COOPERATIVE EXTENSION SERVICE Mississippi State UNIVERSITY

4-H Poultry Manual - Unit Two

The more advanced 4-H member will want more challenges in selected poultry projects. This publication emphasizes three major projects. They are:

- **Brooding Projects**
- **Rearing Projects**
- **Laying Projects**

Your Poultry Project may be in the production of eggs, broilers, or hatching eggs. Your parents and Extension agents will gladly assist you with your project. Minimum requirements for the Senior Poultry Project are to do at least one of the following activities. You may do more.

- **Brood and raise 50 or more chicks. Save the best pullets for your home flock. Manage home flock.**
- **Help your parents grow out a large flock of pullets for egg production.**
- **Help your parents with a large laying flock.**
- **Help your parents to grow out broilers.**

Things You Should Learn

- **How to vaccinate for fowl pox**
- **How to prevent feed waste**
- **How to clean and disinfect a brooder house**
- **Housing requirements**
- **How to treat for lice and mites**
- **About common poultry diseases**
- **How to candle eggs**
- **Pounds of feed to produce a dozen eggs**
- **Pounds of feed to produce a broiler**
- **Record keeping**

Brooding Project

Breeds most commonly used for commercial egg production are the Leghorn type. Some of these are hybrids. For small flocks, the production-type Rhode Island Red and Sex-Link are good to use.

The Leghorn-type breeds are similar in size, feed requirements, and egg production. This type bird weighs 4 to 4 ½ pounds when fully grown. It takes about 4 pounds of feed to produce a dozen eggs with this type bird. They lay white shelled eggs.

The Rhode Island Red and Sex-Link birds are heavier and take more feed. They lay brown shell eggs. Except for the shell, brown and white eggs are alike if the hens are fed the same feed.

The Rhode Island Red and Sex-Link are ideal birds for a small 4-H project. These breeds are not as nervous as the Leghorn type. As you gain experience, you can switch to the Leghorn type and increase your flock size.

Meat production requires a chick that has been bred for fast growth and good feed use. A crossbreed is used in commercial broiler production. It grows fast, feathers rapidly, and efficiently converts or changes feed to meat. This chick is furnished by the person who contracts for broilers to be grown. These chicks come from hatcheries specializing in production of broiler chicks.

When you have decided on the type of project and breed to use, you must place an order for the chicks. Place your order well in advance of the date you want to start your project. It requires 21 days for a baby chick to hatch from an egg after it has been placed in an incubator. Order baby chicks at least 2 months before you want them.

Housing

A fancy building is not necessary. An available building can be converted to a good poultry house. The building must have 1 square foot of floor space per chick for the first 10 weeks. It should be dry and well ventilated to give the proper amount of fresh air. Rat-proof the building to keep rats from wasting feed and killing baby chicks.

Equipment

Brooder

There are many types of brooders (heating units) that provide the necessary warmth for your chicks. The size of your project determines the type brooder needed.

For small flocks, an infrared bulb does a good job. A 250-watt bulb broods 75 to 100 chicks. Hang the bulb securely so it does not drop in to the litter. It is suspended 16-inches from the top of the litter. To reduce the heat, raise the height of the bulb.

You may want to build a homemade brooder. Obtain plans from your county Extension agent. Ask him to show how an inexpensive homemade brooder can easily brood 100 chicks.

Feeders

Start chicks with chick feeders. Allow 1-inch of feeder space per chick. Use broiler size

feeders after chicks are 3 to 4 weeks old. Allow 3-inches of feeder space until they are 10 weeks of age.

Calculate feeder space by measuring one side of the feeder and multiplying by 2. For example, a 4-foot feeder measuring 48-inches on one side can be used to start 96 chicks. You might want to use tube feeders. Use three tube feeders per 100 chicks.

Waterers

Start chicks with two small glass fountains per 100 chicks. When the chicks get older, provide two 1-gallon water fountains per 100 chicks. Change the waterers gradually. Remove one small size fountain and replace with a gallon size. Follow this procedure until all small water fountains are replaced.

Preparation

Thoroughly clean and disinfect house and equipment. Do this 2 weeks before chicks arrive.

Sweep down the walls and ceiling to remove all dust and cob webs. Use a water spray from a garden hose on the walls and ceiling to wash down dust and dirt. Use water to help clean the floor.

After the house is clean, use a good household disinfectant like Lysol to disinfect the house. A solution of 1-tablespoon of chlorine bleach in one gallon of water can be used to disinfect clean waterers and feeders.

When the house is dry, cover the floor with 3 to 5-inches of dry wood shavings or sawdust. Be sure the litter you use is dry.

Install and test the brooder or heating unit. Have the brooder in operation at least one day before the chicks arrive. This allows time for heating and drying out the house.

Place a brooder guard in a circle about 3 to 4 feet from the hover. If you use and infrared bulb, place the brooder guard in a circle with a 3 to 4-foot radius. A brooder guard is an 18-inch high barrier made of wire mesh or cardboard. Place newspapers on top of the litter inside the brooder guard; this prevents the chicks from eating the litter. You can remove this newspaper in 3 to 4 days.

Feeders should be placed around like spokes in a wheel. Place waterers in between the feeders and on a board to help keep them clean.

Fill the waterers with water before the chicks arrive. Fill the feeders and spread some feed on the newspapers. Some feed may be placed on egg flats or paper plates. When chicks start eating from the feeders, remove the egg flats or paper plates.

For the first few days check to see if the chicks are too warm or too cold. This is a critical time in the baby chick's life. Remove the brooder guard between 7 to 10 days.

Temperature and Ventilation

The temperature should be 90°F, 2 ½-inches from the top of the litter directly below the edge of the hover. Lower temperature 5 degrees each week until you reach 70 degrees.

Chicks will let you know when they are not comfortable. If cold, they gather close to the source of heat and cheep in a tremulous or shrill tone. If too hot, they will move away from the heat. When temperature is correct, they spread out evenly around the brooder.

Chick talk is the key to comfort. When contented, well fed, supplied with proper heat, and comfortable, chicks talk in a low-toned contented "cheep."

Ventilation is very important. Do not close up your building tightly so that air cannot come in. Chicks need fresh air, but drafts must be avoided. Proper ventilation helps keep litter dry by removing excess moisture.

Watering

Water is the most important thing that you give your chicks. Chicks need about twice as much water by weight as feed. They cannot live long without water.

Wash waterers daily. Disinfect waterers at least once a week. A solution of 1-tablespoon of chlorine bleach to a gallon of water will do a good disinfecting job. Diseases may spread rapidly when waterers are dirty. Chicks will not drink enough water if it is dirty. Keep the water clean.

Feeding

Start your chicks off on a good starting feed. Feed the starting mash until each chick has consumed 2-pounds. If you start 100 chicks, use 200 pounds of starting feed. Then change to a growing mash. Feed the growing mash until the chicks are 10 weeks of age. The complete starter feed contains 21 to 23 percent protein while the grower feed contains 16 to 17 percent protein. Do not feed grain with either feed.

Vaccinating

Newly hatched chicks are commonly vaccinated at the hatchery to protect them from Marek's disease. Vaccine must be injected under the skin by someone familiar with the procedure.

You should vaccinate your birds for fowl pox. This is a virus disease that causes lower egg production and mortality (death). Many times it is transmitted by mosquitoes. All birds kept for egg production should be vaccinated. Vaccinate between the ages of 8 and 12 weeks. Ask you county agent for information on the proper way to vaccinate for fowl pox.

On large poultry farms, chickens are vaccinated for bronchitis and Newcastle. It is not recommended that you vaccinate for these diseases. Coccidiosis, a protozoan disease (one-cell organism), affects the intestinal tract of chickens. The coccidia flourish in a damp warm place. For this reason litter needs to say dry. Coccidiosis usually occurs in birds 4 to 6 weeks of age. The larger poultry farmers use a coccidiostat in their feed to prevent an outbreak of coccidiosis.

Watch for bloody droppings, one of the first indications of cecal coccidiosis. Infected chicks will have ruffled, ragged looking feathers, will lack energy and will go off feed. At the first sign of these symptoms, get drugs from your feed dealer and treat immediately.

Cannibalism (feather picking) is caused by several things. The most serious cause is not giving birds enough room. Another cause is letting your birds be without feed for a long period of time. To stop feather picking, allow birds more room and debeak. This is done by removing half the top beak with an electric debeaker. Using green feed to keep them busy will help.

Daily Management

The following management practices should be carried out each day:

- **Keep feeders filled only half full. Keep feeders level with the backs of the chickens.**
- **Check the operation of your brooder.**
- **Clean and fill the waterers twice each day. Check for wet spots around waterers.**
- **Check the temperature to be sure your chicks are not too hot or too cold.**
- **Stir the litter and remove wet spots.**
- **Open and close windows as needed to give good ventilation.**
- **Observe your chicks for any unusual condition.**
- **Remove sick birds.**
- **Keep a good set of records. Record forms are in the back of this manual.**

Rearing Project

<u>For Club Members Who Are Keeping Pullets For Layers</u>
The rearing stage of chicks is from 8 to 10 weeks of age, until they start to lay at 18 to 22 weeks of age. The rearing stage is an important period. Provide your pullets with the right kind and amount of feed to make certain they develop into strong, healthy hens.

If you start with straight run chicks, the cockerels (roosters) can be separated for sale or slaughter. Cockerels eat a lot of feed, so get rid of them.

Pullets can be allowed to develop in total confinement or ranging on open grassy areas. Confinement rearing is growing pullets in a house instead of on open range. Allow 3 square feet for each bird. Allow 4 to 5-inches of feeder space per bird. Three 8-foot feeders or four 5-foot feeders will take care of 100 pullets. Provide a 4-foot waterer for each 100 pullets.

Maintain litter as you would in a laying house, 4 to 5-inches. Provide plenty of fresh air.

A pullet needs a complete feed containing about 16 percent protein. Do not mix or offer grain with the complete pullet developer. The addition of grit is not necessary.

A good job of sanitation will prevent many diseases. Keep the pullets away from old hens. Don't allow visitors around your pullets. If pullets get sick, ask your county Extension agent for advice and assistance. Lice and mites are two external parasites that can give you trouble. Check your pullets regularly. If you find these parasites, ask your county Extension agent for advice on how to control them.

Daily Management

- **Clean and fill the waterers.**
- **Don't fill feeders more than half full. Stir and level the feed. Keep feeders level with backs of chickens.**
- **Stir litter if needed. Remove any wet litter and replace with dry.**
- **Check the ventilation.**
- **Remove sick birds.**
- **Keep good records.**

Laying Project

The laying project begins when you move your pullets to the laying house or you get the first eggs. To get the best out of your pullets, handle them properly.

The building that you raised the pullets in can be used for a laying house or you may use another building as a laying house. The sides of the building must be open during hot weather. Cover openings with poultry netting. During the winter, cover the north, east, and west sides of the house. Plastic material can be used for this. The south side is left open for ventilation.

You need one nest for every four pullets. Nests must be at least 12x12x12-inches so that plenty of nesting material can be used. Wood shavings make excellent nesting material. Place nests in the house before the pullets start laying; if not, many will lay on the floor. Floor eggs get dirty and many are broken.

Provide one 4-foot waterer for every 100 birds. It may be an automatic waterer or one that you must keep filled with water. You need 5-inches of feeder space for each pullet or hen. Five 4-foot feeders or six hanging tube-type feeders provide adequate feeder space for 100 hens. A small feeder for oyster shell may aid in producing strong egg shells and maintaining egg production.

The method recommended feeding hens is the complete-feed method. It uses a 16 percent protein layer diet as the only feed offered to the layers. Grain-mash programs may be cheaper, but club members usually do not get the best production with this feeding method.

They often feed too much grain. When the hens eat too much grain, they get fat, are slower in developing, and do not lay as well.

Hens must have the proper amount of light. They require 16 hours of light each day. During the winter this is very important. Determine the amount of daylight and then turn on the lights to provide the needed 16-hour day. For instance, if the sun rises at 6 a.m. and sets at 6 p.m., you have 12 hours of daylight. You would need the lights on for four additional hours. Use a 60-watt bulb for each 200 square feet of floor space. Be sure to supply exactly the same amount of light each day or egg production will drop.

Check your hens regularly for lice and mites. Check with your county Extension agent for the best method of control.

Culling is removing the nonlayers from the flock. This should be done on a regular basis. A nonlayer has a dull shriveled comb and a hard abdomen. The sick and crippled birds are culls and should be removed from the flock daily or as they appear. Information on proper culling can be obtained from your county Extension agent and Publication 358, "Culling Hens."

Eggs should be gathered three times daily. Gather in a wire basket or egg flats. Place in a cool place so that the temperature of the egg is reduced quickly.

When an egg is laid, its temperature is 106 to 107 degrees. An egg left in the nest will not cool when other hens get in the nest. High temperature and dry conditions will cause egg quality to break down rapidly. Store eggs at a temperature of 50 degrees and humidity of 75 percent.

Handle eggs carefully. Cracked eggs do not sell at a high price. Clean eggs soon after gathering. If you have a large number of eggs, you may have to wash some of them. Wash eggs in an egg detergent sanitizer. Keep water at 110 to 120 degrees, and do not leave eggs in water longer than 2 ½ minutes. Pack eggs in clean, cool cartons with small end down. Keep cool at all times. High temperature lowers the quality of eggs.

Most club members with small flocks can sell their eggs locally. Many have regular egg routes. By doing this you can get top prices.

Market eggs daily. Do not hold eggs for a long period of time. This will lower the quality. If you have a larger flock, you can sell to a store or egg dealer.

Strive to sell the best product possible. If eggs are poor quality, a consumer may not buy them a second time. All eggs should be candled. Candling is the method used to see the contents of an egg. A candler is a device with a light inside and a hole through which the light shines. The egg is held at a 45 degree angle at the opening and turned. When the egg is turned in the light, the inside contents of the egg are put in motion so you can see any defects.

Daily Management

- **Clean waterers each day.**
- **Fill feed trough one half full.**
- **Gather eggs three or four times daily.**
- **Keep light bulbs clean and see that hens get 16 hours of light daily.**
- **Ventilate the house in relation to the weather.**
- **Remove sick or unthrifty birds.**
- **Remember, confined hens are easier to manage. You will have fewer dirty eggs and a more uniform yolk color.**

Records

Keep accurate daily records. The record sheet (MCES Form 296) for this project is provided in four parts and can be printed by accessing the website. An additional source for the record sheets is your county Extension office. Also ask for Monthly (MCES Form 183) and Yearly 4-H Poultry Records (MCES Form 184).

By Dr. Tom W. Smith, Emeritus Professor of Poultry Science, Mississippi State University

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