

## Small Poultry Flocks

Raising poultry as a small backyard project has gained popularity in recent years. High quality food products can be produced from this type of flock. In addition, youngsters can learn to care for animals and experience the enjoyment of keeping animals as a hobby. But before investing time and money in such an enterprise you should consider the economics, practicality, and technical aspects of the venture. It is the objective of this Poultry Science and Technology Guide to provide the information needed to properly care for a small chicken flock.

### Is a Poultry Flock Feasible?

Poultry, like most animals, require constant, seven-days-a-week care if they are to do well. Will the flock interfere with vacations, weekends — even daily family routine? Anyone who cannot or is not willing to provide the necessities for a poultry flock should not consider one.

Even if you are interested in raising poultry only as a hobby, the cost of producing poultry products is critical in determining the feasibility of a flock. Egg and poultry meat production from a small flock is not always economical.

Feed for a small flock is usually purchased in relatively small quantities. Special milling and distributing costs incurred in producing such small quantities can result in relatively high feed prices and, in turn, high production costs for eggs and meat.

Formulas and examples that will help in making estimates of out-of-pocket costs are given in Table 1. The costs in Table 1 do not include housing, equipment, labor, utilities, or miscellaneous supplies that you may want to include in your analysis.

### Regulations and Neighbors

In most areas zoning regulations are very specific about animals. You should be familiar with these regulations before beginning the project. Communication with neighbors before the project is started can calm concerns neighbors may have about the venture and will help avoid complaints later.

The Veterinary Division of the North Carolina Department of Agriculture specifies the responsibilities of poultry owners and caretakers in Rule 0607, subchapter 52B, which says:

#### Poultry Running at Large

(a) A person owning or having legal custody of

any poultry shall not maintain poultry in any manner that creates a reasonable likelihood that poultry will wander outside of the legal boundaries of the property on which they are kept.

(b) A person owning or having custody of any poultry shall not allow said poultry to wander outside the legal boundaries of the property on which they are kept.

Confining poultry to houses or secure fenced yards will protect them from predators and other physical dangers, prevent the spread of disease, and keep the birds from becoming a nuisance to neighbors.

Small flock owners also should be aware of regulations governing the sale of eggs and live or dressed poultry from the premises where such foods were produced.

### Breeds and Varieties

Unless you are looking for a specific breed for exhibit or hobby purposes, you have two basic choices when deciding what type of poultry to keep. You may choose a breed that excels in egg production or a breed noted for meat production.

Chickens bred to produce eggs fall into two classifications — the leghorn type, which produces white eggs, and the sex-linked type, which produces brown eggs. The sex-linked bird is larger and, as a result, eats more feed. The two types exhibit similar egg production potential.

Commercial broilers (Cornish-White Rock cross) are the most efficient meat producers. This type of chicken can be used as a broiler, roaster, cornish hen, or capon. Broilers are inefficient egg producers, however.

Ready-to-lay pullets are usually the best option for starting an egg production flock but may be difficult to locate. Spent layers can sometimes be purchased from a commercial source and molted (see PS&T Guide Number 10, *Induced Molting of Commercial Layers*) with good results. Starting day-old chicks is more difficult but may be the only alternative for both egg and meat production.

### Housing

Housing used for small poultry production should be constructed to keep the flock comfortable in all weather extremes. A poultry house should be tight,

## Table 1. Small Flock Production Costs

### Formula A:

Cost of egg production/dozen eggs = (lb of feed/dozen eggs x cost/lb of feed)  
 + (cost of ready-to-lay pullet ÷ dozen eggs produced)

### Example A:

<b>Given:</b>	<b>Then: cost/dozen eggs =</b>
Feed cost at \$15/cwt	4.25 x 15 cents = 63.8 cents
Pullet cost at \$3.25	+ $\frac{\$3.25 \times 100}{19}$ = 17.1 cents
4.25 lb feed/dozen eggs	= 80.9 cents
19 dozen eggs produced	per dozen eggs

### Formula B:

Cost of meat production / lb of meat = [(feed/lb of meat x cost/lb of feed) + (cost day-old chick ÷ lb of live mature chicken)]  
 ÷ percent (in decimal form) oven-ready yield

### Example B:

<b>Given:</b>	<b>Then: meat cost/lb</b>	<b>=</b>	$\frac{(2.25 \times 17 \text{ cents}) + (20 \text{ cents} \div 4.00)}{.75}$
Feed cost at \$17/cwt		=	$\frac{38.25 + 5.00}{.75}$
Chick cost at 20 cents each			.75
Mature weight of 4 lb		=	57.7 cents/lb
2.25 lb feed/lb live weight			
75 percent oven-ready yield			

well-ventilated, and insulated (ceiling insulation is particularly helpful). It is important to provide ventilation that is adjustable to keep the house warm during the cooler months yet provide free air movement during hot summer months. Use of ½-inch mesh hardware cloth over windows should keep out birds, rodents, and varmints. North Carolina Agricultural Extension Service Plan #823 can be used as a guide. The plan can be obtained from your local county agent.

### Brooding

Baby chicks need a heat source the first few weeks of rearing. The standard gas hover brooder is the most common brooder. Electric hover-type brooders are also used frequently. The common heat ray lamp is an inexpensive way to brood a small flock of 25 to 50 chicks. The heat lamp should be 15 to 20 inches above the litter.

Day-old chicks are started out at a temperature from 90°F to 95°F. The temperature should be lowered 5 degrees per week until the chicks are feathered, at three to four weeks of age. The behavior of the chicks is a good indicator of their comfort. If the chicks are huddled close to the heat source and chirping loudly, they are cold; if they stay away from the heat source, they are too hot. Quiet, evenly distributed chicks are a sign of optimum temperature.

Brooder guards, which can be made of cardboard or wire, are often used to prevent drafts and to

keep chicks from straying from the heat source during the first week.

### Waterers

It is important that chicks have easy access to water to avoid dehydration. Manufactured chick fountains usually consist of gallon or quart jars with screw-on bases. Homemade fountains also are satisfactory. Regardless of the watering equipment used, it should be accessible (near the heat source, for example), cleaned daily, and filled as necessary. A 1 gallon chick fountain is adequate for 100 chicks. Waterers used for growing or adult flocks should be adjustable to the size of the birds and designed to avoid roosting, wading, and spillage. Waterers also should have adequate storage or be equipped with a triggering device that automatically refills the waterer when the water level drops. A waterer that is easy to clean is preferable. A waterer should provide ½-inch per bird (measure both sides of the watering trough) for birds 10 days to 9 weeks old and 1 inch per bird for mature birds. For example, a trough 5 inches long would be adequate for 20 chicks if the birds are 10 days to 9 weeks old. A waterer 10 inches long, providing a total of 20 inches of waterer space, would support 20 mature birds.

### Feeders

Commercially available chick feeders vary in design and may be made of cardboard, plastic, or metal. Feeders may also be homemade. A feeder

should be low and open to allow the chicks easy access to the feed yet designed in such a way feed is not wasted. Boxes or old egg flats or cartons are suitable for homemade feeders. Use of this type of feeder should be discontinued once the chicks are 10 days old in order to avoid excessive feed wastage.

Hanging tube or trough feeders can be used for older birds. Hanging tube feeders can be adjusted as the birds grow. Trough feeders are not adjustable and must be replaced as poultry grow. Whether homemade or manufactured, a feeder should be equipped with a rod or grill to keep the chickens from getting into the feed or roosting on the feeder and a lip to keep the feed from spilling out. The feeder also should be the correct height. The lip of the feeder should be as high as the backs of the chickens being fed. A feeder should provide 2 inches of space per bird for birds up to three weeks of age; 3 inches per bird for birds three to eight weeks of age; and 4 inches per bird after eight weeks of age. Trough feeders are measured in the same manner as waterers.

### Nests

Leghorn layers should be provided with individual nests measuring 12 x 14 x 12 inches while larger brown egg layers should be provided a 14 x 14 x 12-inch nest. A strip should be located in front of the nest adequate to keep at least 2 inches of nesting material in the nest. Provide one individual nest for each four hens in the flock. A colony nest, which may be substituted for individual nests, measuring 2 x 6 x 1½ feet is adequate for 50 hens. Nests may be placed on end walls or partitions. They should be installed at least high enough so hens can walk under them.

### Lighting

Use of artificial light can be beneficial to all types of poultry. One 40-watt bulb will provide adequate light for 200 square feet of floor space. A combination of natural and artificial light resulting in 14 hours of light per day is effective in maintaining egg production throughout the year. Lighting is explained in more detail in PS&T Guide Number 16, *Lighting Systems for Layers*.

### Feed

Chickens must be fed an adequate diet for optimum performance. Chickens of different ages and utility have specific nutrient requirements. These nutrient requirements are met by proportioning different feed ingredients. The scientific balancing of a poultry ration for a specific age or type of chicken is too complex for a home flock owner to attempt. Feed should be purchased from a commercial source to be sure the flock is receiving an adequate diet. Table 2 outlines typical feeding programs for chickens of different ages and utility. When commercial programs differ from those outlined in Table 2, the commercial program should be followed. The programs in Table 2 should be used as a guide only.

Feed in all mash form is a complete ration and should be used as the only food source. Mash and grain feeds, which are formulated so that the mash can be supplemented with a small amount of grain, are also available. The mash and grain feeding technique can be useful for floor layers. Feeding small amounts of grain in the litter causes the layers to scratch in the litter thereby keeping it in better condition. Feeds to which grain may be supplemented can be convenient for those who have their

**Table 2. Typical Feeding Programs<sup>1</sup>**

Layers	Layer Replacements <sup>2</sup>	Capon <sup>2</sup>	Broiler <sup>2</sup>	Roasters <sup>2</sup>
20 weeks thru production cycle, <i>Laying Mash</i> .	0-6 weeks, <i>Starter</i>	Same as layer replacement to 10 weeks of age.	0-3 weeks, <i>Starter</i>	Same as Broiler to 7 weeks of age. Then feed <i>Broiler</i>
Can be fed all mash or mash-grain method.	6-13 weeks, <i>Grower</i>	Then feed <i>Grower</i> or <i>Developer</i> plus <i>Corn</i> or <i>Grain</i>	3-6 weeks, <i>Grower</i>	<i>Finisher</i> and corn until market. Corn gradually increased to 50% of diet by 14th week. Feed insoluble grit to aid digestion of whole grain.
Free access to Calcium (oyster shell, or soluble grit) may be fed for good egg shells. Feed insoluble grit if whole grain is used.	13-20 weeks, <i>Developer</i>	<i>Mix</i> until market. Grain gradually increased to 50% of diet by 20 weeks of age. Feed insoluble grit to aid digestion of whole grain.	6 weeks-market, <i>Finisher</i>	

<sup>1</sup>Commercial company's programs will vary from the ones proposed. Choose a company's feeding program and follow it. The above schedule should be used as a guide only.

<sup>2</sup>A suitable coccidiostat should be included in feed for young chickens (see poultry disease section).

own grain. Also, this method of mixing feed may be more economical even if the grain is bought from the feed dealer. Commercial feeds are sold as mash, pellets, or crumbles. All forms of feed are acceptable. Less feed waste will be experienced with pelleted and crumbled feeds thereby paying for the extra cost of pelleting.

### Sanitation

Lack of cleanliness often causes poultry diseases that can seriously affect the performance of chickens. Following are sanitary precautions that should be taken with a home chicken flock:

- The chicken house and equipment should be cleaned completely and disinfected before starting baby chicks or housing layers.
- Waterers should be cleaned daily.
- Screened manure pits should be installed under roosts, feeders, and waterers.
- Litter should be kept dry and clean.
- Dead chickens should be incinerated or buried.
- Young stock should be raised away from adult chickens.
- The flock should be isolated from outside traffic such as other chickens, neighbors, birds, dogs, or other animals.
- Practice good housekeeping and rodent control.
- Dispose of litter and manure by spreading and plowing or spading it under the soil. Manure and litter should never be spread or stored where poultry have access to them.

### Vaccination

Many common poultry diseases are controlled by vaccination. Chicken flocks in North Carolina are generally vaccinated against Newcastle disease, infectious bronchitis, and Marek's disease. In most areas of the state flocks should also be vaccinated against fowl pox. PS&T Guide Number 2, *Vaccination Can Prevent These Diseases* gives details on vaccination recommendations in North Carolina.

### Other Common Poultry Diseases

Coccidiosis is a common disease that attacks the chicken's intestine. It is recommended that feed for young stock contain medication to control coccidio-

sis. Recommended medication levels and feeding methods vary depending on the type of chicken. For example, broiler feed contains a much higher level of coccidiostat than feed for replacement pullets because replacement pullets need to develop immunity to the coccidia organism. The feeding recommendations given by drug manufacturers should be followed closely for optimum coccidiosis control.

Internal and external parasites in home flocks can be an annoying problem. Roundworms can be controlled with commercially available poultry wormers, which are placed in the chickens' water or feed. Lice and mites can be controlled with insecticides. A county Extension agent can recommend the most current, safe, and effective insecticide to use on these parasites.

If chickens appear sick or the flock experiences high mortality, state diagnostic laboratories are available throughout North Carolina to help identify disease problems. Contact a county agent for the nearest laboratory that can provide this service.

### Controlling Cannibalism

Chickens by nature are cannibalistic. The best method of controlling cannibalism is to trim the beak of the chicken. Cauterizing is the most effective and long-lasting method of trimming the beak. If cauterizing is possible, at least one-third of the upper and one-eighth of the lower beak should be trimmed. If cauterizing is not possible, only the amount of the beak that can be cut without severe bleeding should be trimmed. The beak should be trimmed as though trimming a fingernail.

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