



COOPERATIVE EXTENSION SERVICE
MARYLAND INSTITUTE FOR AGRICULTURE AND NATURAL RESOURCES

Raising Your Home Chicken Flock

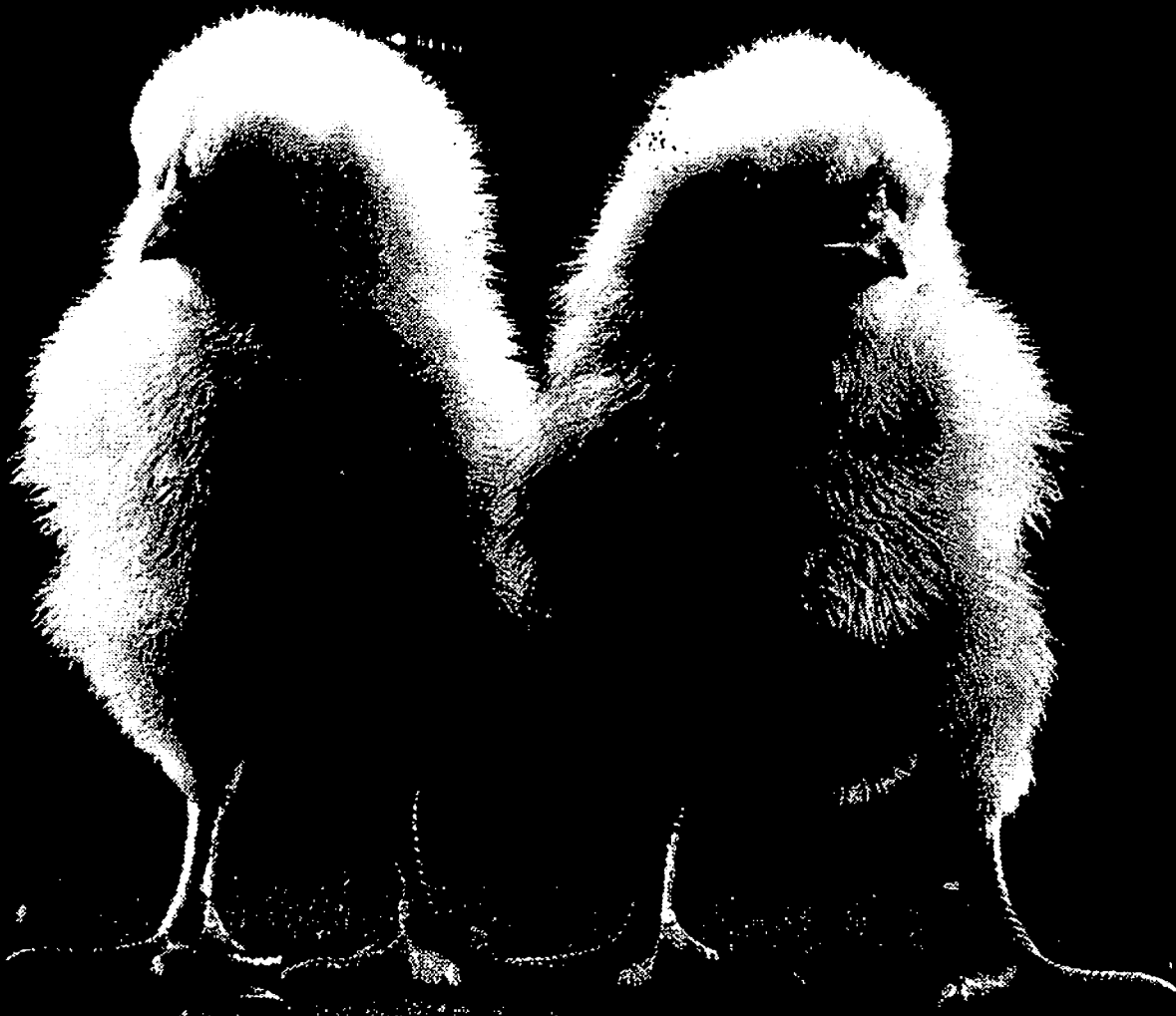


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Raising Your Home Chicken Flock

A successful home chicken flock requires good breeding stock combined with careful management, disease control and a feeding program adequate for the production or growth level expected for the flock.

Why Have a Small Flock?

A small flock offers the convenience of having fresh eggs or poultry meat right at home and the possible reduced costs of production incurred by using available housing and farm feedstuffs.

Poultry also can be kept as a hobby or as a learning experience for 4-H or FFA projects. Purebred poultry can be exhibited at fairs and poultry shows. There is also the pleasure of observing different shapes and colors in a home poultry flock. Purebred poultry may include chickens (large fowl and bantams), geese, ducks, turkeys, game birds and guineas. Bantams are ideal for those who have only a small space available to keep chickens.

Before You Plan a Flock

Some local, county, State and even Federal zoning and environmental regulations prohibit poultry flocks. Zoning regulations are usually specific about animals and environmental considerations, such as flies, odor and noise. Check with your county Extension agent or representatives of government agencies for approval before planning a flock. Also consider the proximity of your neighbors and their opinions.

Home flocks, even small ones, require water, food and daily care including weekends, vacations and holidays. The time and effort required for this care should be considered in weighing your desire for a home flock against other possible uses of your time and labor.

What Kind of Chicken?

There are two basic choices in the type of poultry to keep: a strain bred primarily for egg production or one that is bred for meat production.

Commercially available White Leghorn strains produce approximately 250 to 300 white eggs each year on a small amount of feed. Sex-linked hens, which are a little larger than Leghorns and lay brown eggs, produce approximately 180 to 240 eggs per year. Egg-producing stock can be bought as day-old chicks or as started pullets at 18 to 22 weeks of age. Yearling hens (hens with 1 year of production) can be purchased from a commercial egg flock.

The most economical meat production comes from commercial broiler-type birds, which can be used for broiler, roaster and capon production. These meat birds typically produce few eggs.

Housing Requirements

Housing for home poultry production must keep the flock comfortable in all kinds of weather. The house should be tight, well ventilated and insulated. It is important to provide adjustable ventilation for adequate air movement in hot summer months and reduced air movement in cold weather. Litter is material such as shavings or sawdust spread on the chicken house floor. A concrete floor is recommended for sanitation and litter management; however, sandy soil may be adequate. Use a ½-inch (1¼-centimeter) mesh hardware cloth over windows to keep out birds, rodents and varmints.

Floor space in the house should allow 3 square feet (1 square meter) per bird for layers and 1 square foot (315 square centimeters) per bird for broilers and bantams. Figure 1 is a plan for a small poultry house adequate for 40 layers or 120 broilers. Figure 2 illustrates a cage that can be used for rearing broilers or layers. Hanging cages are recommended as a means of preventing disease.

Brooding Equipment

Brooders

Baby chicks need heat during the first few weeks of rearing. There are many types of chick brooders that can be adapted to a small flock. Standard hover brooders can be used for starting a flock of up to 1,000 chicks. Battery brooders with feeders and waterers built in do a good job of starting chicks as well as supplying feeders and waterers for several weeks. The common infrared lamp is an inexpensive way to brood a small, 25-to-100-chick flock. The heat lamp should be at least 18 inches (45 centimeters) above the litter. In winter, make sure that the room temperature is warm enough to allow the heat lamps to be effective. A two-lamp unit provides safety in case one burns out during cold weather. See Figure 3 for suggested arrangements.

Table 1 gives a temperature guide for brooding, but the behavior of the chicks is a better indicator of their comfort. If the chicks have loud, sharp chirps and are bunched near the heat source, they are cold. If they are

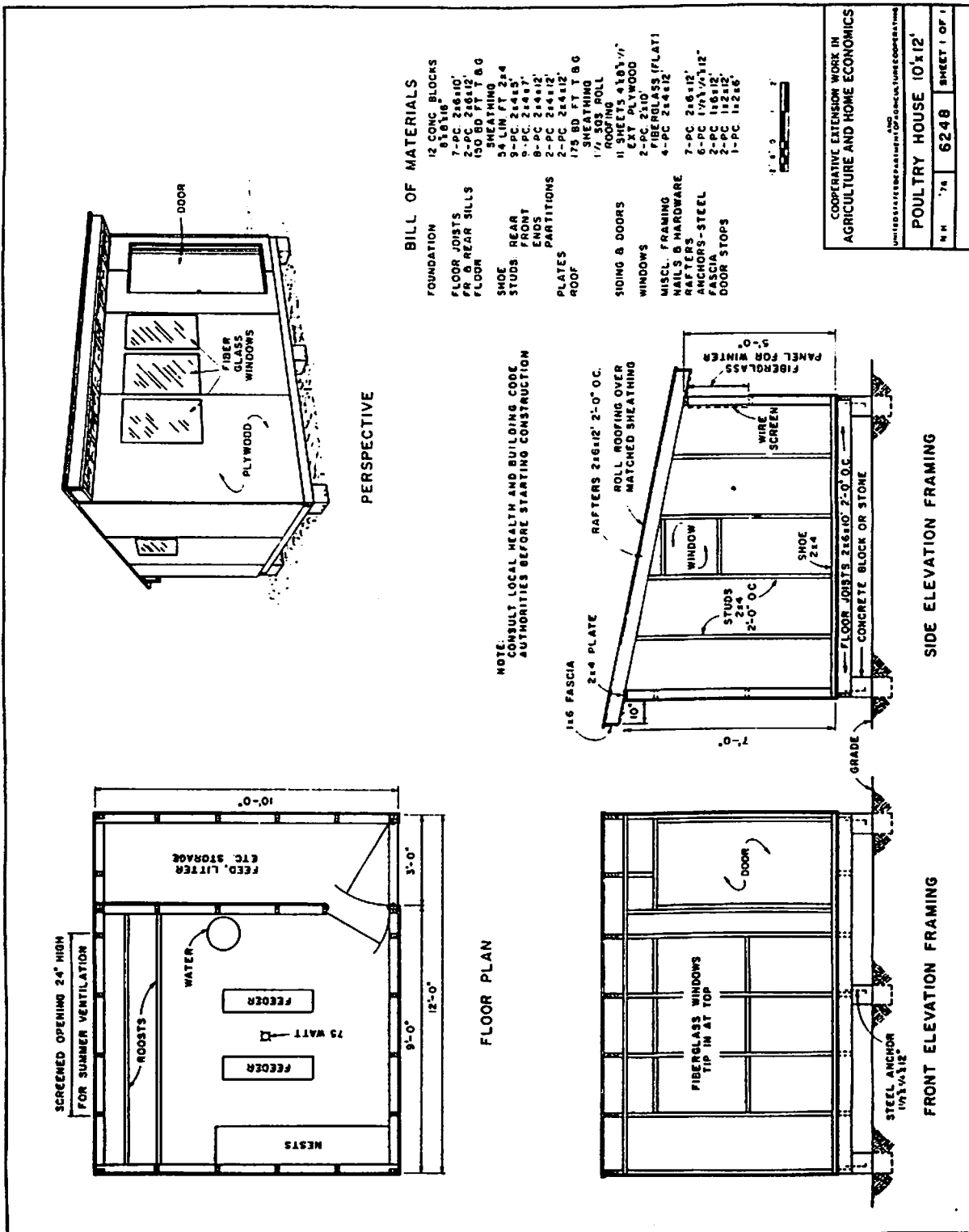


Figure 1. Poultry house for 40 layers or 120 broilers. Additional plans are available from the Department of Agricultural Engineering, University of Maryland at College Park.

panting and bunched in the corner away from the heat source they are too warm.

A brooder guard usually is used to keep chicks near the heat source during the first week to 10 days. The guard is a circular barrier, 15 to 16 inches (38 to 46 centimeters) high, made of cardboard or other solid material, that confines the chicks and reduces drafts of cold air.

Feeders

Manufactured chick-feeder designs vary from the commercially used cardboard or plastic feeder lid to the metal trough type. Homemade boxes, egg flats and similar low, open designs are acceptable as long as the

chicks have easy access to the feed, and feed waste is controlled. Provide enough space so that nearly all the chicks can eat at the same time. To avoid feed waste, gradually change chicks to regular tube or trough feeders so that open feeders can be removed when the chicks are 10 days old.

Hanging tube and trough feeders for all ages are available from farm supply dealers. Hanging tube feeders are adjustable and can be used for chickens from 1 week through adulthood. Trough feeders have a limited capacity for adjustment, which makes it necessary to use at least three different sizes of feeders during the growing cycle of replacement pullets, roasters or capons. At least two different sizes are needed to rear broilers.

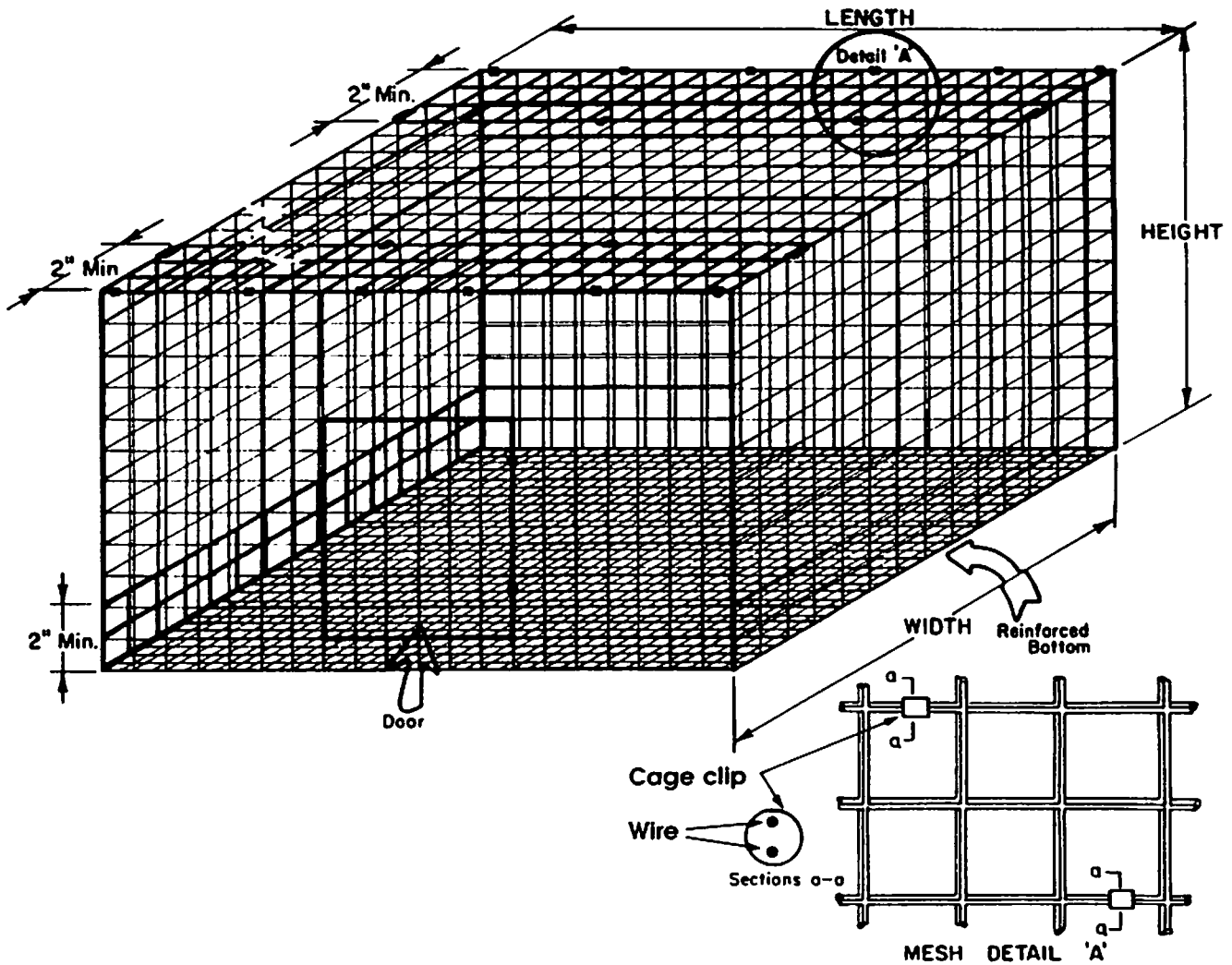


Figure 2. Assembled cage. Fact Sheet 429 "Homemade Comfort Cages for Small Poultry Flocks", Cooperative Extension Service University of Maryland System.

A feeder can be built from scrap lumber, but it is critical that it be designed to avoid feed waste. The feeder must have a reel, grill or other device to keep chickens from roosting on it or scratching in it and a lip to keep the feed from being spilled out. It is also essential that the feeder be the correct height (the back height of the chickens). See Table 1 for feeder space needs.

Waterers

It is important that chicks have easy access to water; much early chick mortality occurs when weak chicks cannot find water. Manufactured chick waterers are usually gallon or quart jars that screw onto special bases. Once filled, the waterers are inverted and the chicks drink out of the base. A simple homemade fountain, satisfactory for a dozen chicks, can be made by punching a hole with a 10-penny nail in the side of a standard can one-eighth of an inch (0.3 centimeters) to one-fourth of an inch (0.6 centimeters) from the open end. The can is filled with water and inverted in a deep saucer. Water fountains must be cleaned daily and filled as necessary.

Manufactured trough or low-pressure hanging waterers are usually used for growing flocks or adult home poultry flocks. Regardless of the waterer you use, make sure it has the following construction details: correct size and height from the floor (2 inches shorter than the back height of the chickens); a device to prevent roosting and wading; a design to control spillage; and a design for easy cleaning. Trough waterers usually can be adjusted for height; pan waterers do not have adjustments but they work well over a pit area that catches spillage. Clean waterers daily so chickens have access to clean water at all times. Refer to Table 1 for water space needed.

Nests

Chickens kept for egg production should have access to nests at 19 to 20 weeks. Giving young pullets the opportunity to find nests 1 to 2 weeks before they start laying helps prevent them from developing the habit of laying in the litter. Both individual and colony nests are satisfactory. Leghorns should have a 12-by-14-by-12-inch (30-by-36-by-30-centimeter) individual nest; heavier hens should be provided with a 14-by-14-by-12-inch (36-by-36-by-30-centimeter) nest. Nail or glue a strip on the front of the nest to keep 1 to 2 inches (2 1/2 to 5 centimeters) of nesting material in the nest. Provide one individual nest for every four hens in the flock. A 2-by-6-foot (60-by-180-centimeter) colony nest is adequate for 50 hens. Nests may be placed on end walls

or partitions. They should be installed high enough so hens can walk under them. Place nests with openings in the darker part of the house. Hens do not like to lay in nests with excessive light.

Roosts

Roosts provide comfortable sleeping for hens, replacement pullets and capons. Roosts can be made easily by rounding edges of 2-by-2-inch (5-by-5-centi-

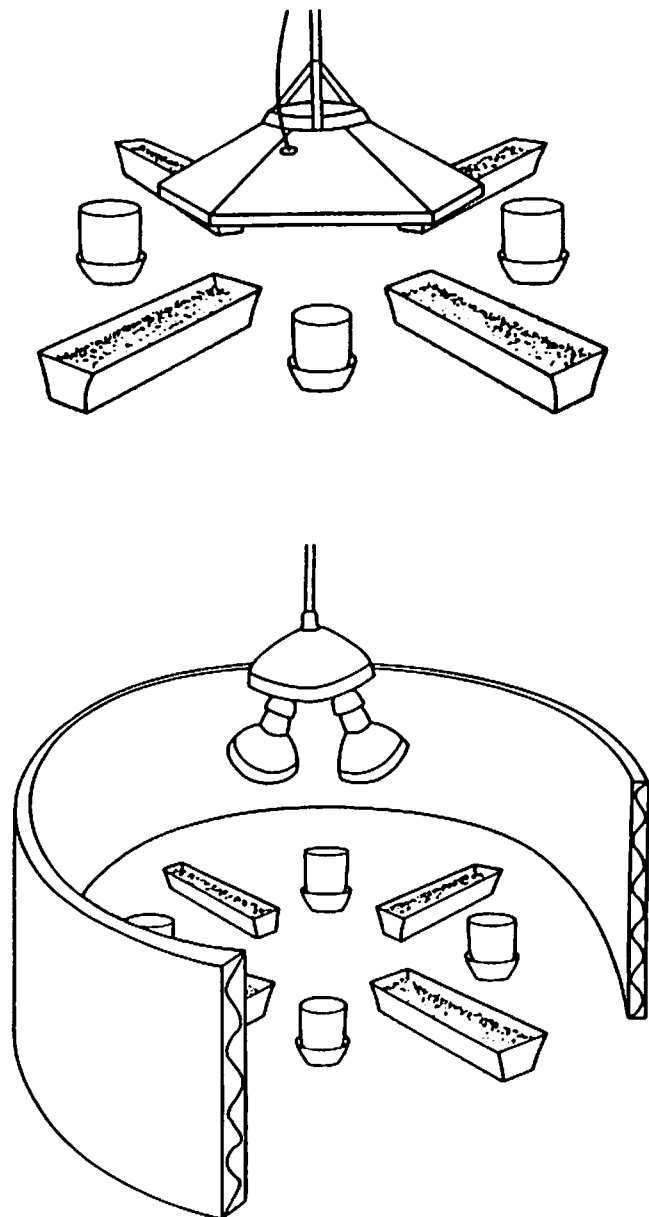


Figure 3. Suggested arrangements for brooders.

meter) or 2-by-4-inch (5-by-10-centimeter) boards. Allow 6 to 7 inches (15 to 18 centimeters) of roost space per bird. Dropping pits help with litter management: they catch a good portion of the bird's feces as well as water spillage. The dropping pit should be wire covered and at least 12 to 16 inches (30 to 40 centimeters) off the floor. Clean the dropping pit regularly, particularly if wet conditions develop.

Light

Artificial light benefits all classes of poultry. One 40-watt bulb provides adequate light for 200 square feet (18 square meters) of floor space. If the ceiling is painted white or a light reflector is used, the quality of light is enhanced. A combination of natural and artificial light to give layers 14 hours of light is effective in maintaining

Table 1. Equipment management schedule

Chicken age	Brooding temperature	Feeding space	Water space
1 day to 1 week	90–95°F (32–35°C)	1 feeder lid per 100 chicks or 1 inch (2.5 cm) per chick for trough (remove at 10 days)	1 gal (3.8 L) per 100 chicks (remove at 10 days)
1 week to 3 weeks	1 to 2 weeks 85–90°F (29–32°C)	2 inches (5 cm) per chick (one side of trough) or	0.3–0.4 inch (0.75–1 cm) per chick (one side of trough with automatic fill or several 1 gal [3.8 L] fountain waterers or equivalent)
	2 to 3 weeks 80–84°F (27–29°C)	3 tube feeders per 100 chicks	
4 to 9 weeks	3 to 4 weeks 75–80°F (24–27°C)	3 inches (7.5 cm) per bird (one side of trough) or	0.5 inch (1.25 cm) per bird (one side of trough) or
	4 to 5 weeks 70–75°F (21–24°C)	4 tube feeders per 100 birds	Several 2-to-5-gal waterers
	After 5 weeks 70°F (21°C) room temp		
10 to 20 weeks	Comfort zone 55–75°F (13–24°C)	3–4 inches (7.5–10 cm) per bird (one side of trough) or 5 tube feeders per 100 birds	1 inch (2.5 cm) per bird (one side of trough) or Several 2-to-5-gal waterers
Layers	Comfort zone 55–75°F (13–24°C)	4 inches (10 cm) per bird (one side of trough) or 5 tube feeders per 100 birds (oyster shell or soluble grit feeders should be 12 inches [30 cm] per 100 birds)	1 inch (2.5 cm) per bird (one side of trough)

egg production throughout the year. Broilers and roasters grow well with 24-hour light, but can be grown with only 8 to 10 hours, such as that provided by natural light.

Cages

Commercial table egg production utilizes cages in multiple tiers for more than 90 percent of eggs produced. Capital investment in cage layer facilities is high but labor efficiency is excellent. If hens are managed correctly and housed in well-built and well-ventilated buildings, their performance is comparable to that of floor layers. Odor and flies are major problems with cage rearing.

Feeding the Flock

Feed represents about two-thirds of the cost of raising a chicken. Commercial poultry farms use bulk feed programs in which a single delivery of 12 to 30 tons of commercial poultry feed is common. Such high-volume handling results in a relatively low cost per pound (or kilogram) of feed and explains why supermarket prices for poultry products are also relatively low.

The small flock owner deals in smaller quantities of feed—typically 50 or 100 pounds (22.5 or 45 kilograms)—and thus pays a higher cost per unit for feed.

Chickens must be fed an adequate diet for maximum productivity. Birds of different ages and utility have specific nutrient requirements, which are met by mixing together different feed ingredients. The scientific balancing of poultry rations is too complex for the home flock owner; therefore, commercial feed should be purchased, even if it seems expensive.

Table 2 outlines typical feeding programs for chickens of different ages and utility. When commercial programs differ from those outlined in the table, the commercial program should be followed. Use Table 2 only as a guide.

Commercial dealers usually have three different types of feed programs: all mash, mash and grain, and grain and supplement. Any of these feed-mixing methods are acceptable as long as the birds' nutrient needs are met. When part of the nutrient requirements for layers are expected to be met by whole grains, extra attention should be given to supplying adequate calcium.

All mash (crumble or pellet) feed is a complete ration and, when used, should be the only feed. Mash and grain feeds are formulated so that grain can be added to the mash. This feeding technique is 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.

The grain and supplement program is convenient and economical for flock owners who have their own grain. When whole grains are provided it is recommended that a higher protein layer feed be used to ensure adequate nutrients to maintain high egg production.

Disease Management

It is important to consider several factors that relate to the quality and health of the flock once the type or breed has been chosen. Purchase stock only from reputable breeders or hatcheries. Stock purchased from magazine advertisements, especially bargain offers, can mean serious problems later. Stock should be purchased from Pullorum-Typhoid clean flocks under the National Poultry Improvement Plan (NPIP). Pullorum-Typhoid is a highly contagious disease. NPIP breeders, hatcheries and facilities have been checked for proper management and sanitation, and the presence of seriously diseased birds. "Sources of Poultry and Supplies for Small Flocks", published by the Cooperative Extension Service University of Maryland System, provides a partial listing of poultry, eggs and chicks for sale and can be obtained free from your county Extension office.

Diseases

Because of the similarity of many diseases, diagnosis should be left to a professional veterinarian. With an accurate diagnosis, proper treatment can be given to the flock. Maryland Department of Agriculture laboratories (see list in Table 3) offer free diagnostic services for poultry. When there is an outbreak in the flock, take one or two birds showing typical symptoms to the lab. When the diagnosis has been made, treat the disease under the direction of a professional or with the advice of your county Extension agent.

Respiratory diseases. Respiratory diseases affect the respiratory tract and are the most common diseases in chickens. Table 4 shows some of the common respiratory diseases; most can be prevented by vaccination.

Leukosis (Mareks). Leukosis, also called mareks, is one of the most common killers of chickens of all ages. Birds with leukosis show many symptoms. Visceral leukosis results in tumors on the liver and other organs; the bird becomes thin and dies. Another symptom, enlarged nerves, results in paralysis, with the bird eventually lying on its side unable to move. Gray eye is another form of

Table 2. Typical feeding programs^a

Layer	Layer replacement ^b	Capon ^b	Broiler ^b	Roaster ^b
20 weeks—production cycle Laying mash	0–6 weeks Starter	Same as layer replacement to 10 weeks.	0–3 weeks Starter 3–6 weeks Finisher 6 weeks—market Withdrawal	Same as broiler to 7 weeks of age.
May be fed all mash or mash-grain method.	6–13 weeks Grower or Pullet developer (15% protein)	Grower or Developer and grain prior to market. Grain gradually increased in diet up to 2 weeks prior to marketing.		Broiler Finisher and corn or whole grains until 2 weeks prior to marketing at 12–14 weeks. Insoluble grit may be fed if whole grain is used.
Free choice: Calcium (oyster shell or limestone) may be fed for good egg shells. Soluble grit may be fed if whole grain is used.	13–20 weeks Developer	Feed high protein mash, crumbles or pellets only during last 2 weeks.		

^aThis schedule should be used as a guide only. Commercial company programs may vary from the ones proposed. Choose a company's feeding program and follow it.

^bA suitable coccidiostat must be included in feed for young chickens (see poultry disease section). Read the feed tag or make sure your feed store provides a Starter or Grower with a coccidiostat.

Table 3. Maryland Department of Agriculture diagnostic laboratories

Laboratory	Address	Phone number
Frederick county	P.O. Box 1234 342 Montevue Lane Frederick, MD 21702	(301) 663-9528
Garrett county	P.O. Box 376 Oakland-Sang Run Road Oakland, MD 21550	(301) 334-2185
Prince George's county	3740 Metzert Road College Park, MD 20740	(301) 935-6074
Queen Anne's county	Rt. 1, Box 145 Safety Drive Centreville, MD 21617	(410) 758-0846
Wicomico county	P.O. Box J Quantico Road Salisbury, MD 21801	(410) 543-6610

leukosis, in which the iris shrinks, the eye turns gray and the bird goes blind. Leukosis also can cause visibly enlarged bones.

Coccidiosis. Coccidiosis is the single most common cause of death in young birds. It is caused by single-celled coccidia that attack different parts of the intestinal tract, causing an irritation of the lining that prevents the absorption of food. In minor outbreaks, the birds are droopy, have ruffled feathers and lose weight. Egg production in older birds declines. Severe cases result in hemorrhage and death. Practically all poultry house litter contains coccidia; it is important to keep litter dry and to purchase feed that contains a coccidiostat. Chickens kept in cages similar to the cage in Figure 2 normally do not have problems with coccidiosis.

External parasites. External parasites cause losses if proper prevention and treatment procedures are not followed. Chickens should be checked once a week for

signs, as shown in Table 5. Consult with your county Extension agent for procedures and chemicals for prevention and control. Follow directions on packages of chemicals.

Internal parasites. Internal parasites are worms found in the digestive and respiratory tract. Often insects, such as beetles, act as the intermediate host. Insects carry the worm eggs, which are deposited in the chicken after the chicken eats the insect. Common internal parasites are listed in Table 6. Chemicals for the prevention and treatment of internal parasites should be administered under the direction of a competent authority.

Other diseases. Other diseases are not as common and require a professional diagnosis. Moldy feed causes mycotoxins and losses. Chickens develop nutritional deficiencies if they are not given a well-balanced diet.

Table 4. Common respiratory diseases

Disease	Symptoms
Infectious bronchitis	Rapid spread, gasping, wet eyes, coughing, swollen sinuses, drop in egg production, misshapen eggs, rough- or soft-shelled eggs, watery egg whites, death
Newcastle	Rapid spread, gasping, rattling, loss of appetite, coughing, huddling, paralysis of legs, twisted neck (stargazer), walking backward, drop in egg production, soft or misshapen eggs, death
Laryngotracheitis	Slow spread, coughing, sneezing, sitting hunched on floor, emitting a cawing sound, coughing bloody mucus, nasal discharge, swollen head and wattles, drop in egg production, death
Fowl pox	Skin—White to yellow bumps on comb, face or wattles, turning to scabs Internal—Cankers in membranes of mouth, throat and windpipe; difficult breathing; nasal or eye discharge
Coryza	Thick nasal discharge with odor, swollen sinuses, ruffled feathers, difficult breathing
Mycoplasma	Difficult breathing, ruffled feathers, nasal discharge, rattling, facial and nasal swelling, weakness, drop in egg production, swollen joints, yellowish feces
Cholera	Droopiness; difficult breathing; loss of flesh; drop in egg production; purplish swollen head, comb and wattles; paralysis

Highly pathogenic transmissible diseases, such as Exotic Newcastle and Avian Influenza, can be avoided with proper management and biosecurity measures.

ing of litter and manure by spreading and plowing or spading the manure under soil. Manure and litter should be spread or stored in areas not used by poultry.

Sanitation

Lack of cleanliness is often the cause of poultry disease. There are several sanitation measures that should be taken in a home chicken flock: 1) complete cleaning and disinfecting of house and equipment before starting baby chicks or housing layers; 2) daily cleaning of waterers; 3) screened manure pits under roosts, feeders and waterers; 4) managing litter to keep it dry and clean; 5) incinerating, burying or composting all dead chickens; 6) raising young stock away from adult chickens; 7) isolating the flock from outside traffic (chickens raised off the farm, neighbors, birds, dogs, etc.); 8) practicing good housekeeping and rodent control; and 9) dispos-

Biosecurity

Biosecurity includes management practices that prevent the entrance of germs and disease into the flock and into neighboring flocks. There are several biosecurity measures that must be taken: 1) purchase healthy stock; 2) keep your birds confined—do not let them run loose; 3) keep dirty equipment and materials from other flocks away from yours; 4) do not mix domestic birds with wild or caged birds, such as parrots and canaries; 5) medicate properly and follow directions; 6) keep unfamiliar people and others who might be carriers of disease away from your birds; 7) control vermin, such as rats and mice; 8) practice an insect-control program;

Table 5. Common external parasites

External parasite	Symptoms
Chiggers	Red, pimple-like irritations
Lice	Large, yellowish, transparent insects on the skin; low weight; blackish discoloration (dirty) in the vent and tail area; drop in egg production
Mites	
Red (roost)	Loss of weight, red specks, death
Northern fowl	Red or black specks around vent, unthrifty, drop in egg production
Feather	Loss of feathers, webs irregular with only shafts left in some cases
Scaley leg	Enlarged shanks and toes with raised, crusty scales

Table 6. Common internal parasites

Internal parasite	Symptoms
Large roundworm	Long, yellow-white worms in intestine; droopiness; weight loss; diarrhea; death
Capillary worm	Hair-like worms in crop and upper intestine, droopiness, weight loss, death
Cecal worm	Short worms in the ceca, unthrifty, weak, loss of flesh
Tapeworm	Long, white, flat, segmented worms in intestine; unthrifty; slow growth; weakness
Gapeworm	Red, forked worms in trachea; gasping; coughing

and 9) keep pen areas weed and debris free and keep buildings in good repair. Rely on professionals, such as veterinarians, Extension agents, animal health suppliers (those who sell vaccines and medicines) and universities, for educational materials and help.

Debeaking

Chickens are cannibalistic. The best way to control cannibalism is debeaking. The chicken's beak is just like a human fingernail; this procedure is not painful. If chicks are debeaked at 1 day old in the hatchery, then once or twice before they reach 16 weeks, they probably will not develop the pecking habit.

With a knife or scissors, cut off at least one-third of the upper and one-eighth of the lower beak. Commercial equipment uses electricity to cut and cauterize (sear the cut tip) the beak, or cauterizing can be simulated with a hot iron after the beak is cut. If cauterizing is not possible, only cut only the amount of beak that can be removed without severe bleeding, in most cases about one-fourth.

Home Processing

The quality of a ready-to-cook chicken is only as good as the live bird. When choosing chickens to be processed, look for healthy, well-finished chickens that are free of pinfeathers. Consider the weight and age that are desirable for your particular need.

For good flavor, it is essential that the chicken be well bled. One of the best methods of killing and bleeding is to cut the jugular vein (on each side of the neck). During this process, the chicken should be hung so it will not bump other objects or get soiled.

Immersing the chicken in hot water so that feathers are easily removed is called scalding. Scald water temperatures for broilers, roasters and capons should be 128 to 130°F (53 to 54°C) and 155 to 160°F (68 to 71°C) for older chickens (spent layers, etc.). Scald for approximately 1 ½ minutes for adequate feather removal.

Remove the head, feet and viscera. Wash the eviscerated chicken with clean water and chill it in ice water for several hours to reduce body heat. Chilling is necessary to produce a quality product and prevent spoilage. Add a teaspoon of chlorine bleach to each 10 gallons of ice water for added protection.

Egg Handling

The egg is called nature's perfect package, but if it is soiled or broken, the package is of little value. A clean

nest, ample nesting material, adequate space and twice-a-day gathering (more often in hot weather) are the most important factors in producing sound, clean eggs. After gathering, eggs should be refrigerated.

Poultry Product Sales

There may be times that you have a surplus of product and wish to sell it. Home flock products often command a premium price because of their quality and freshness. Become familiar with quality factors for meat and eggs before selling your product. Study educational materials on grading factors, packaging, storage and marketing. Remember, you face the same risks in selling products as large producers and you want to ensure repeat sales to your customers.

Residues

Be sure that you do not sell products that contain residues of chemicals or drugs used on or around your home chicken flock. Residues are chemical compounds in meat or eggs. They are difficult to eradicate and can cause health problems in people who eat the products. The chemicals may have been in the flock's feed or water or come from pesticides or herbicides dusted or sprayed around birds or facilities. It is important to follow label instructions when using any chemicals around poultry. There is a withdrawal period for most drugs used in feed or drinking water; be aware of this period. Consult professionals when you have a question on the use of any chemical or drug product.

Exhibiting Poultry

Many small flock owners like to exhibit their birds at fairs or in poultry shows. You can enter commercial or purebred poultry in most fairs; poultry shows accept purebred poultry only. Purebred birds are shown by breed or class as identified in the American Poultry Association (APA) Standards of Perfection or American Bantam Association (ABA) Standards of Perfection, which list the classes and descriptions for each breed and variety. A variety may be the shape, color or comb type for a particular breed. Many breeds have several varieties. Selecting birds and carefully preparing for the fair or show is essential to providing a good exhibit and increasing your chances to receive a prize. There are several publications that can help you to prepare your birds. 4-H 400 "Maryland 4-H Purebred Poultry Project" is available from your county Extension office.

Conclusion

Raising a home chicken flock can be a good experience and a source of enjoyment. As a family project it teaches about living beings and responsibility. The home chicken flock also can be an excellent source of low-cost, high-quality poultry products. This publication should provide the basic tools to start a successful flock.

Suggested Viewing

The author has prepared the following narrated slide-shows which are available from the Lower Eastern Shore Research and Education Center in Princess Anne, Maryland, (301) 651-9111.

Breeds and Varieties of Purebred Poultry.

Residue Avoidance: The Broiler Grower's Responsibility.

Small Flock Management.

The following video cassettes are available from the Cooperative Extension Service Video Resource Center, Symons Hall, College Park, Maryland, (301) 405-4594.

Exhibition Poultry from the Beginning. 1989. Eugene Bernard.

Flock Management. 1987. Pennsylvania State University.

How To Slaughter and Process Poultry. 1986. Pennsylvania State University.

Suggested Reading

For copies of the following publications contact their publishers. Those publications with no price listed are free.

A Guide to Better Hatching. 1975. Stromberg Publishing Company; Pine River, MN 56474. \$4.95.

Avoiding Drug Residues in Small Poultry Flocks. Publication 1134. 1968. Cooperative Extension Service, The University of Tennessee Institute of Agriculture; Knoxville, TN 37901-1071.

Bantam Standard of Perfection. 1988. American Bantam Association; P.O. Box 127, Augusta, NJ 07822. \$22.

Bantams. North Central Extension Publication 209. Cooperative Extension Service, University of Wisconsin; Madison, WI 53706.

Brooding and Raising Baby Chicks. 1973. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

Biosecurity for Poultry. Extension Circular 350. 1987. Mid-Atlantic Cooperative Extension. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

Biosecurity for Poultry: Stomp the Invisible Enemy. 1988. Mid-Atlantic Cooperative Extension Service. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

4-H Capon Production. NE 94. 1982. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

Poultry Showmanship. 4-H 2060. 1980. Ralph Ernst. Division of Agricultural Science, University of California; Davis, CA 95616.

Exhibiting Poultry for Pleasure. 1978. Stromberg Publishing Company; Pine River, MN 56474. \$4.95.

Good Neighbors: A Health Program for Small Poultry Flocks. Leaflet 149. 1986. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

Homemade Comfort Cages for Small Poultry Flocks. Fact Sheet 429. 1987. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

Home Slaughter of Poultry. A1478. 1975. Cooperative Extension Service, University of Wisconsin; Madison, WI 53706.

Maryland 4-H Purebred Poultry Project. 4-H 400. 1988. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

Poultry Standard of Perfection. 1985. American Poultry Association; 26363 S. Tucker Rd., Estacada, OR 97023. \$37.

Salsbury Manual of Poultry Diseases. 7th ed. Salsbury Laboratories, Inc.; Charles City, IA 50616-9989.

Sexing All Fowl, Baby Chicks, Gamebirds, Cage Birds. 1977. Stromberg Publishing Company; Pine River, MN 56474. \$4.95.

Sources of Poultry and Supplies for Small Flocks. Yearly. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

Suggested Feeding Programs for Small Poultry Flocks. 1988. Mid-Atlantic Cooperative Extension Service. Cooperative Extension Service University of Maryland System; College Park, MD 20742.

Publications on Other Species

Avoiding Drug Residues in Turkeys. 1985. Cooperative Extension Service, Oregon State University; Corvallis, OR 97330.

Duck and Goose Raising. Publication 532. 1978. Department of Animal and Poultry Science, Ontario Agricultural College, University of Guelph; Ontario, Canada N1G 2W1.

4-H Pigeon Manual. 4-H-Ag 48. 1974. Cooperative Extension Service, University of California; Berkeley, CA 94720.

Gamebird Production and Health. Bulletin 878. Cooperative Extension Service, The University of Georgia; Athens, GA 30601.

Guinea Fowl. 1975. Stromberg Publishing Company; Pine River, MN 56474. \$4.95.

Managing Gamebirds. Extension Bulletin E-692. 1981. Cooperative Extension Service, Michigan State University; East Lansing, MI 48824.

Peafowl. 1977. Poultry Science Department, Clemson University; Clemson, SC 29631.

Raising Bobwhite Quail for Commercial Use. Circular 514. 1990. Cooperative Extension Service, Clemson University; Clemson, SC 29631.

Raising Gamebirds. A-93. Storey Communications, Inc. Garden Way Publishing; Pownal, VT 05261. \$1.95.

Raising Ducks. Farmers Bulletin Number 2215. 1976. United States Department of Agriculture, Agriculture Research Service; Washington, DC 20250. \$.35 (Minimum order of \$1).

Raising Guinea Fowl. Leaflet 519. 1976. United States Department of Agriculture; Washington, DC 20250. \$.25 (Minimum order of \$1).

Raising Waterfowl. A3311. 1985. Cooperative Extension Service, University of Wisconsin; Madison, WI 53706. \$1.25.

Small Turkey Flock Management. North Central Regional Extension Publication No. 60. 1981. Cooperative Extension Service, University of Wisconsin; Madison, WI 53706.

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