

Management of Small Flocks of Chickens¹

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These can be divided into the following two categories:

Production flocks: Small flocks kept for production of meat and/or eggs. These birds should not be treated as pets.

Hobby flocks: Purebred large fowl or bantam for exhibition or esthetic value. These should not be kept primarily for production of meat and/or eggs.

Before starting a home flock the following questions should be answered:

- Do zoning laws permit keeping poultry?
- Is there unused labor and, more important, is someone willing to care for the birds daily?
- Is someone willing and able to process the birds for meat or process the eggs?
- Is there necessary housing and equipment, or will there be additional expenses for these?
- Are facilities or proposed facilities designed and located to prevent a nuisance (noise, fly, odor) for your family or neighbors?
- Do you have a freezer, so that you can make best use of the meat birds you grow?
- Do you have neighbors who would like to buy some "home-produced" eggs or poultry when you have more than you can use?

BREEDS OF CHICKEN

Light Weight Egg Type

- (1) White Leghorn (white eggs)
- (2) Leghorn-type crosses (white eggs)

Medium Weight Egg Type

- (1) Rhode Island Reds (brown eggs)
- (2) Sex-Link Crosses (brown eggs)
- (3) White Plymouth Rock (brown eggs)
- (4) Barred Plymouth Rock (brown eggs)

Meat Type

- (1) Broiler crosses

Purebred

Kept for hobby and show. See "American Standard of Perfection" for description of various breeds.

SOURCE OF QUALITY CHICKENS

Baby Chicks

- (1) Florida hatcheries. For a list of hatcheries, contact an extension poultry specialist.
- (2) A reliable feed store.

Ready-to-lay pullets (18-20 weeks of age)

It may be difficult to obtain small numbers of ready-to-lay pullets. The best sources are youth with

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4-H poultry projects who often have quality pullets for sale. Contact the County Extension 4-H Agent for possible sources.

Adult Birds

It is best to keep only one age bird at one time on your property. If not possible, keep young and old birds separated. If adult birds are added to your flock, keep them separated for 14 days before putting them in your flock to insure that they are disease free.

INCUBATION AND HATCHING PROCEDURES

For those desiring to produce their own hatching eggs and hatch their own chicks the following points should be followed.

Hatching Egg Production and Care

- (1) Keep 1 male for each 10-12 females.
- (2) Males should be kept with females at least 1 week prior to saving hatching eggs to insure high egg fertility.
- (3) Feed a complete diet.
- (4) Collect eggs at least 3 times per day.
- (5) Select eggs for size, shape, shell color, and texture; 23-28 oz. per dozen are best for hatching.
- (6) Store eggs at a temperature of 55-65 degrees F., relative humidity of 70-85% and set within 7-10 days.

Incubation Essentials

- (1) Obtaining a small incubator - Still air incubator can be purchased or constructed. Small forced-air self-turning incubators are commercially available. For details regarding incubators, incubator parts and/or construction plans, contact an extension poultry specialist or see "Incubation, Embryo Development and Display, and Baby Chick Care".
- (2) Proper operating temperature - A still air incubator requires an operating temperature of 102 to 103 degrees F at a position level with the top of the eggs. A forced draft (which contains a fan for circulating the air) incubator should be

operated at 99 to 100 degrees F. Do not place the incubator in drafts or direct sunlight which may cause extreme fluctuations in temperature.

- (3) Sufficient humidity - Wet bulb reading of 86 degrees F. For a small incubator, moisture can be added to the air by placing a small pan of water under the egg tray. It may be necessary to sprinkle the eggs lightly with warm water at the time of hatching to prevent the chicks from sticking to the shell.
- (4) Turning of eggs - Eggs should be turned an odd number of times and a minimum of three times each day. Mark each egg as an aid in determining that all eggs are turned from one side to the other at each turning. For self-turning incubation, follow manufacturers instructions.

HOUSING AND EQUIPMENT

For the home flock, houses need not and should not be elaborate and expensive. In most of Florida, housing need only consist of an area covered by a roof, to keep out the hot sun and rain, and enclosed by wire to confine birds and exclude predators. Siding or plastic may be needed for protection against cold winds and blowing rain. Dirt floors are preferred to concrete or wood.

Brooder houses need to be closed up to preserve heat for the first few weeks, however, even small chicks need fresh air.

Uses of Houses

- (1) Brooder houses hold chicks for the first few weeks or for the entire length of the growing period.
- (2) Broiler or pullet houses are large brooder houses.
- (3) Laying houses (floor or cage) hold the laying and breeding flock.

Floor Space

- (1) Broilers or pullets - 1 square foot per chick.
- (2) Floor layers - 3 to 4 square feet per bird.
- (3) Cage layers - 60 to 100 square inches per bird.

Table 1. Incubation Periods for Different Birds

EGGS	DAYS
Chicken	21
Duck	28
Muscovy Duck	33-35
Turkey	28
Geese (small)	30
Geese (large)	33-34
Guinea	28
Bobwhite Quail	22-24
Coturnix Quail	16-18
Pheasant	21-24
Peafowl	28-30
Pigeon	17-19
Ostrich	40-42
Swans	42

Equipment

Brooders

- Hover-type - Follow manufacturer's direction. Starting temperature at the edge of the hover should be 95 degrees F. for the first week and reduced 5 degrees F. each week.
- Heat lamp - Use either white or infra-red heat lamps.
- Home made brooder - An inexpensive method of supplying heat to a few chicks is to place a 100-watt light bulb inside a gallon tin can and place the can on the floor of the brooder house.

Chick guard

In cold weather, use a solid chick guard (18 inches high made of cardboard or sheet metal) around the hover or heat source to keep chicks from straying and to prevent floor drafts. Place the guard two or three feet from the edge of the hover. Remove it at the end of 7 to 10 days.

Feeders

Table 2. Feeder Requirements by Age

AGE	SPACE*
Day old	Feed on newspaper placed on litter
2 days-2 weeks	100 linear inches/100 chicks
3-6 weeks	175 linear inches/100 chicks
7-12 weeks	300 linear inches/100 chicks
Layers	5 linear inches/bird
* a four-foot feeder open to birds on both sides provides 96 linear inches	

Waterers

Table 3. Waterer Requirements by Age

AGE	SPACE
Day old - 2 weeks	two 1 gallon fountains or 20 linear inches/100 chicks
3-12 weeks	two 3 gallons fountains or 40 linear inches/100 chicks
12-20 weeks	80 linear inches/100 chicks
Layers	1 linear inch/bird

Nests

- Allow one individual nest for each four hens. The bottom of the nest should be 14 inches square with the front six inches high, back 15 inches high.
- Community nests are constructed two feet wide and any desired length. Allow two nests (each 2 feet x 6 feet) for each 100 hens.

Cages

Normally cages are 18 inches deep and 16 inches high in the following widths:

- 8 inches wide - one bird per cage
- 10 inches wide - can accommodate two layers per cage.
- 12 inches wide - can accommodate two or three layers per cage.
- Although more than one bird per cage can be housed, one bird per cage is recommended for

small flocks for the following reasons: cleaner eggs, fewer cracked eggs, usually higher production, better bird plumage and less cannibalism. Manure management is much easier since the manure is not so concentrated, thus aiding in drying and reducing odors and fly problems.

FEED AND WATER

All feeds are composed of important groups of ingredients which are called nutrients. The essential nutrients are: water, minerals, proteins, carbohydrates, fats and vitamins. A good poultry feed contains a proper balance of nutrients which will satisfy the chicken's requirement and meet the need for which it is fed (growth, meat or eggs).

Feed a good commercial starter feed for the first 6 weeks. From 8 to 20 weeks feed a grower feed. Starter and grower should contain a drug for prevention of coccidiosis. At 20 weeks switch to a layer feed and continue throughout the laying life of the hen. Grower and layer feeds can be in all-mash, crumble or pellet form.

Keep feed before the chickens at all time; however, avoid feed wastage. Feed troughs can be full during the first day or two of the chick's life. From then on, feeders should be filled from 1/2 to 2/3 full. Occasionally you can allow the birds to eat all the feed from the troughs to prevent accumulation of dirty, dry, and stale feed.

Water is one of the most important requirements for poultry. Be sure that chickens have a supply of clean, cool drinking water at all times. Clean all waterers daily. Keep them in the shade and avoid leaks and spills. Keep the area around the waterer as dry as possible.

FLOCK HEALTH AND DISEASE PREVENTION

There are very few practicing veterinarians in the state who will accept poultry cases. The Florida Department of Agriculture and Consumer Services operates diagnostic labs throughout Florida (see "A Guide to Commercial Poultry Production in Florida") where poultry disease diagnostic services can be obtained for a fee. However, most home flock owners cannot justify the expense of taking or sending birds

to one of these labs for this service. Therefore, flock owners can best maintain healthy flocks by:

- (a) Starting with high quality, disease-free chicks or pullets.
- (b) Using a good brooder.
- (c) Feeding a good commercial feed.
- (d) Providing cool, clean drinking water.
- (e) Following good management practices.
- (f) Keep birds free of internal and external parasites.

The home flock owner cannot afford nor is it necessary to follow an elaborate vaccination program as followed by the commercial poultry farmer. The home flock owner should, however, vaccinate for fowl pox when birds are 6 to 8 weeks of age. Follow the manufacturer's directions. Chicks should be ordered from the hatchery already vaccinated for Marek's Disease. Contact the extension avian veterinarian on specific health and disease questions.

BROODING

Before chicks arrive the brooder houses should be thoroughly cleaned and disinfected. A good general purpose disinfectant available from feed or from supply stores should be used. After cleaning, allow the house to dry thoroughly before putting in litter material.

Wood shavings, sawdust, peanut hulls, sugar cane bagasse, or chopped straw can be used for litter material. Use only dry, clean litter which is free of any mold. Cover the floor with 4 to 6 inches of litter.

Make sure the brooder is working properly and adjusted. Put down feed and water before chicks arrive so that the water can adjust to room temperature.

Watch the chicks closely the first day and night to see that they are comfortable. Then observe them at least four times each day - early morning, noon, late afternoon and at night before bedtime. Chicks that are evenly distributed over the floor and are busily eating and drinking are comfortable. If they droop their wings and keep their mouths open, the brooder is too hot. When chicks huddle together, pile up or emit a loud chirp, they are chilled and more heat is needed. Overheating and chilling can result in a high mortality rate.

BROILER MANAGEMENT

Follow the same brooding recommendations as above. Since broilers are being reared for meat it is important that they always have an adequate supply of high quality broiler feed.

As the birds get heavier, they will need more floor space and ventilation. It may be well to use night lights equivalent to 15 watts per 200 square feet. This allows birds to eat at night and helps prevent pile-ups.

Keep litter dry to help prevent breast blisters. Provide ample cool, clean water.

PULLET MANAGEMENT

- (a) Follow the same brooding recommendations as above.
- (b) Feed starter and grower feeds as outlined under Feed and Water section.
- (c) Keep young and old birds separated. If it is necessary for one person to care for young and old birds, care for the young birds first each day.
- (d) Remove any unthrifty pullets.
- (e) Keep birds free of parasites.
- (f) Keep complete and accurate records.

LAYER MANAGEMENT

- (a) Clean and disinfect laying house before placing pullets in it.
- (b) If floor management is used, put in 4 to 6 inches of clean litter.
- (c) House only well developed, well fleshed pullets.
- (d) Use artificial light to provide 14 hours of total light per day - one 40 watt bulb per 200 square feet, hung 8 feet above the floor.
- (e) Use a feeding program as outlined above.
- (f) Keep birds free of parasites.
- (g) Keep complete and accurate records.
- (h) Remove obvious culls.

QUALITY MARKET EGGS

Production and Handling

- (a) Keep birds healthy.
- (b) Provide enough nesting space.
- (c) Keep nesting material clean and dry or cage bottom clean.
- (d) Collect eggs 3 or 4 times daily to reduce breakage.

Table 4. Guidelines for Culling Chickens

Characteristics	Good Layer	Cull
Vitality	Vigorous, active	Weak, sluggish
Comb/Wattles	Full, red, glossy	Shriveled, pale, dull, dry
Eye	Prominent, keen	Listless, sunken
Vent	Large, moist	Small, dry, puckered
Pubic bones	Thin, well spread	Thick, close together
Abdomen	Soft, pliable thin skin	Firm, thick coarse skin

- (e) Use clean, warm (110-120 degrees F.) water with a detergent sanitizer to clean dirty eggs.
- (f) Hold eggs at 50-60 degrees F. with a relative humidity of 70-80%.
- (g) Candle to determine interior quality.
- (h) Examine to determine exterior quality.
- (i) Determine individual egg grade.
- (j) Weigh for size determination.
- (k) Pack in clean cartons.
- (l) Market eggs at least twice weekly.

Egg Law--Grades and Standard

Secure a copy of Florida Egg and Poultry Law from Department of Agriculture and Consumer Services, Mayo Building, Tallahassee.

GOOD RULES OF THUMB

Following are some useful general goals regarding feed consumption, feed conversion and egg production or body weight gain for small flocks.

Layers

An egg-type hen will consume about 85-95 lbs of feed/bird/year (23-26 lbs of feed per 100 birds per day). Egg production in a small flock should be about 200-240 eggs/hen/year (17-20 dozen). Feed conversion will range from 4.2 to 5.6 lbs of feed per dozen eggs.

Broilers

Ten broilers (5 males and 5 females) will consume 125 lbs of feed over 7 weeks (12.5 lbs per bird). Broiler body weights will average 5 lbs at 7 weeks of age. Feed conversion for broilers should be 2.5 lbs of feed per lb of body weight or better. Broilers (per bird) will consume feed over their growing period as follows: 2.0 lbs feed for the first 3 weeks; 4.0 lbs feed for the next 2 weeks; 6.0 lbs feed for the last 2 weeks.

Egg-type Pullets

Pullets should consume 15-20 lbs of feed/bird in 20 weeks. They consume this feed over time as follows: (at four week intervals) 1.0 lb, 3.0 lbs, 4.0 lbs, 5.0 lbs, and 6.0 lbs per bird. Body weights of pullets should increase over time as follows:

At 4 wks	0.5 - 0.6 lb
At 8 wks	1.3 - 1.4 lb
At 12 wks	1.8 - 2.1 lb
At 16 wks	2.3 - 2.8 lb
At 20 wks	2.8 - 3.6 lb

POULTRY REFERENCE BOOKS

For those who want additional detailed information on poultry production, the following books are recommended:

Commercial Chicken Production Manual, 3rd Ed.
by Mack O. North (1984)
The AVI Publishing Company, Inc.
Westport, Connecticut

Poultry Science, 2nd Ed.
by M.E. Ensminger (1980)
The Interstate Printers and Publishers, Inc.
19-27 North Jackson Street
Danville, Illinois

Poultry Production
By L.E. Card and M.C. Nesheim (1972)
Lea and Febinger
Philadelphia, Pennsylvania

The American Standard of Perfection
The American Poultry Association, Inc. (1985)
Nona Shearer (Secretary-Treasurer)
26363 S. Tucker Road
Estacada, OR 97023