

BROILER PRODUCTION



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BROILER PRODUCTION

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A Big Business

BROILER PRODUCTION is the youngest and the fastest expanding segment of the poultry industry. Broilers now account for over \$1 billion of the \$3.5 billion total annual income from poultry and poultry products in the United States. In Texas, broilers contribute about \$55 million to the annual \$151 million total poultry value.

No other segment of agriculture is as well suited to assembly-line production techniques as broiler production.

By combining good breeding, feeding and management practices, broiler growers can produce a 3-pound bird in 8 weeks on 7 pounds of feed. Thus, it requires less than 9 weeks for a broiler to go from incubator to the table.

Selecting Broiler Chicks

Beginning with a well-bred, healthy chick is essential for profit in broiler production. Your chicks must be genetically capable of growing into quality broilers; otherwise, time, effort and money will be wasted.

Purchase your chicks from a hatchery that produces Pullorum-Typhoid clean chicks.

A study of results of Random Sample Broiler Performance Tests will provide the broiler grower with valuable help in selecting the best strain for his purpose. Your county agricultural agent can have your name placed on the mailing list to receive these reports.

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The following characteristics should be considered when selecting a strain of birds for your broiler house:

Fast growth — 3.25 to 3.50 pounds average for combined sexes at 8 weeks, in accordance with good feed conversion.

Good livability — 97 percent or better.

Good fleshing — blocky meat-type with a well-fleshed breast, characteristic of a Cornish or synthetic Cornish-type cross.

Fast feathering — with no pin feathers at market age.

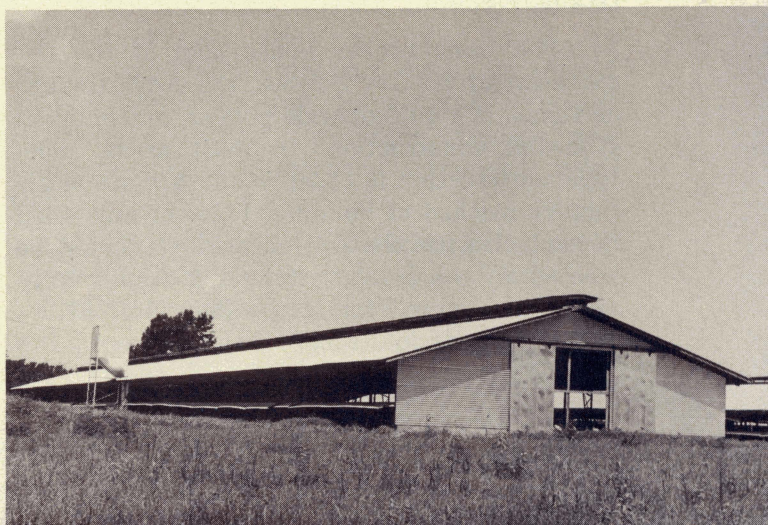
Uniformity — characteristically uniform birds for maximum returns.

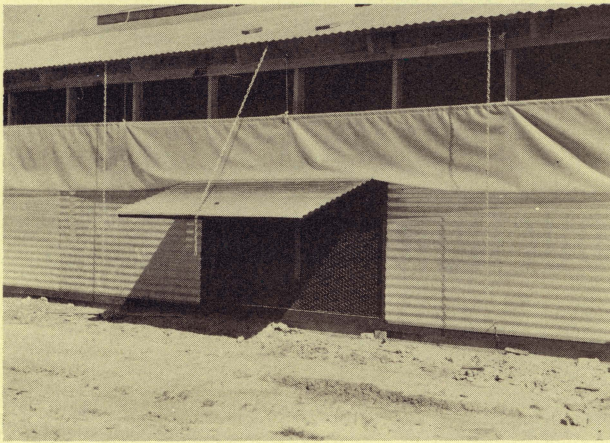
Color — feathers predominately white, especially in undercolor. The skin should be deep creamy-yellow.

Housing

The broiler house should provide comfortable conditions so that the bird can perform at the highest level of which it is genetically capable. A satisfactory broiler house must protect against heat and cold, high winds and

A 10,000 to 12,000 bird house is an ideal size for efficient broiler production.





Panels or translucent plastic curtains which close and open easily when weather varies are helpful in providing comfortable temperatures for the birds. A damper is needed so that ridge ventilators can be closed easily during cold weather.

inclement weather. However, poultry housing costs should be kept within a range whereby earnings can justify the investment.

Location

Orient the house with the long axis running east and west to prevent the early morning or late afternoon sun from shining directly into it.

Locate the house in an area with good water drainage and air movement. The building site should be elevated 6 to 10 inches above the ground level by fill dirt. The broiler house should be located in close proximity to water supply, good roads and available markets.

Type

Broilers raised in houses 40 feet wide or less have fewer respiratory complications than broilers raised in wider houses, according to recent research.

The basic broiler house plan of the Department of Poultry Science, the A&M College of Texas, is a 40-foot-wide pole or conventional stud-wall construction. In most areas, pole-type construction is cheaper and a more satisfactory method of building. Poles or any wood in contact with the soil or manure should be treated with a preservative. Ask your county agricultural agent for House Plan No. 387.

Size

A 10,000 to 12,000 bird house is considered an ideal size for efficient broiler production. One man with two of these houses, mechanically equipped, can produce 100,000 to 120,000 head per year in five broods. Without mechanical feeders (now considered a must), but with mechanical waterers, a grower can properly care for only one house and produce 60,000 broilers per year in five broods. These figures do not include the labor required to clean and disinfect the houses between broods, to ready the house for new chicks, to debeak or vaccinate the birds, nor to catch and load the birds at market time.

Floors

Floor construction usually consists of dirt remaining after the site for the broiler house has been raised with 6 to 10 inches of soil and leveled. The cost of a cement floor discourages its use in a broiler house.

Ventilation

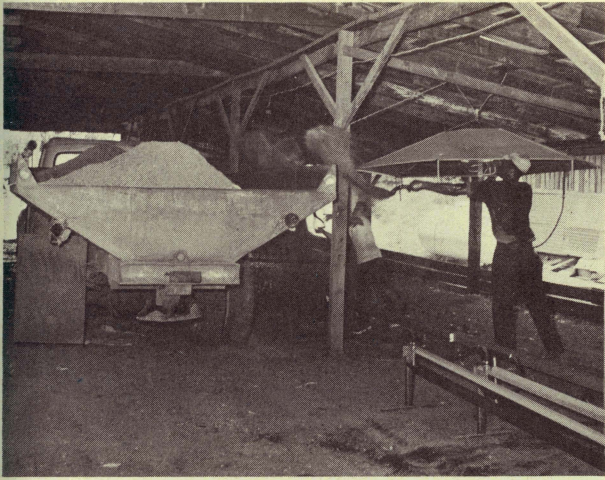
Performance in a house with gravity-type ventilation varies with climatic conditions. Experience indicates that continuous ridge ventilators are more satisfactory than individual vents. However, there should be some type of damper so these vents can be easily closed during the cold weather, particularly while the chicks are young.

Allow for complete openings at two levels in the sidewalls along the length of the house, at or near the floor and near the eaves of the house. Panels are necessary for closing or opening the houses as the weather varies.

Ventilation in the broiler house requires constant attention, especially during winter and spring months. Quick changes in the weather demand prompt adjustments of the ventilation panels or windows. During cool weather, the wall openings should be adjusted, allowing enough air movement to keep the litter dry, but at the same time avoiding excessive drafts which chill the birds.

Roof and Siding

Aluminum or galvanized iron for covering the roof and walls is recommended. Both can be purchased in sheets of varying lengths. The



The wise poultryman always cleans the broiler house and removes old litter between broods.



Disinfect the house with a 3 to 5 percent cresol solution, using a power sprayer.

longer lengths save material and labor and add to the strength of the building. The siding at the lower levels should be protected because of the corrosive action of uric acid in poultry manure.

A study of poultry houses damaged by high winds indicates two construction weaknesses — insecure fastening of the roof to the studs of the side wall, as well as studs to the foundations. The use of 20 percent more nails in houses reportedly increases the rigidi-

ty of their wooden frames as much as 50 percent.

Premises

When the broiler house is completed, the area around it should be seeded with grass. This adds to the appearance and keeps dust to a minimum. An area covered by grass tends to be cooler; however, frequent mowing is recommended to prevent grass and weeds from obstructing the air movement through the floor line ventilators.



Mechanical litter removers now are available. This machine can load a 2,500 pound fertilizer spreader in 2½ minutes.

Sanitation Before Chicks Arrive

Thoroughly clean ceiling, rafters, walls and floor of the broiler house between broods. Wash the inside of the house with a pressure hose before you remove the old litter. This prevents the floor from becoming muddy and reduces the dust when removing the old litter.

After the house is clean, it should be disinfected with a solution containing 3 to 5 percent cresol. The disinfectant should be applied with a power sprayer. Repair and scrub all equipment, disinfect waterers, feeders and brooders with a quaternary ammonium solution.

Provide clean litter 3 inches deep; wood shavings, cane litter and peanut hulls are among the common materials used. One bale will cover 70 to 100 square feet about 3 inches



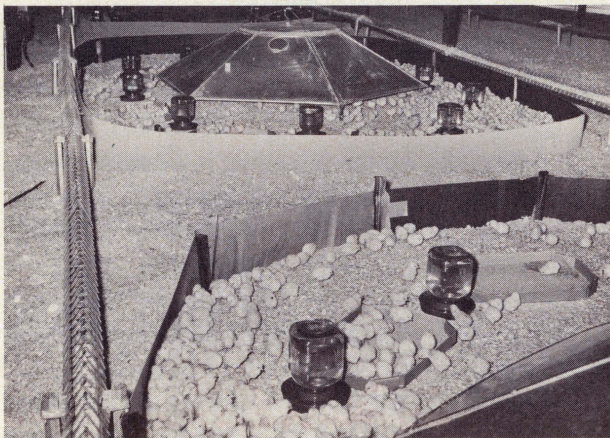
Provide clean litter 3 inches deep; wood shavings, cane litter and peanut hulls are among the common materials used.

deep. Avoid using moldy or musty litter to prevent a mold growth in the respiratory tract commonly known as "brooder pneumonia."

Litter is necessary for maintaining sanitary conditions, and its cushion-like quality prevents breast blisters. During winter months, litter needs frequent stirring to prevent hard and damp spots which cause breast blisters on the birds.

Floor Space

Overcrowding significantly reduces the growth rate of broilers. For the most satisfactory results, allow 1 square foot per bird, March through August, and $\frac{3}{4}$ square foot per bird, September through February. Large broiler houses should be divided into pens con-



Distribute chicks around the brooder with no more than 500 under one hover.

taining 3,000 to 5,000 birds each. Removable wire partitions on 1 x 4-inch frames, 4 feet high, can be used to divide the house for easier handling of birds and better growth rate.

Brooders

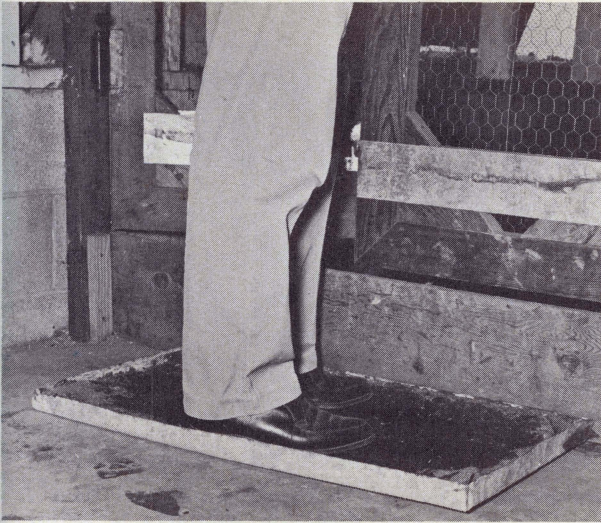
Brooders, whether gas, oil or electric, should have sufficient heating capacity to maintain comfortable temperatures in the coldest weather. Allow 10 square inches of hover space per chick. With these spacings, a 6-foot hover will accommodate 400 chicks.

To prevent chicks from straying from food, water and heat, set up a brooder guard 4 feet from the edge of the hover. In warm weather, this guard ring should be made of wire, and removed after the first 4 days.

When the temperature drops below 70 degrees F., you can use various types of solid material (rolled cardboard, building paper) to encircle the brooder. After the first 4 days, move the guard rings back 2 to 3 feet for 3 days before removing them.

All equipment should be in place with brooders operating at least 24 hours before the chicks arrive. Brooders should be operated at a temperature of approximately 92 to 95 degrees F., at the thermostat or at the recommended location of the manufacturer's thermometer. The thermostatic range of each brooder should be checked to allow a maximum temperature spread of 5 degrees. Lower the thermostatic temperature about 2 degrees every 3 days until 70 degrees F. is reached and the chicks are well feathered. Under vaccination and disease stresses, additional heat usually is desirable. Use a thermometer to determine temperature adjustments needed for chick comfort. If you depend upon your observations of chick behavior to make needed temperature adjustments, much of the damage will be done before you realize the chicks are in trouble.

Before chicks arrive, fill the waterers and feeders and put the guard rings in place. Distribute chicks around the brooders, with no more than 500 chicks placed under one hover. If undisturbed, chicks will settle quickly and be off to a good start. Never put chicks down after 4 p.m. It is much better to leave them in the chick boxes overnight.



Disinfect soles of shoes by stepping on a pad soaked with disinfectant held in a shallow pan.



Chicks soon learn to use mechanical waterers and feeders. Adjust troughs to shoulder height of birds.

Lights

Provide artificial, all-night lights throughout the growing period. Twenty-four hour lighting improves feathering and increases feed consumption, especially during the summer months. Enough light for 1-foot candle at floor level over the entire house is recommended. This is provided by using clean 60-watt bulbs with shallow-dome reflectors, 7 feet above the floor and spaced 14 feet apart.



Clean waterers daily and disinfect them weekly.

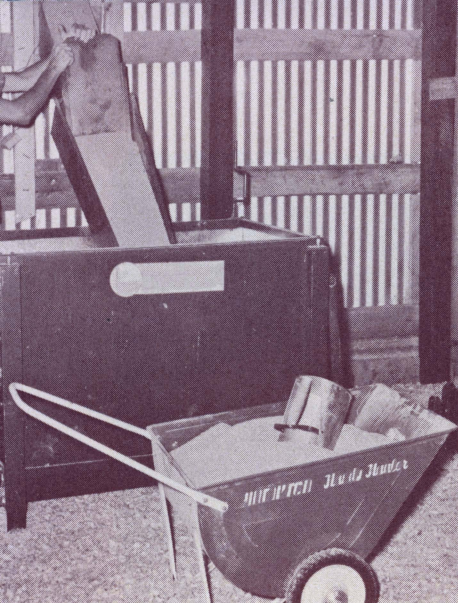
Sanitation After Chicks Arrive

1. Clean waterers daily and disinfect them weekly.
2. Discourage visitors from other poultry farms because of possible disease threat.
3. Disinfect soles of shoes by stepping on a pad soaked with disinfectant maintained in a shallow pan.
4. Keep chicks of only one age together. Never let chicks come in contact with old hens. If possible, have chicks of only one age on the farm at a time.

Waterers

Broilers need plenty of cool, clean water (70 degrees F.). In cool weather, broilers will drink 2 pounds of water for every pound of feed consumed. In hot weather, this ratio may increase to as much as 4 pounds of water to 1 pound of feed. Research indicates that if birds have to go farther than 10 feet for water, they do not make the economical gains that those do having the waterers closer to the feeders.

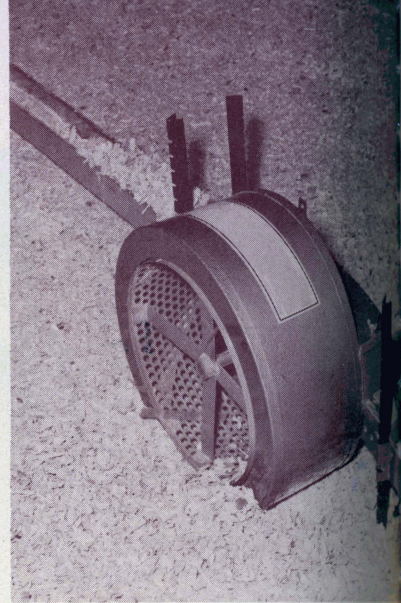
For the first 10 days, supply water in clean, 1 gallon, wide-based water fountains. Allow two fountains per 100 chicks. After 10 days, begin adding the regular automatic waterers. Move the fountains gradually toward



Bulk feed bins provide substantial savings in labor.



Mechanical feeders are essential in larger broiler operations.



An automatic litter remover also will result in considerable saving of feed.

the mechanical waterers. Remove the fountains as the chicks learn to use the automatic waterers.

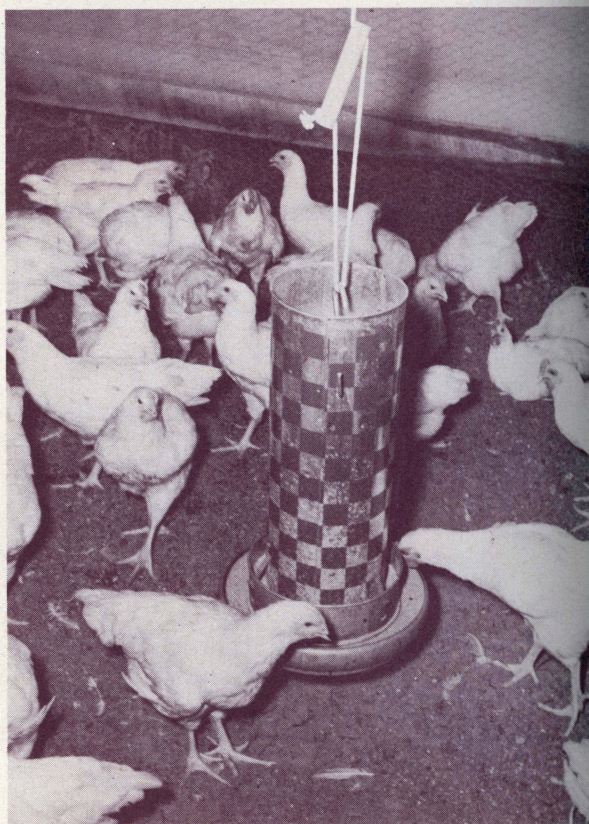
Five 8-foot mechanical waterers per 1,000 birds, or 1 linear inch of drinking space per bird is recommended. *Distribute the waterers evenly over the floor area.* Keep the height of the water troughs adjusted to the shoulder height of the average bird in the house. This keeps debris out of the water troughs.

Feeders

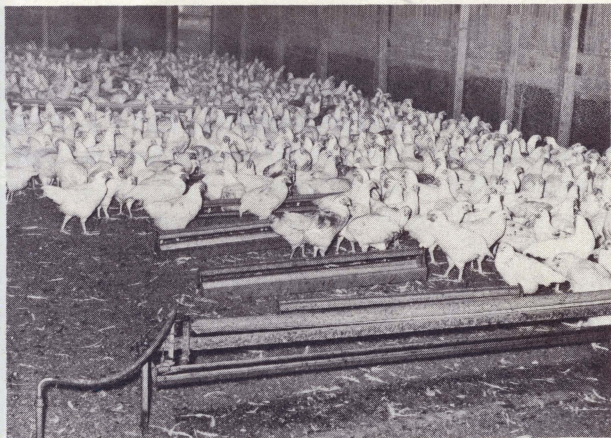
Bulk feed bins and mechanical feeders provide substantial savings in labor. They should be operated according to the manufacturer's recommendations.

Baby chicks should begin eating from chick box lids at floor level. If you are going to use mechanical feeders, feed the birds from these chick lids only until the birds become accustomed to eating from the automatic feeders. Usually, this is less than 2 weeks. Begin with the mechanical feed trough at ground level. However, if you are going to use regular trough feeders or tube feeders, place a few on the floor inside the brooder guard when the chicks are put down. After 4 days, remove the box lids and reduce the feed level of feeders to one-half full. This prevents waste by "billing." All broiler feeders should have a lip to deflect feed "billed" by the birds. As the birds grow

larger, elevate the edge of the feeder to the shoulder height of the average bird in the flock. This lessens the feed waste and keeps litter out of the troughs. Feed troughs should be kept level.



Tube feeders are the most efficient type of hand feeders.



Trough feeders, such as these, require additional labor.

Feed represents about two-thirds of the cost of producing broilers; therefore it cannot be wasted.

Feed trough recommendations:

| Age | Feed space per bird (inches) |
|-------------------|------------------------------|
| Through 2 weeks | 1 |
| 3 through 6 weeks | 2 |
| 7 weeks to market | 3 |

Debeaking

Removal of a portion of the bird's beak is the only effective way to control cannibalism. Debeaked birds show significantly better feed conversion, market grades and livability than nondebeaked birds.

The two most popular ages for debeaking broilers are 1 day and 10 to 14 days of age. Most research has shown that differences in growth between birds debeaked at 1 versus 10 to 14 days of age are slight, if any. However, most growers feel that stresses are less if birds are 10 to 14 days of age before they are debeaked.

Several methods of debeaking are in general use. In block debeaking, one-third of both the upper and lower beak is removed. A second method is removing two-thirds of only the upper beak. Another way is to remove one-third of the upper beak and the tip of the lower beak. The first and second methods are used only on 1-day-old birds, whereas the third method is used mainly on older birds.

For 1-day-old or 10-day-old birds, a special attachment should be applied to regular electric debeakers to prevent removal of too much beak. You may also use an electric shear-type machine which removes the beak with its sharp blade, but does not cauterize the end of the beak. When debeaking 10-day-old birds, use a debeaker that will cauterize the cut to prevent excessive bleeding and death.

Health

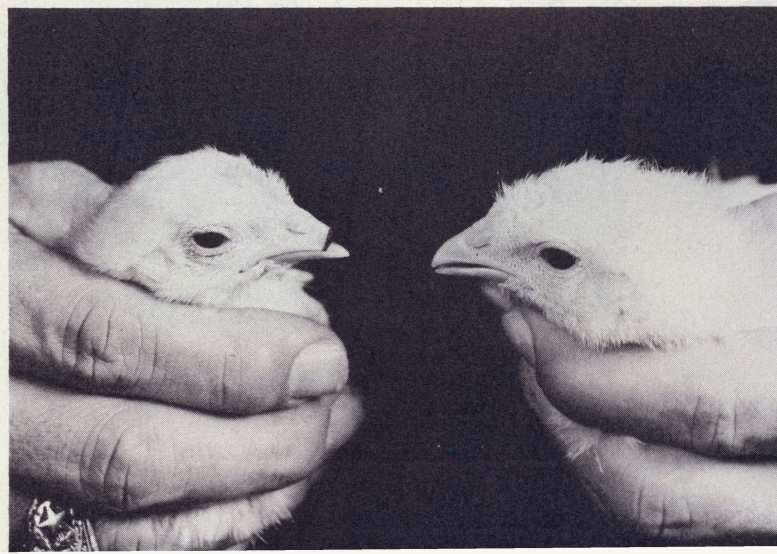
Livability of 97 percent or better is required for best results. A vaccination program is necessary to help control infectious bronchitis and Newcastle diseases.

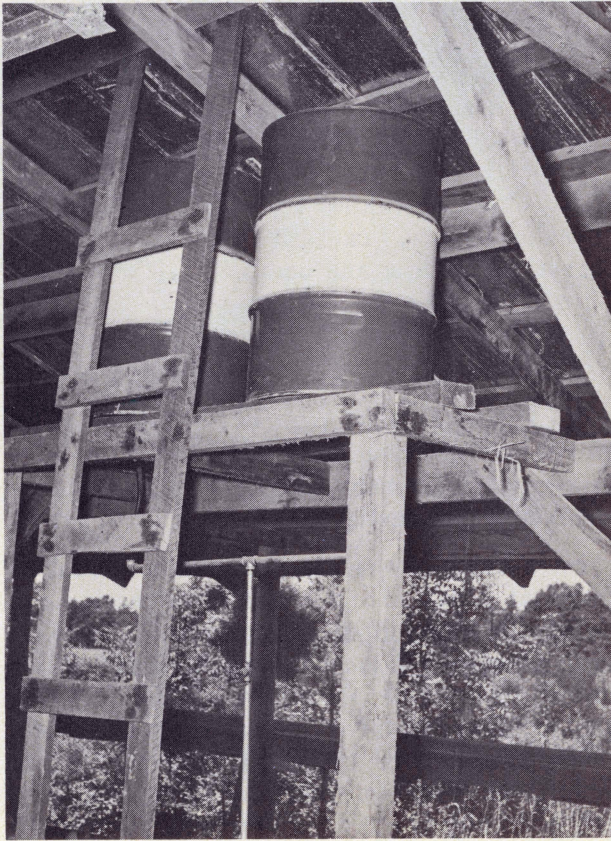
Intraocular Newcastle vaccination should be given at 1 day of age. Newcastle vaccine can be administered in drinking water; however, birds should be 7 to 10 days of age. Infectious bronchitis vaccine should be administered in the drinking water 10 days after the Newcastle vaccination. Although it is possible to administer the two vaccines in combination, the immunity is not as effective as when given separately.

At the time of vaccination, increase the brooder heat a few degrees to prevent birds from becoming chilled. Ask your county agricultural agent for a copy of L-241, *A Suggested Vaccination Program for Chickens*.

If you have a decline in feed consumption, or if birds show any signs of an "off" condition, get a prompt, qualified diagnosis by a poultry diagnostician and begin corrective treatment immediately.

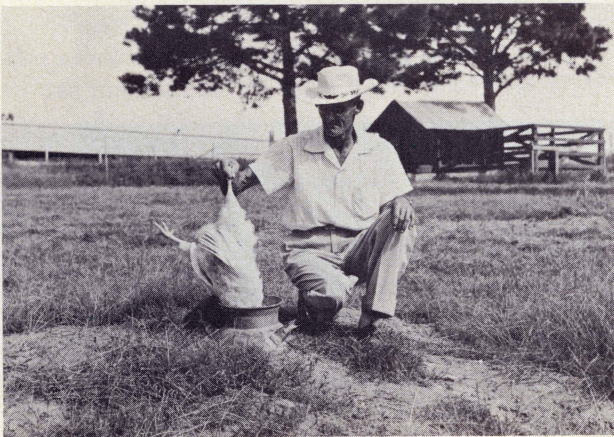
Removal of a portion of the bird's beak is the only effective way to control cannibalism.





Medication barrels are useful in administering water vaccines and other water-soluble medicants.

Use a pit to dispose of dead birds. A 100 cubic foot pit will take care of the normal mortality of a 10,000 broiler flock. Ask your county agricultural agent for a copy of L-401, *Poultry Disposal Pits*.



Use a pit to dispose of dead birds.

Feeding Broilers

You should full-feed broilers continuously to obtain early market weights. The use of a broiler prestarter is recommended for the first 2 weeks. This is a high protein formula further fortified with 100 to 200 grams of antibiotics or a combination of antibiotics per ton. The high-protein formula gets the birds off to a rapid start and builds body reserves for the later stages of the growing period. The starter is used from the time the broiler prestarter is discontinued until the end of the fifth or sixth week. The starter has a slightly lower level of protein and higher level of energy than the prestarter. In the broiler finisher fed from the fifth or sixth week until marketing, the protein level is decreased 2 to 3 percent and the energy content again is increased to finish the birds as quickly as possible.

Pigmentation continues to be a problem in broiler production. Research indicates a high level of pigmenting feeds is not necessary until the finishing period, which begins 3 weeks prior to marketing. Dehydrated alfalfa meal, corn gluten meal and yellow corn are the most effective ingredients available for pigmentation of broilers. Not more than 2 or 3 weeks are required for the broiler to assimilate sufficient pigments from the feed and deposit the yellow color in the fat immediately under the skin.

During summer months, feed conversion is considerably better. This means it takes less feed to produce a pound of gain in warm weather than in cold weather, even though summer birds are somewhat lighter in weight. During cold weather, an extra amount of feed is required to maintain body temperature. Therefore, in cold weather, it pays the broiler grower to keep his brooder heat on after the birds are 6 weeks of age and well-feathered. Supplying birds with external heat is cheaper than providing extra feed.

Feed Conversion

A commonly used figure to evaluate good broiler management is "pounds of feed per pound of gain." This figure is calculated by dividing the total pounds of feed consumed by the total weight of broilers marketed.

Catching Broilers

Of all the phases of broiler production, broiler catching has changed the least. Broilers are still caught in groups of four and placed in coops. Birds should be caught and handled by the lower part of the shank. This must

take place in a completely darkened house unless blue lights are used. Although broiler catching is considered a menial task by most growers, the effects of improper handling are significant on the final market grade. Bruises caused by rough handling account for considerable loss of profit.

ACKNOWLEDGMENTS

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