

Growing a Small Flock of Turkeys



Division of Agricultural Sciences
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Growing a Small Flock of Turkeys

Turkeys can be raised successfully on small farms, but they require special care and equipment. Young turkey poults must be kept warm and dry. They are best raised away from chickens and other birds which can introduce sinusitis, blackhead and other diseases.

Stock

There are two major varieties of large turkeys in California: the most common, the Large White (fig. 1); and the Broad Breasted Bronze (fig. 2). With good management, both produce roaster-size turkeys efficiently when marketed at suitable ages. At 20 weeks, hens will have grown to live weights of 16 pounds, toms 25 pounds. The

Beltsville Small White variety efficiently produces smaller roaster-size hens and toms (10 pounds at 16 weeks, 18.5 pounds at 20 weeks, respectively).

Young Large White females (marketed at 12 weeks of age) and Beltsville Small Whites (marketed at 13 to 14 weeks) are excellent fryer-roasters.

Flocks are usually started with day-old poults purchased from a hatchery or feed store. The poults should come from sources free of pullorum, sinusitis, and other diseases. Start with a healthy flock! The operation of a brooder is practical if 20 or more poults are purchased. If fewer than 20 are raised, try to purchase turkeys that are 6 to 8 weeks old from a commercial grower, when they no longer require brooding.

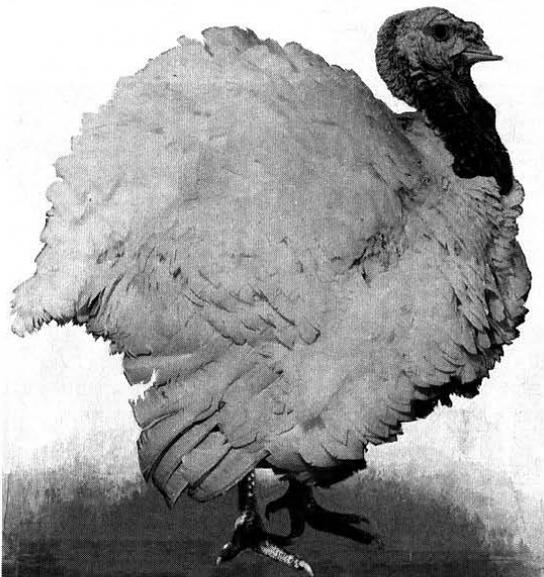


Fig. 1. This heavy Large White tom is 24 weeks old and ready for market. Note desnooding and debeaking.



Fig. 2. The Broad Breasted Bronze is now far less popular with commercial growers than the Large White. Day-old poults may be hard to find. This tom has not been desnooded.

Housing and Equipment

Poults need a dependable source of heat during their first weeks of life. They require a constant temperature of 95°F the first week, decreasing by increments of 5° each week thereafter for 4 weeks in warm weather, 6 or 7 weeks in cool weather. An infra-red bulb, an electric coil, a shielded electric light, or the heating element in an outdoor (sunshine) wire-floored brooder provides adequate heat for a small group of poults.

A commercial-type gas or electric brooder with a hover and automatic temperature control (fig. 3) is best for flocks of 100 or more poults. During the first week, poults are confined to the heated area with their feed and water, often by means of corrugated cardboard at least twelve inches high, placed in a circle a yard from the hover. In warm weather, poultry netting may be substituted for cardboard. Poults and temperature must be checked often, particularly during the first week.

Poults on litter need at least 1½ square feet of floor space per poult to 6 weeks old. Poults may be started on ⅛-inch sand litter

to which, after 2 weeks, 1 inch of chopped straw or shavings are added. Slick surfaces such as newspapers must be avoided during hatching and brooding because they can lead to serious leg problems.

Poults must be protected from cats, dogs, and other predators during and after brooding. After brooding, poults should be placed in a well-drained yard allowing at least 30 square feet of yard per turkey; or, if raised in total confinement, each hen requires 3 square feet, each tom, 5 square feet. A 4-foot-high fence is adequate to confine heavy varieties. If roosts are installed, they should consist of two-by-fours laid flat and supported 15 inches off the ground.

Feeding and watering equipment should be easy to fill and keep clean. A roof—100 to 180 square feet per 100 turkeys, 7 to 8 feet off the ground—should be provided for protection from rain and sun. Temperatures of 100°F or more can cause mortality, particularly when there is inadequate water and shade. When temperatures exceed 105°F, turkeys should be wet hourly with a hose or foggers. Mature, or nearly-mature, turkeys are less tolerant of high temperature than younger turkeys.

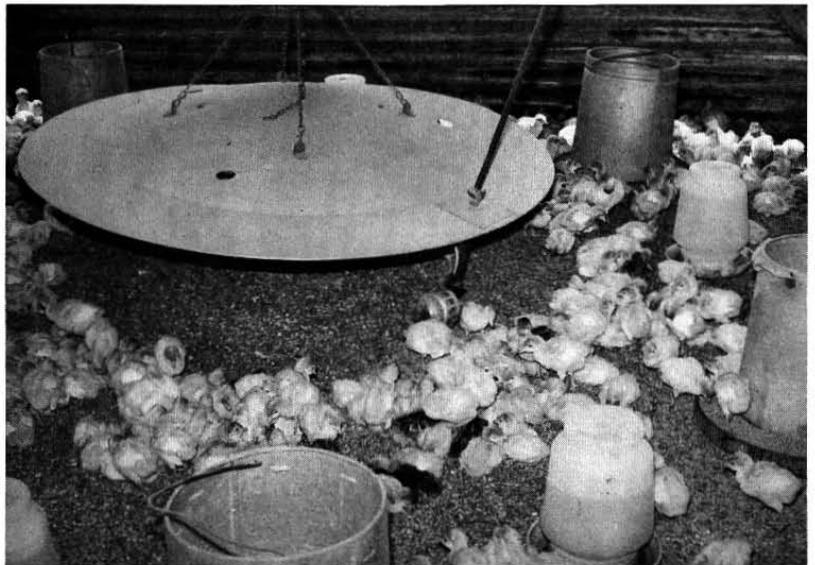
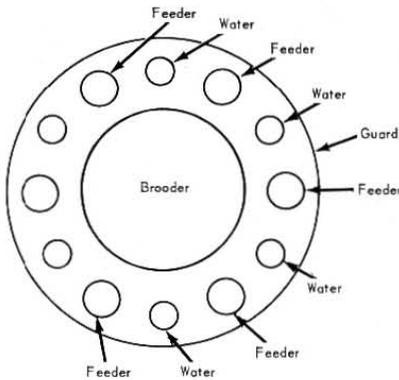


Fig. 3. A gas brooder provides heat for these poults; nearby are feeders and waterers. The diagram shows an arrangement for brooding with a ring to confine poults.

Feeding and Management

As soon as the poults arrive at their new home, their beaks should be dipped in water to help them learn to drink. The first 2 days, some feed should be placed in paper plates or on the lid of the poult box.

Feed and water should be available at all times. A 1-gallon drinking fountain suffices for each 75 poults. After 8 weeks of age, each turkey requires 0.9 linear inches of water trough. Water may be piped to the turkey pen and controlled with a float valve (fig. 4), or commercially-available waterers may be used (fig. 5). To 3 weeks of age, turkeys require 1 inch each of feeding trough; to 8 weeks, 2 inches; thereafter, 3 inches. With circular feeders, less feed space is needed. For example, a range feeder with a 300-pound feed capacity is adequate for 75 turkeys after they reach 8 weeks of age (fig. 6a).

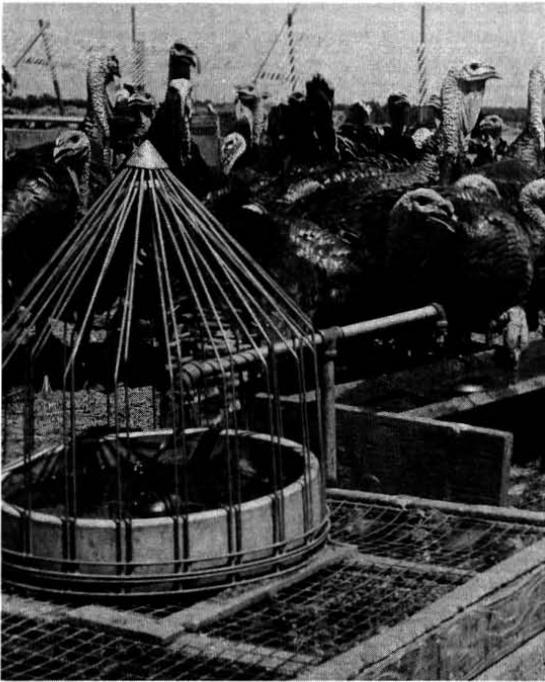


Fig. 4. Float valves make it easy to supply water. A crock with a guard keeps water cleaner than does an open wooden trough.

Fig. 5. With commercial growers, this kind of waterer is popular for older turkeys.

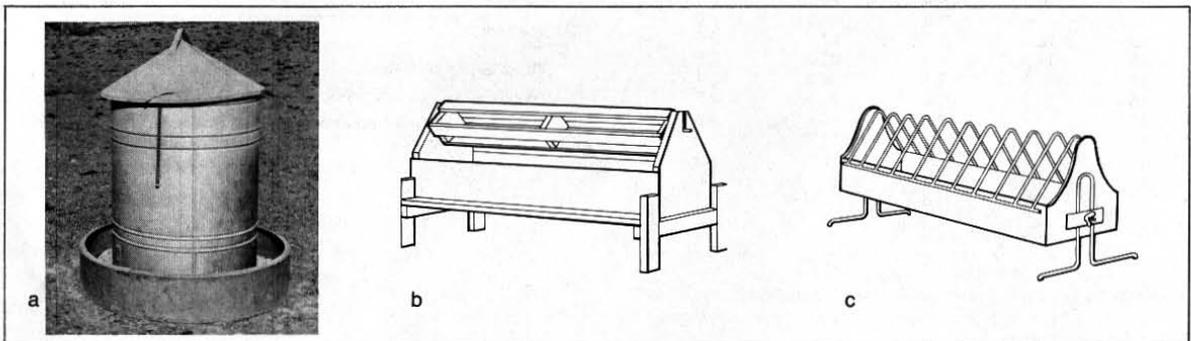


Fig. 6. Metal circular feeders (a) are widely used for older turkeys. Feed troughs also can be made of wood (b). For younger turkeys, the adjustable type of metal feeder (c) would be ideal.

TABLE 1. Growth Rate and Feed Consumption of Large-Type Toms

Age Weeks	Live weight		Feed required	
	Average (lb.)	Gain for period (lb.)	Total cumulative (lb.)	Per pound of turkey, to date (lb.)
1	0.25	0.12	0.3	1.2
2	0.59	0.34	0.7	1.2
3	1.05	0.46	1.4	1.3
4	1.83	0.78	2.5	1.4
5	2.8	1.0	4.2	1.5
6	4.0	1.2	6.3	1.6
7	5.4	1.4	8.7	1.6
8	6.8	1.4	11.4	1.7
9	8.4	1.6	14.4	1.7
10	10.0	1.6	17.6	1.8
11	11.6	1.6	21.6	1.9
12	13.1	1.5	25.7	2.0
13	14.7	1.6	30.3	2.1
14	16.2	1.5	35.8	2.2
15	17.6	1.4	41.4	2.4
16	19.2	1.6	47.1	2.5
17	20.8	1.6	53.0	2.5
18	22.4	1.6	59.4	2.7
19	23.9	1.5	65.9	2.8
20	25.5	1.6	72.7	2.9
21	27.0	1.5	79.4	2.9
22	28.6	1.6	86.2	3.0
23	30.0	1.4	93.3	3.1
24	31.6	1.6	101.1	3.2
25	33.2	1.6	109.6	3.3
26	34.4	1.2	120.4	3.5
27	35.8	1.4	132.2	3.7
28	37.1	1.3	144.4	3.9

SOURCE: Slightly altered from Jensen, Leo S. "Economic conditions alter performance in '79; little change in 1980 growth standards." *Turkey World*, Jan.-Feb, 1980.

TABLE 3. Growth Rate and Feed Consumption of Large-Type Turkeys (Toms and Hens Combined)

Age Weeks	Live weight		Feed required	
	Average (lbs.)	Gain for period (lbs.)	Total cumulative (lbs.)	Per pound of turkey, to date (lbs.)
1	0.24	0.11	0.3	1.2
2	0.53	0.29	0.7	1.3
3	0.97	0.44	1.3	1.3
4	1.65	0.68	2.3	1.4
5	2.6	0.9	3.9	1.5
6	3.7	1.1	6.0	1.6
7	4.9	1.2	8.3	1.7
8	6.2	1.3	10.8	1.7
9	7.6	1.4	13.6	1.8
10	8.9	1.3	16.6	1.9
11	10.3	1.4	20.1	2.0
12	11.6	1.3	23.7	2.0
13	12.9	1.3	27.7	2.1
14	14.2	1.3	32.2	2.3
15	15.3	1.1	36.8	2.4
16	16.5	1.2	41.5	2.5
17	17.7	1.2	46.4	2.6
18	18.8	1.1	51.7	2.7
19	19.9	1.1	57.0	2.9
20	21.1	1.2	62.6	3.0
21	22.1	1.0	68.0	3.1
22	23.1	1.0	73.5	3.2
23	24.1	1.0	79.2	3.3
24	25.1	1.0	85.8	3.4

SOURCE: Slightly altered from Jensen, Leo S. "Economic conditions alter performance in '79; little change in 1980 growth standards." *Turkey World*, Jan.-Feb, 1980.

TABLE 2. Growth Rate and Feed Consumption of Large-Type Hens

Age Weeks	Live weight		Feed required	
	Average (lbs.)	Gain for period (lbs.)	Total cumulative (lbs.)	Per pound of turkey, to date (lbs.)
1	0.24	0.10	0.3	1.2
2	0.47	0.23	0.6	1.2
3	0.89	0.42	1.2	1.3
4	1.47	0.48	2.1	1.4
5	2.4	0.9	3.6	1.5
6	3.5	1.1	5.6	1.6
7	4.6	1.1	7.8	1.7
8	5.7	1.1	10.2	1.8
9	6.8	1.1	12.7	1.9
10	7.9	1.1	15.5	2.0
11	9.0	1.1	18.5	2.1
12	10.2	1.2	21.7	2.1
13	11.2	1.0	25.0	2.2
14	12.2	1.0	28.5	2.3
15	13.0	0.8	32.1	2.5
16	13.8	0.8	35.8	2.6
17	14.5	0.7	39.8	2.7
18	15.2	0.7	43.9	2.9
19	15.9	0.7	48.1	3.0
20	16.6	0.7	52.4	3.2
21	17.1	0.5	56.6	3.3
22	17.6	0.5	60.8	3.5
23	18.1	0.5	65.1	3.6
24	18.6	0.5	70.4	3.8

SOURCE: Slightly altered from Jensen, Leo S. "Economic conditions alter performance in '79; little change in 1980 growth standards." *Turkey World*, Jan.-Feb, 1980.

TABLE 4. Percent of Protein Required in Rations of Turkeys, from Hatching to Maturity

(Age (wks):	Toms (% protein)	Hens (% protein)
0-4	28	28
4-8	26	26
8-12	22	
8-11		22
12-16	19	
11-14		19
16-20	16.5	
14-17		16.5
20-24	14	
17-20		14
Holding*	12	12
Breeders	16**	16**

SOURCE: National Research Council, 1977.

*Pre-breeder holding period, usually to 30 weeks old.

**Recommendation, Department of Avian Sciences, UC, Davis, 1974.

It takes about 70 pounds of feed to raise the average large turkey to market age. (See tables 1 through 3.) Because turkeys are so fast growing, it is very important to buy correctly-formulated turkey feeds. Feed manufacturers' directions should be followed when available. See table 4 for protein requirements at various ages. (Rations are assumed to be high in calories.)

During the first 4 weeks, when feed intake is low, poults should be fed a starting mash or crumble of 28 percent protein. The protein level is gradually reduced thereafter (table 4); at 8 weeks a growing ration with 22 percent protein is fed; finisher feeds will contain 16.5 percent protein or even 14 percent. To lower protein level it is most convenient to buy complete feed but it is possible to lower the protein level by adding grain to the ration. Cracked or whole grain such as milo can be fed to turkeys over 11 or 12 weeks of age to reduce protein level. When 3 parts of growing mash, crumble, or pellets (22 percent protein) and one part of grain (about 10 percent protein) are fed—separately or mixed together—the over-all ration has a protein level of 19 percent; when equal parts are fed, the over-all ration has a 16-percent level. Further dilution of a 22 percent growing feed with grain is not recommended because it may result in too great a dilution of vitamins and minerals. Turkeys fed on whole or cracked grains

need access to granite grit; laying hens need access to oyster shell or limestone grit. Breeders require 16-percent protein rations.

Disease Prevention

The health of a flock depends to a large extent on sanitation and segregation from other flocks of turkeys and birds of all kinds. Clean feeders and waterers help prevent coccidiosis, blackhead, and roundworm infestations. When poults are young, waterers should be washed and water changed at least once a day. At the same time, remove any droppings or litter that may be in the feeder. Never use moldy feed or litter; it may cause serious respiratory or intestinal problems. Feeders and waterers are easier to keep clean when placed on wire platforms. Visitors who have contact with other poultry and upland game birds should be excluded from the turkey pen.

Debeaking prevents cannibalism. Feed stores sometimes loan electric debeakers[®] to small-flock owners who do not wish to purchase the devices. A mild debeaking (removing about one-third of the upper beak) can be performed easily when turkeys are about 3 weeks old (see fig. 8) to prevent cannibalism in older turkeys. Also, it is advisable to separate toms and hens after 4 months of age; hens nearing maturity sometimes peck toms and hens may be injured

Fig. 7. Because turkeys have high requirements for protein, vitamins, and minerals, feed should be especially formulated for turkeys. These 3-week-old turkeys had feed containing (from left to right) adequate zinc, insufficient zinc, and no zinc. Zinc deficiency causes poor growth, poor feathering, bone deformities, and mortality.

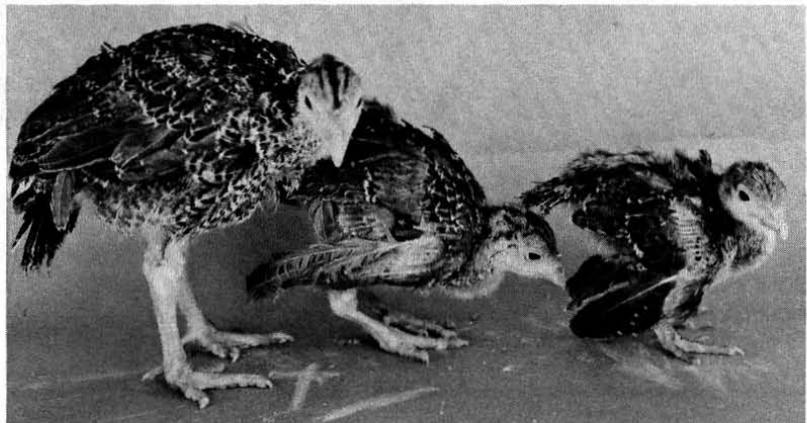




Fig. 8. Cannibalism can be prevented by debeaking the young turkey with an electric debeaker®.



Fig. 9. Pox on the skin of the neck and wattle often occurs in the fall and can be prevented by vaccination. Turkeys successfully vaccinated for the first time at the beginning of September will have enough immunity to last through the breeding season, ending late in June.



Fig. 10. Wet pox is far less common than dry pox but is more serious, producing lesions in or around the mouth, eyes, or nostrils. It can occur in unprotected turkeys, and is probably most common during winter.



Fig. 11. Swollen sinuses are symptoms of sinusitis. One or both sinuses may swell, sometimes impairing vision. The disease also may affect the lower respiratory system, causing turkeys to cough.

during mating. Desnooding day-old poults at the hatchery, especially tom poults, is a common practice among commercial growers and reduces the amount of fighting. The Large White tom in Figure 1 has been desnooded and debeaked.

Fowl pox, which produces wartlike spots or blisters on the head and wattles (fig. 9), and in relatively few cases ulceration of the mouth and windpipe (fig. 10), is common in the San Joaquin and Sacramento valleys, and is apt to occur wherever mosquitoes abound. In baby turkeys, it can cause poor growth, unevenness in the flock, and sometimes death. In older turkeys, pox can slow growth and reduce egg production. Although there is no effective treatment for the disease, Lugol's solution of iodine painted on the pox lesions helps dry them up. Older turkeys recover without treatment in 3 to 4 weeks. Successful vaccination provides an immunity lasting about 6 months; revaccination is not effective until immunity expires. Flocks should be vaccinated before a natural outbreak occurs and before turkeys begin laying. Though the smallest package of pox vaccine available is a 500-dose size, the procedure is the same for 5 turkeys as it is for 500. Overdoses are not possible. Vaccination is unnecessary in areas where pox does not occur.

Raising turkeys and chickens together may lead to outbreaks of sinusitis or blackhead. Chickens may harbor the causative agents of sinusitis or blackhead without appearing sick. Infectious sinusitis (fig. 11) is caused by the small, bacterium-like organism, *Mycoplasma gallisepticum*. Infectious sinusitis can also be transmitted through the eggs of infected turkey hens. The incubation period of infectious sinusitis can vary from one week to several weeks. Treatments are available and should be used early in an outbreak. It is far better, however, to plan on prevention.

Blackhead, which is less common in California than sinusitis, is caused by the microscopic protozoan parasite, *Histomonas meleagridis*. It causes pathological changes

in the intestinal tract and liver and, if uncontrolled, can cause high mortality in turkeys. Medications are available for treatment. If premises are heavily contaminated with blackhead parasites, a veterinarian or diagnostic lab should be consulted about preventive feed or water medications.

Leg disorders or weaknesses sometimes occur in older turkeys and the causes are numerous. Various nutritional factors, various diseases, and breeding for large size have been implicated. Frequently, treatments have limited value.

It is important that accurate diagnosis be made when turkeys become sick. The cause may be an infectious disease, inadequate nutrition, or poor management. Typical sick or fresh, dead birds should be taken to a laboratory or a veterinarian trained in poultry diseases. An accurate history on the course of the sickness must be provided. The state and county pathology laboratories listed in figure 12 offer diagnostic services at a nominal cost.

Livestock and Poultry Pathology Laboratory
P.O. Box 11585 (2789 South Orange Ave.)
Fresno, California 93774 (209) 266-9418

Livestock and Poultry Pathology Laboratory
P.O. Box 9702 (3290 Meadowview Rd.)
Sacramento, California 95823 (916) 428-3172

Livestock and Poultry Pathology Laboratory
P.O. Box 255 (714 South Santa Anita St.)*
San Gabriel, California 91778 (213) 282-6127

Poultry Pathology Laboratory
P.O. Box P (Fulkerth Ave. & Soderquist Rd.)
Turlock, California 95380 (209) 634-5837

San Diego County Veterinarian
Bldg. 4, 5555 Overland Ave.
San Diego, California 92123 (714) 565-5395

Veterinary Laboratory Service
1500 Petaluma Blvd. South
Petaluma, California 94952 (707) 762-7386

*Note: Plans call for relocating the laboratory late in 1981 to San Bernardino at a site near the Orange Show Grounds on Central Avenue.

Fig. 12. Diagnostic laboratories in California.

