CHAPTER 4

Feeds and Feeding of Free Range Turkeys

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Because of the slower growth rates and extensive ranging of the standard turkey varieties, they have different nutritional requirements than commercial turkeys.

Standard varieties can forage some of their diet from pasture but grazing alone will not provide all the needed nutrition required for proper growth. Standard turkeys must have access to high-quality feed offered free-choice throughout the day. Feed will be necessary to get birds to a marketable weight by projected harvest deadline, and provide an important incentive for birds to stay home.

When purchasing turkey feed, buy only a two- to four-week supply at one time to prevent loss of nutrient value or having the feed oils becoming rancid over time. A one-month supply of feed that is well rotated will keep. Prudent producers rotate feed every two weeks to ensure freshness of the feed, especially when used to feed young poults. Always keep feed in a cool, dry environment.

Feed may be stored in metal or plastic storage containers. Both have advantages and disadvantages. Metal containers tend to "sweat" moisture on the inside more than do plastic containers. This moisture increases the chance of developing mold in the feed and can cause corrosion of the metal. Metal feed containers should be placed in shaded areas to reduce heat build-up and the subsequent "sweating" as the container cools off in the evening. Metal containers tend to be more rodent proof than plastic. Plastic containers can be easily chewed through by pests, like rats and mice, but do not sweat as much as metal and have the added bonus of not rusting.

It is best to have two containers for feed – one can be emptied completely while the other holds fresh feed. This helps keep mold from developing in the container.

Feed and Nutrients

Newly hatched poults require a high protein diet (28% protein) with proper levels of lysine and methionine for the first six weeks (see sample diets at the end of this chapter). These two amino acids are important for the first feather growth in poults. Growing birds, from first feather growth to sexual maturity, require a lower protein (20%) level in the feed; but must have a good balance of calcium and phosphorus for proper bone growth. Once the bird matures the protein level should be reduced to 17%, as found in maintenance feed. High energy level feeds are used to grow market birds; however, when feeding potential breeding stock, the feed should contain more fiber so birds do not put on excess body fat. High protein levels in the diet of breeding birds will have negative effects on the hatchability of eggs. Do not use chicken layer diets for breeding turkeys: turkeys require higher vitamin and trace mineral levels and have a different calcium-to-phosphorus ratio in the diet than do chickens.

Vitamin or mineral supplements are necessary as part of turkey feed formulas. If there is no turkey feed readily available at the local feed store, game bird diet may be substituted provided it has adequate vitamin levels. Custom mixes allow producers to tailor their feed to their birds' needs. Producers can purchase feed together, sharing the cost to get specific blends for their birds. The feed formulas given at the end of this chapter

Turkeys fed on range. Photo courtesy of Frank Reese.

can be used to guide the development of a custom mix turkey feed.

Medications are often added to feed because it is an excellent means of administering the proper levels to each bird. Medications are not a necessary part of good nutrition. The use of medication should be a part of a disease management program. Such a program includes a proper diagnosis from a good poultry specialist verified by lab testing done through a veterinarian.

Probiotics and vitamin supplements are often added to drinking water or feed. Probiotics are beneficial bacteria that live in the gastrointestinal tract. They aid in digestion and ensure the gut is populated with healthy flora. Probiotics are particularly useful in cases where birds are stressed. Vitamins also support bird health. Water soluble vitamin packs specifically designed for poultry are added to the water from the fifth day of age until the tenth. Vitamin C and Vitamin E are especially needed over and above normal requirements during times of stress. Vitamin E works in the body as a fat-soluble vitamin and vitamin C works as a water-soluble vitamin, making them a perfect match to work together.

Pasturing Considerations

Good pasture management ensures that the turkey flock will have an ample supply of forage each year. To start out right, do not overcrowd a pasture with too many birds as it will shorten the productive life of even lush pastures. As a rule of thumb for standard turkey production there should be no more than 100 birds per acre. Protect the productivity of the pasture by moving feed and water sites regularly throughout the pasture. This will assure no area gets ruined through overuse.

Turkeys browsing on alfalfa. Photo by Frank Reese.

Turkey pastures can be managed much like cattle pastures. The best pastures are full of legumes and boast a diversity of forages. Avoid maintaining grasses that will shade shorter beneficial forages. For example, johnsongrass is not recommended for turkey production; not only does it shade other forages, but turkeys are drawn to feed on the roots of this plant and will dig up and ruin the pasture to reach these roots.

Regular seeding will be necessary to keep a pasture productive and in good condition. Once the flock has made its way to market and the field is empty, the pasture will benefit from a winter "resting" period and be ready for the next generation of birds by mid-spring. For birds remaining as breeding stock, there are a number of winter forages that can be incorporated into a pasture management plan. A good example is winter wheat, provided it is at least six inches tall before the birds have access to it. Some producers supplement turkeys with alfalfa as an alternative winter forage – though it should be noted that it is reputed to give turkey meat a bitter taste. Visit with local agricultural extension agents to find out which forages work best for the local area.

Many good articles and publications are available on pasture management through Cooperative Extension, ATTRA, and SARE (see Resources section in this chapter).

Feeding Practice

Typically trough style or hopper feeders are used for turkey production. There are a great variety of designs and sizes available. They can be purchased through poultry supply companies or be of homemade construction. A feeder should protect the feed from wind and rain and be designed so that the bird cannot comfortably walk or sleep in the feed. Feeders need to be set off of the ground and be level with the backs of the birds. Feeders and waterers should be raised regularly to compensate for the increases in height of growing birds. Young poults (up to six weeks of age) should have two to three linear inches of feeding space per bird. Provide mature birds (six weeks and above) with six linear inches of feeder space per bird. Trough feeders have the advantage of allowing access to both sides as feed space. A five-foot feeder can serve 20-plus birds if they have access to both sides of the feeder. Good turkey management practice dictates that flocks should always have two or more feeders to reduce birds being pushed away from the feed.

Standard turkey varieties tend to eat less than industrial varieties. Below is a table outlining expected feed consumption for standard turkeys.

Drinking Water

Turkeys must have access to fresh, clean water at all times. Waterers need to be cleaned twice daily and thoroughly washed with disinfectant on a weekly basis. Probiotics or water soluble vitamin packs may be added to the water. Apple cider vinegar is reported to reduce the incidence of coccidiosis and inhibit bacterial or algal growth in the water. Starting at one day of age, add one to two tablespoon of apple cider vinegar per gallon of water. This can be mixed with the vitamins or probiotics.

Alternatively, chlorine bleach may be added to the water after the poults are at least ten days old. Be careful to not overdose the water as chlorine can burn the mouths of young poults. The proper level of chlorination can be achieved by mixing one to two ounces of 5.25% chlorine bleach solution in one gallon of water. More accurate dosing can be achieved through the use of a medicator pump.

Caution: Do not mix chlorine bleach and vinegar together as this will release toxic chlorine gas.

Pounds Of Feed Per Bird Consumed During A Two Week Period (Table adapted from *Turkey Management* by Marsden and Martin)

Age in Weeks	Lbs. of Feed
1-2	0.6
3-4	1.75
5-6	1.9
7-8	2.84
9-10	3.54
11-12	4.32
13-14	5.48
15-16	5.68
17-18	6.65
19-20	6.92
22-22	7.93
24-24	8.24
26-26	8.37
28-28	8.71

Estimated water consumption with newly hatched poults is approximately one gallon per 50 birds per day. Consumption increases 10-15% weekly as the birds mature. Adult birds can drink roughly one gallon per five birds per day. Water intake is highly dependant on environmental factors so be sure to provide more water than is necessary to assure the birds have an ample supply. The same linear inch amounts used for feeders should be employed for the drinking water.

Both feeders and waterers should be highly visible for the birds and accessible throughout the day. Turkeys drink most of their water in the first four hours of the day. If birds are confined at night, release the birds to water one hour before sunrise. It is not be wise to have water in or near the roosting area since the birds are likely to defecate in it.

Resources

American Livestock Breeds Conservancy, PO Box 477, Pittsboro, NC 27312, (919) 542-5704, albc@albc-usa.org, www.albc-usa.org.

ATTRA - National Sustainable Agriculture Information Service, PO Box 3657, Fayetteville, AR 72702, (800) 346-9140 (English), (800) 411-3222 (Español), www.attra.ncat.org.

Bland, David, *Turkeys: A Guide to Management,* Crowood Press Ltd., 2000.

Donoghue, Annie, *Probiotics Protect Poultry from Pathogens,* United States Department of Agriculture, January 2004, www.ars.usda.gov/is/AR/archive/jan04/biotic0104.pdf.

Extension Ag & Biosystems Engineering, North Dakota State University, *Poultry Plans,* North Dakota State University Extension Service, 2006, www.ag.ndsu.nodak.edu/abeng/poultryplans.htm, NDSU Extension, 122 Albrecht Blvd., PO Box 5626, Fargo, ND 58105, (701) 231-7261, fax (701) 231-1008.

Frame, David D., *Daily Water Consumption of Turkeys Raised in Utah,* Utah State University Extension Service, 2002, www.extension.usu.edu/files/agpubs/poultry2.pdf#search=%22water%20consumption%2C%20turkeys%22, Utah State Extension, 179 N. Main St. Suite 111, Logan, UT 84321, (435) 752-6263, www.extension.usu.edu.

Marsden, Stanley J., and Martin, J. Holmes, *Turkey Management: Sixth Edition,* Interstate Printers and Publishers, Inc., 1955.

Mercia, Leonard S., *Storey's Guide to Raising Turkeys,* Storey Publishing, 2001.

Nation, Allan, *Quality Pasture: How to Create It, Manage It, and Profit from It,* Green Park Press, 1995.

Sustainable Agriculture Research & Education, USDA-CSREES, Stop 2223, 1400 Independence Ave. SW, Washington, D.C. 20250-2223, (202) 720-5384, fax (202) 720-6071, www.sare.org.

Feed Mills

U.S. Food and Drug Administration, *Listing of Approved Medicated Feed Mill Licenses*, www.fda.gov/cvm/Documents/licenses.pdf., US Food and Drug Administration Center for Veterinary Medicine, (301) 827-3800.

For additional mills not listed, contact your county extension office or your state department of agriculture.

Equipment

Cutler Supply, 1940 N Old 51, Applegate, MI 48401, (810) 633-9450, fax (810) 633-9178, sales@cutlersupply.com, www.cutlersupply.com.

Metzer Farms, 26000 Old Stage Rd., Gonzales, CA 93926, (800) 424-7755, fax (831) 679-2711, www.metzerfarms.com.

Murray McMurray P.O. Box 458, 191 Closz Drive, Webster City, IA 50595, (800) 456-3280, fax (515) 832-2213, www.mcmurrayhatchery.com.

Stromberg's Chicks and Gamebirds Unlimited, Strombergs' Chicks, PO Box 400, Pine River, MN 56474, (800) 720-1134 www.strombergschickens.com.

Feed Consultants & Supplement Suppliers

Akey Company, PO Box 5002, Lewisberg, OH 45338, (800) 392-8324

Dawe's Laboratories, 3355 North Arlington Heights Rd., Arlington Heights, IL 60004, (847) 778-5593, fax (309) 216-6346.

Feed Ration Recipes

Good Shepherd Ranch Formula-Turkey Starter I Veg

Rounded amount	Ingredient Name	
885.00	Soybean Meal 47%	
877.00	Corn 8.5	
100.00	Corn Gluten ML-60	
71.00	DICAL 21 CA/18.5	
27.00	Calcium Carbonate	
20.00	Soybean Oil	
8.00	DQ Turkey Starter	
5.00	Salt	
4.60	Lysine Mono 98	
1.00	Copper Sulfate	
2001.70 total		
Nutrient	**Analysis**	**Units**
Weight	1.00	Lbs.
Protein	27.81	%
Fat	3.33	%
Fiber	2.51	%
Calcium	1.40	%
Phosphorus – Total	1.07	%
Phosphorus – Avail.	0.80	%
Iodine	1.15	PPM
Salt	0.25	%
Met. Energy	1281.01	CAL/L
Methionine	0.64	%
Meth & Cystine	1.07	%
Lysine	1.70	%
Dry Matter	89.32	%
Selenium	0.12	MG/LB

Good Shepherd Ranch Formula-Turkey Starter II Veg

Rounded Amount	Ingredient Name	
957.00	Corn 8.5	
865.00	Soybean Meal 47%	
66.00	DICAL 21 CA/18.5	
50.00	Corn Gluten ML-60	
22.00	Calcium Carbonate	
20.00	Soybean Oil	
7.50	DQ Turkey Starter	
6.60	Salt	
3.30	DL-Methionine, 98	
2.10	Lysine Mono, 98	
1.00	Copper Sulfate	
2000.50 total		
Nutrient	**Analysis**	**Units**
Weight	1.00	Lbs.
Protein	26.10	%
Fat	3.42	%
Fiber	2.55	%
Calcium	1.25	%
Phosphorus – Total	1.02	%
Phosphorus – Avail.	0.75	%
Iodine	1.08	PPM

Salt	0.33	%
Met. Energy	1296.45	CAL/L
Methionine	0.60	%
Meth & Cystine	1.00	%
Lysine	1.55	%
Dry Matter	89.13	%
Selenium	0.11	MG/LB

Good Shepard Ranch Formula- Turkey Grower I Veg

Rounded Amount	Ingredient Name
994.00	Corn 8.5
840.00	Soybean Meal 47%
70.00	Soybean Oil
56.00	DICAL 21 CA/18.5
23.00	Calcium Carbonate
6.60	Salt
6.50	DQ Turkey GF 9610
3.30	DL-Methionine 98
1.00	Copper Sulfate
2000.40 total	

Nutrient	Analysis	Units
Weight	1.00	lbs.
Protein	24.08	%
Fat	5.76	%
Fiber	2.53	%
Calcium	1.16	%
Phosphorus – Total	0.91	%
Phosphorus – Avail.	0.65	%
Iodine	0.94	PPM
Salt	0.33	%
Met. Energy	1379.57	CAL/L
Methionine	0.55	%
Meth. & Cystine	0.92	%
Lysine	1.41	%
Dry Matter	89.22	%
Selenium	0.14	MG/lb.

Good Shepherd Turkey Ranch Formula- Turkey Grower II Veg

Rounded Amount	Ingredient Name
1158.00	Corn 8.5
680.00	Soybean Meal 47%
70.00	Soybean Oil
50.00	DICAL 21 CA/18.5
24.00	Calcium Carbonate
6.60	Salt
6.50	DQ Turkey GF 9610
2.90	DL-Methionine, 98
1.20	Lysine Mono, 98
1.00	Copper Sulfate
2000.20 total	

Nutrient	Analysis	Units
Weight	1.00	lbs.
Protein	21.05	%
Fat	5.99	%
Fiber	2.50	%
Calcium	1.10	%
Phos. Total	0.82	%
Phos. Available	0.59	%
Iodine	0.94	PPM
Salt	0.33	%
Met. Energy	1418.81	CAL/L
Methionine	0.49	%
Meth. & Cystine	0.81	%
Lysine	1.23	%
Dry Matter	88.96	%
Selenium	0.14	MG/lb.

Good Shepherd Turkey Ranch Formula- Turkey Finisher I Veg

Rounded Amount	Ingredient Name	
1297.00	Corn 8.5	
545.00	Soybean Meal 47%	
70.00	Soybean Oil	
46.00	DICAL 21 CA/18.5	
24.00	Calcium Carbonate	
6.60	Salt	
6.00	DQ Turkey GF 9610	
3.10	DL-Methionine, 98	
1.50	Lysine Mono, 98	
1.00	Copper Sulfate	
2000.20 total		

Nutrient	Analysis	Units
Weight	1.00	lbs.
Protein	18.49	%
Fat	6.20	%
Fiber	2.46	%
Calcium	1.04	%
Phos. Total	0.76	%
Phos. Available	0.54	%
Iodine	0.87	PPM
Salt	0.33	%
Met. Energy	1452.24	CAL/L
Methionine	0.46	%
Meth. & Cystine	0.75	%
Lysine	1.05	%
Dry Matter	88.73	%
Selenium	0.13	MG/lb.

Good Shepherd Turkey Ranch Formula- Turkey Finisher III Veg

Rounded Amount	Ingredient Name
1520.00	Corn 8.5
330.00	Soybean Meal 47%
80.00	Soybean Oil
35.00	DICAL 21 CA/18.5
22.00	Calcium Carbonate
6.60	Salt
5.00	DQ Turkey GF 9610
1.00	DL-Methionine, 98
1.00	Copper Sulfate
2000.60 total	

Nutrient	Analysis	Units
Weight	1.00	lbs.
Protein	14.25	%
Fat	6.99	%
Fiber	2.42	%
Calcium	0.86	%
Phos. Total	0.62	%
Phos. Available	0.42	%
Iodine	0.72	PPM
Salt	0.33	%
Met. Energy	1527.42	CAL/L
Methionine	0.31	%
Meth. & Cystine	0.53	%
Lysine	0.69	%
Dry Matter	88.37	%
Selenium	0.10	MG/lb.

Townline Farm Poultry Reserve Formula- 1020 Turkey Breeder

Ingredient Name	As Fed Amount	Scale (lbs.)
Corn- ground	1137.00	1137
SBM 48%	581.00	1718
Lime 38%	127.00	1845
Distillers	50.00	1895
Ratite Premix	50.00	1945
BIOPHOS	29.00	1974
Fat (Animal)	20.00	1994
Salt	6.0	2000
	2000.00 total	2000 total

Nutrient	Unit	As Fed	Dry Matter
Dry Matter	% of Wt.	89.50	89.50
CP	%	20.40	22.80
Sol. CP	% of CP	16.42	16.42
Undeg. Protein	% of CP	36.82	36.82
NEL	Mcal/lb	0.75	0.84
Fat	%	3.68	4.12
ADF	%	3.77	4.21
NDF	%	8.20	9.16
Effect NDF	%	0.26	0.30
NFC	%	46.86	52.36
NFC (CALC)	%	48.23	53.89
Sugar	%	5.33	5.95
Starch	%	34.00	37.99
Sol. Fiber	%	7.40	8.27
Ca	%	2.80	3.13
Absorb Ca	%	0.67	0.75
P	%	0.67	0.75
Absorb P	%	0.47	0.53
Salt	%	0.30	0.33
Na	%	0.14	0.15
Cl	%	0.26	0.29
Mg	%	0.15	0.17
Potassium	%	0.76	0.85
S	%	0.20	0.22
Elect. Bal.	Meg/100g	5.6	6.3

Walters Poultry Grower Feed 28% Protein (For 2000 lb Batch)

Weight in pounds	Ingredient Name
775.58	Ground corn
701.00	Soybean meal Hi-pro-B
150.00	Wheat Middling
47.00	Dist. Grains (corn)
27.00	Calcium Co3
185.00	Gluten meal 50#
2.00	Chorine Chloride 60%
41.00	Dical Phos 21%
29.00	Fat. C.W.
20.00	M&B Meal-Cert
10.00	Lignin, Dried 2X 50#
5.00	Salt Mixing #50
5.00	Poultry MFG V/TM Fort
These are optional but recommended:	
1.67	Bacitracin MD 30 G 50
0.75	Histostat 50% 50#

Walters Poultry Breeder Feed 17% protein (For 2000 lb Batch)

Weight in pounds	Ingredient Name
1244.95	Ground corn
470.00	Soybean meal Hi-pro-B
108.00	Calcium Co3
80.00	Wheat Middling
1.00	Chorine Chloride 60%
0.70	Methionine DL-98%
0.30	Vitamin E 227.000
41.00	Dical Phos 21%
20.00	M&B Meal-Cert.
10.00	Fat. C.W.
10.00	Lignin, Dried 2X 50#
8.30	Salt Mixing #50
5.00	Poultry MFG V/TM Fort
This is optional but recommended:	
0.75	Histostat 50% 50#

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