Total per Live lb.	Feed Cost per Live lb.	Variation Costs per Bird	Ave. Dressed wts.
1	3.65	2.99	6.64	11.27	\$ 1.88	16.7
2	3.07	3.43	6.5	10.8	\$ 1.98	16.1
3	2.45	3.0	5.45	9.0	\$ 1.82	17.98*
4	2.44	2.93	5.37	8.8	\$ 1.85	17.55

* Average dressed weights in Lot 3 were influenced by a sex division which ran almost two to one hens.

\$708.61 - \$565.59 = \$143.02 labor return on 213 turkeys or 67.1 cents labor return per bird.

General Reference Data

4272 pounds of live turkeys dressed out 3848 pounds.

The rate of shrinkage was 9.92%

The average feed cost per live pound of all lots was 9.5¢

The total cost per live pound except labor was 13.23¢

The average feed cost per dressed pound was 10.6¢

The total cost per dressed pound except labor was 14.7¢

It required, in confinement, 5.72 pounds of mash and grain to produce one pound of live turkey at time of marketing.

It required 6.35 pounds of mash and grain to produce each dressed pound of turkey sold.

Summary and Recommendations

1. There was a marked difference in the feed costs per pound of turkey between the lot receiving no green feed and each lot receiving greens by various methods. It cost, for example, 27% more to produce a pound of turkey in Lot 1 with no green feed than in Lot 4 where the turkeys pastured their green feed, and 18% more with dried greens in Lot 2 than in Lot 4 which had pasture.
2. The absence or presence of greens in the ration showed a more marked influence in weight and cost with the toms than with the hens.
3. The birds were not killed until their feathers were matured. None was killed for the November trade. Thirty-five per cent were killed in December at approximately eight months of age. Sixty-five per cent were dressed for the January market at approximately nine months of age.
4. There were no crooked breasts or malformed hock joints in the turkeys of any one of the four lots.
5. A feather pulling habit was acquired in the brooder house and continued more or less throughout the life of the turkeys, except in Lot 1 where the sides of the beak were trimmed with a knife so that the birds could not hold a feather. The ends of the beaks were not trimmed as no interference with eating was desired.
6. Two hundred fifty poults in a 12 x 12 brooder house supplemented with a 12 x 12 wire porch produces an overcrowded condition before the poults are old enough to go on range. This condition is believed to be partly responsible for the acquired feather-pulling habit.
7. The average weight per turkey was greater on the higher protein ration than in 1930 with the lower protein level. The grade quality was higher and the birds matured more uniformly. However earlier market maturity was not influenced to any marked degree by the rations used.

8. Wet mash feeding of turkeys is an old feeding practice followed by many growers. However, the turkeys in this experiment were reared from day old poults to slaughter on dry mash and grain.
9. There was no loss from or any indication of any symptoms of blackhead.
10. There was no loss from or any evidence of intestinal worms or parasites.
11. No money was expended for preventives, panaceas, tonics or medicinal treatments.
12. Each of the four lots were fattened out on grain and no fattening mash was used. The use of a fattening mash is commended. The grain method was used for study and to make use of abundant cheaper grains.
13. Fattening mash formulas as well as breeding mash formulas that have proven economical may be had upon request.
14. On the basis of incomplete sales returns, and marketing 65% of the crop on the hazardous January, 1932 market, the turkey enterprise showed a small profit. Until the civilized world readjusts itself market prices will be uncertain - but certainly not high. Turkey growers must face the issue and pay greater attention now, than has heretofore been necessary, to the adoption of those practices which will afford their investment the greatest protection at lowest economic outlay.
15. A relatively high protein mash, where grain is fed is recommended during the growing period of turkeys.
16. The mashes should be rather coarsely ground. The developing mash especially should be coarsely ground, due in part to the ground oats content. A finely ground mash is pasty and has a tendency to provoke beak wiping. Pastiness is increased by the use of finely ground new oats after threshing time, so older oats should be used.
17. An artificial wire porch properly protected on windward sides is desirable from the view point of sanitation and disease prevention.
18. Turkeys should be raised on clean soil whether it be unlimited farm range or limited yard areas. Turkeys should not be raised with chickens; on soil previously contaminated or on areas fertilized with poultry manure.

The Experiment Station will brood 500 poults in 1932 in search of additional information on high protein feeds, value of green feeds and disease prevention. These 500 poults will be from parent stock raised on this high protein ration. From birds raised this year breeding stock will be selected to carry on some careful work relating to the effects of this ration on reproduction as well as production problems.