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## Feeding Turkeys

Cooperative Extension South Dakota State University

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# ***Feeding Turkeys***



**COOPERATIVE EXTENSION SERVICE  
SOUTH DAKOTA STATE UNIVERSITY  
U. S. DEPARTMENT OF AGRICULTURE**

## Feeding Turkeys

by C. W. CARLSON, professor of poultry science, and  
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Not many years ago, the success of turkey growing was partly dependent upon the versatility of the feeder to meet the turkey's nutritive requirements. In the absence of definite experimental information, feeders used cottage cheese, cooked and crumbled egg yolks, chopped fresh alfalfa and the like, together with oatmeal and perhaps a "chicken mash" to keep poults alive and growing.

Many things have been learned about the turkey's nutritive requirements in recent years. Because of this, turkey feeders can go ahead with assurance that the present feeds can give them satisfactory performance.

This fact sheet has been written to help the turkey feeder better understand what goes into a turkey feed, and why it is used, and provide some suggestions on how to use feed efficiently. Turkey feed formulas are included for those who want to have their feed mixed or are set up to mix their own.

### STARTING TURKEY POULTS

Turkey poults should be on feed within 18-24 hours after they are removed from the incubator. They are usually this old when arriving at the farm and therefore should go right on feed. The poults will learn to eat more readily if they are not extremely hungry and dehydrated.

Turkeys are often accused of being dumb, "too dumb to learn to eat." If they are not fed during the first 48 hours, many will "starve out" and die within 3-4 days. Difficulties with "starve outs" can sometimes be prevented by attracting poults to the feed with green lights, colored marbles mixed in with the feed or oatmeal sprinkled over the filled feeders.

The first feed can be placed on clean new egg flats or cardboard feeders placed under the brooder. These can supplement the regular feeder space and be removed when poults have found the regular feeders.

So-called "pre-starters" are often used for the turkey poult's first week of life. These usually contain higher levels of antibiotics, vitamins, amino acids and energy than the usual starter feeds. Under unusual stress conditions such as disease, chilling, or crowding, pre-starters may be a good investment.

During the starting period the regular starter diet, No. 1 in Table 4, may be fed to 4 weeks of age, and the No. 2 (4-8 week) starter for the rest of the period.

### CONFINEMENT VS. RANGE REARING

The poults may be reared in confinement or moved to range at 8 to 10 weeks of age, weather permitting. Some advantages of confinement rearing are: less loss from predators, less total feed per pound of gain, slightly superior finish, and possibly less labor requirement. A disadvantage is that some downgrading may result from scratches and feather picking even though the turkeys are debeaked.

As much as a 10 per cent saving in feed may be made with range rearing if a good forage or grain crop is available for self-harvest on range. At the rate of 100-250 turkeys per acre, one will have to decide whether his land can be economically used as range. The cost of housing facilities will usually be less for range rearing. Labor costs are usually higher.

### SEPARATE THE SEXES

Since toms require more protein than hens, some savings in feed costs can be effected by feeding the sexes separately from about 10 weeks to market time (note grower diets in Table 4). Where mixed-sex flocks are fed, use the diet for toms.

It should be possible to separate the sexes of Broad Breasted Bronze Turkeys by observation at 10 weeks of age. Those types difficult to sex by observation can be sexed at hatching time.

### GROWING TURKEYS

Make changes to the various diets according to the ages given in Table 4. The formula for a 22% concentrate is listed, but the use of the complete type feeds rather than the concentrate and grain is suggested since superior growth and feed efficiencies can be expected from the complete feeding system. Many have good results with concentrates and grain, but our experience has shown that a turkey is not capable of balancing its diet well enough to attain maximum growth and superior feed efficiency on a free-choice system.

For best results, pellet the complete-type feeds. This is the reason for including bentonite in the formulas.

On the complete type feeds shown and with a fast growing strain in small lots, toms have been produced weighing 30-33 pounds at 24 weeks of age and hens 18-20 pounds at 20-22 weeks with an over-all feed efficiency of 3.5 pounds feed per pound of gain.

Turkeys can be marketed at early ages when market and weather conditions warrant it. Regardless of the age the birds are marketed, they should be fed grower diet No. 3 or concentrate and corn or milo for at least the last two weeks to develop a desirable finish or fat covering. Corn or grain sorghum is preferred to oats as the grain to be fed with a concentrate for the period prior to marketing.

## FEEDING THE BREEDER TURKEYS

The breeder diet indicated in Table 4 has been used at South Dakota State University with good results. Hens should receive the breeder diet for at least three weeks before eggs are expected. The complete-type feed is recommended, without calcium supplement.

Table 1. Floor Space Allowances

Age	0-2 wks.	2-10 wks.	10-20 wks.	Breeders
Sq. ft. per bird.....	.5	1.5	3-5*	5-7

\*Minimum of 3 sq. ft. for hens, 5 sq. ft. for toms

Table 2. Some Components of Turkey Diets

Nutrient	Uses	Sources
Carbohydrates and fats	Energy, convert to body and egg fat	Cereals, by-products, animal and vegetable fats and oils
Proteins—		
Essential amino acids*	Muscle, egg yolk and white, blood constituents, etc.	Soybean meal, meat scraps, fish meal
Water	55-70% of egg and body weight	Fresh water
Minerals†		
Calcium	Skeleton, egg shells, body fluids (rickets)‡	Oyster shell, limestones
Phosphorus	Skeleton, body fluids (rickets)	Bonemeal, various phosphates (rock and dicalcium)
Manganese	Normal bone formation (perosis)	Manganese sulfate
Iodine	Normal thyroid function (goiter)	Iodized salt
Sodium	Ionic balance of body fluids	Iodized salt
Chlorine	Ionic balance of body fluids	Iodized salt
Zinc	Normal bone formation (enlarged hocks)	Zinc chloride (or sulfate)
Sulfur	Vital metabolites	Potassium sulfate
Vitamins†	All necessary for rapid growth	
A	Normal surface tissues, general condition	Fish oils—alfalfa, yellow corn, synthetics
D	Normal bone formation (rickets, thin shells)	Fish oils—synthetics
E	Anti-oxidant—nervous tissue (crazy chick)	Whole cereals, green feed, synthetics
K	Normal blood clotting (hemorrhage)	Green feeds, synthetics
Riboflavin	Good hatchability (curled toes)	Milk and fermentation by-products, synthetics
Cobalamine (B <sub>12</sub> )	Good hatchability	Animal proteins and fermentation mashes
Niacin	General condition (broken feathers—perosis)	Wheat by-products, synthetics
Pantothenic acid	General condition (dermatitis)	Cereal grains, synthetics
Choline	General condition (perosis—fatty liver)	Soybean meal, synthetics
Folic acid	General condition (cervical paralysis)	Green feeds, synthetics
Biotin	General condition (dermatitis, perosis)	Whole cereals, synthetics
Drugs		
(Not essential)	More rapid growth, 10-15%; better feed efficiency,	Fermentation by-products
Antibacterial agents	0-10%; increased egg production, 0-8%; increased hatchability, 0-5%	Microbial growth Synthetics
Tranquilizers	Anti-stress agent, e.g. breeders in hot weather, crowding, controlling aortic rupture	Synthetics
Coccidiostats	Allow development of immunity with no mortality	Synthetics

\*Five amino acids may at times be deficient—arginine, glycine, lysine, methionine, and tryptophane.

†Only those of much practical importance are listed.

‡Items in parentheses are deficiency symptoms.

Table 3. Growth Rate and Feed Efficiency

Age, Weeks	Average weight in pounds				Pounds feed/pound gain			
	Toms		Hens		Toms		Hens	
	Superior*	Guidelines†	Superior*	Guidelines†	Superior*	Guidelines†	Superior*	Guidelines†
4	1.8	1.7	1.5	1.4	1.2	1.7	1.3	1.6
8	7.4	5.7	5.0	5.4	1.5	2.0	1.6	1.8
12	13.5	11.6	8.0	9.7	1.8	2.2	2.0	2.1
16	19.6	17.7	13.0	13.6	2.1	2.5	2.5	2.6
20	26.5	24.0	17.0	15.8	2.5	2.7	2.9	3.1
22	30.2	27.0	18.5	16.8	2.7	2.9	3.3	3.4 ‡
24	33.0	30.1	20.0	17.7	3.0	3.1 ‡	3.6	3.6

\*Data similar to the best that has been obtained on the complete-type diets described in this fact sheet.

†Taken from Jensen, L. S., Turkey World, 1973.

‡e.g. a 24-week old tom would require 85 to 90 lbs. of feed and a 22-week old hen would require 61 to 67 lbs. of feed.

Table 4. Turkey Diets Used at South Dakota State University—1973

Ingredients	Starter diets*			Grower diets*—by sexes					
	No. 1 0-4 wks.	No. 2 4-8 wks.	No. 3 8-12 wks.	Toms: Hens:	No. 1 12-16 wks. 10-14 wks.	No. 2 16-20 wks. 14-18 wks.	No. 3 20-24 wks. 18-22 wks.	Grower Concentrate† 8-24 wks.	Breeder diet*
	Pounds per ton								
Ground yellow corn .....	807	1042	1148		1109	1229	1517	1216	1440
Wheat flour midds .....	-----	-----	-----		100	100	-----	-----	-----
Wheat standard midds .....	-----	-----	-----		100	100	-----	-----	-----
Meat scraps (50% protein) .....	-----	-----	-----		100	100	60	-----	100
Soybean meal (40% protein) .....	840	625	530		350	210	140	560	200
Alfalfa meal (17% protein) .....	40	40	40		40	40	40	40	40
Dried whey .....	40	40	40		40	40	40	40	40
Fish meal .....	40	40	40		-----	-----	-----	40	60
Salt‡ .....	10	10	10		10	10	10	10	10
Dicalcium phosphate .....	40	40	40		20	20	20	40	40
Limestone .....	40	40	40		20	20	20	30	30
Bentonite§ .....	-----	-----	-----		20	20	20	-----	-----
Dried brewer's yeast .....	20	-----	-----		-----	-----	-----	-----	20
Methionine (D-L or H-A) .....	1	1	1		1	1	1	1	-----
Lysine (98% concentrate) .....	2	2	1		-----	-----	2	3	-----
Vitamin supplement   .....	20	20	10		10	10	10	20	20
Yellow grease¶ .....	100	100	100		80	100	120	-----	-----
	2000	2000	2000		2000	2000	2000	2000	2000
Calculated % protein .....	28	25	20		19	16	13	22	16

\*To be fed as complete feeds, oyster shells and granite grit available free choice after 8 weeks of age; no shells for turkey breeders.

†To be fed with grain, grit and shells, free choice.

‡Containing, in percent: manganese 0.45, zinc 0.50, iodine 0.01, iron 0.17, copper 0.05, potassium sulfate 10.0, and sodium chloride 87.0.

§May be omitted if ration is not fed as pellets or crumbles.

||Vitamin and antibiotic supplement (see immediately below these footnotes).

¶Stabilized animal fat—yellow grease preferred to tallow.

Table 5. Vitamins and Antibiotic Supplements

Ingredient	Amt. in 10 lbs.	Will supply (per lb. of total diet— @ 10 lbs. per ton)
Vitamin A .....	4,800,000 I.U.	2,400 I.U.
Vitamin D .....	1,250,000 I.C.U.	625 I.C.U.
Vitamin E .....	20,000 I.U.	10 I.U.
Menadione (Sodium bisulfite) .....	1.0 gm.	0.5 mg.
Riboflavin <sup>1</sup> .....	4.0 gm.	2.0 mg.
Pantothenic acid <sup>1</sup> .....	8.0 gm.	4.0 mg.
Niacin <sup>1</sup> .....	40.0 gm.	20.0 mg.
Choline .....	400.0 gm.	200.0 mg.
Cobalamine (B <sub>12</sub> ) .....	8 mg.	4.0 mcg.
Folic acid .....	1.0 gm.	500 mcg.
Biotin .....	100 mg.	50 mcg.
Antibacterial agent <sup>1,2,3,4</sup> .....	+	+
Antioxidant <sup>5</sup> .....	100 gm.	50.0 mg.

<sup>1</sup>Only these are necessary in grower rations if turkeys are outside on good green range.

<sup>2</sup>This could be an antibiotic, arsenical, nitrofurantoin or other drug, as approved by Food and Drug Administration. Check with the drug manufacturer.

<sup>3</sup>For therapeutic treatment, mixtures should be used according to prescription.

<sup>4</sup>Coccidiostats can be used to 8 weeks of age and Blackhead preventatives from 8 weeks of age to maturity. Drugs should be used according to the manufacturer's directions.

<sup>5</sup>BHT or ethoxyquin

**Table 6. How to Feed**

	Ration to use	Type feeders to use	Feeder space allowances
<b>Starting period</b>	Starter Diet No. 1 (0-4 weeks)	Clean egg flats or small cardboard feeders for first feed. Automatic or trough type	2-2¼ linear inches of feeder per bird
	Water		36 to 72 linear inches of space per 100 birds.
	Starter Diet No. 2 (4-8 weeks)	Automatic or trough type	3-4 linear inches of feeder per bird.
	Water		96 linear inches of space or two 5 gallon fountains.
	Grit, chick size	Sprinkle on feed twice a week.	
	Starter Diet No. 3 (8-12 weeks)	Automatic or trough type	4-5 linear inches of feeder per bird
<b>Growing period</b>	Water		2 automatic jet-type or 10 feet of trough per 100 birds.
	Grit, hen size	Hanging feeders or wall hoppers.	1 hanging feeder of grit per 500 birds.
	Grower Diets No. 1, No. 2, and No. 3 or grower-concentrate with grain. (12 weeks to market)	Automatic, round or trough type.	6 linear inches of feeder per bird for mixed flocks—5 linear inches per bird for hens. Round feeders according to manufacturer's directions.
	Water		2 automatic jet-type waterers or 100 linear feet of water space per 100 birds.
	Grit	Hanging feeders or wall hoppers.	1 feeder per 500 birds.
<b>Breeders</b>	Breeder Diet	Automatic, round or trough.	6 linear inches per bird.
	Water		2 automatic jet-type waterers or 12 linear feet of water space per 100 breeders.

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