

Modern vs Traditional Poultry Production

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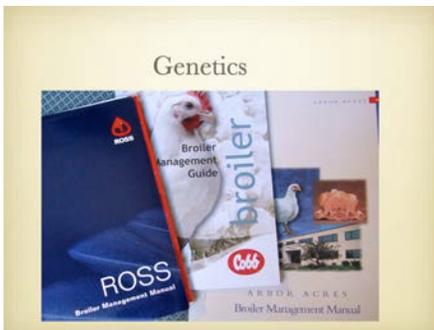
There has been remarkable progress made since 1963 in poultry production. Broilers in 2013 can achieve 5.5 lbs in 42 days with a feed conversion of 1.7:1, Layers now produce 350 eggs in 80 weeks. Turkeys may weigh 35 lbs or more in 20 weeks vs only 15 lbs in 1963, 50 years ago.

Remarkable Progress

	1963	2013
Broiler (42 days)	2.5 lbs	5.5 lbs
Feed Conversion	2.8 : 1	1.7 : 1
Layer (80 wks)	270 eggs	350 eggs
Turkey (20 wks)	15 lbs	35 lbs

How did this remarkable progress happen?
It happened as a result of improved:

- 1) Genetics,
- 2) Feed & nutrition,
- 3) Management



Management has had a major role in advancing poultry production. Housing in tunnel ventilated buildings, cooling pads, and fans result in reducing the temperature in the house by 10 to 15 degrees F.

HOUSING

RECYCLING COOLING PAD

MODERN TUNNEL VENTILATION

WATER COOLING PAD

FANS FOR VENTILATION

10 TO 15 DEGREE DIFFERENCE

The cool temperatures have enable an increase in stocking density to 17 birds per sq. meter. Reduced lighting, 10 lux, make birds very calm. The overall expectations with modern housing is to achieve a 1.71 feed conversion on a 5.5 lb. bird in 42 days with less than 3.5% total mortality.

STOCKING DENSITY

1.6 birds/sq.ft.
or
17 birds/sq.mt.



Dim Lighting (10 lux)



The electrical installation is elaborate with numerous automatic controls to alert anyone of a power failure. A power failure could result in a major catastrophe. Thirty thousand birds could become asphyxiated in just a few hours. Therefore there is a need for a stand by generator.

ELECTRONIC CONTROLS



STANDBY GENERATOR



The methods of vaccination have taken a major stride forward. Birds are no longer vaccinated as baby chicks, but rather the egg is vaccinated. When eggs are moved from the incubator to the hatcher at day 18, they are first vaccinated. No egg escapes vaccination. The Inovoject machine uses 60 needles to simultaneously penetrate the incubating egg precisely in the air cell of the egg

MODERN VACCINATION

THE INOVOJECT® EGG INJECTION SYSTEM:
SETTING THE NEW WORLDWIDE STANDARD



The Inovoject® system transfer table automatically removes eggs from the flats and places them in hatching baskets following injection.



The Inovoject® system consistently, accurately and gently inoculates 20,000 to 50,000 eggs per hour depending on machine configuration.



There has been an improvement in the transition from the egg to the chick. First, at the breeder farm, eggs are collect, disinfected, and boxed for shipment.

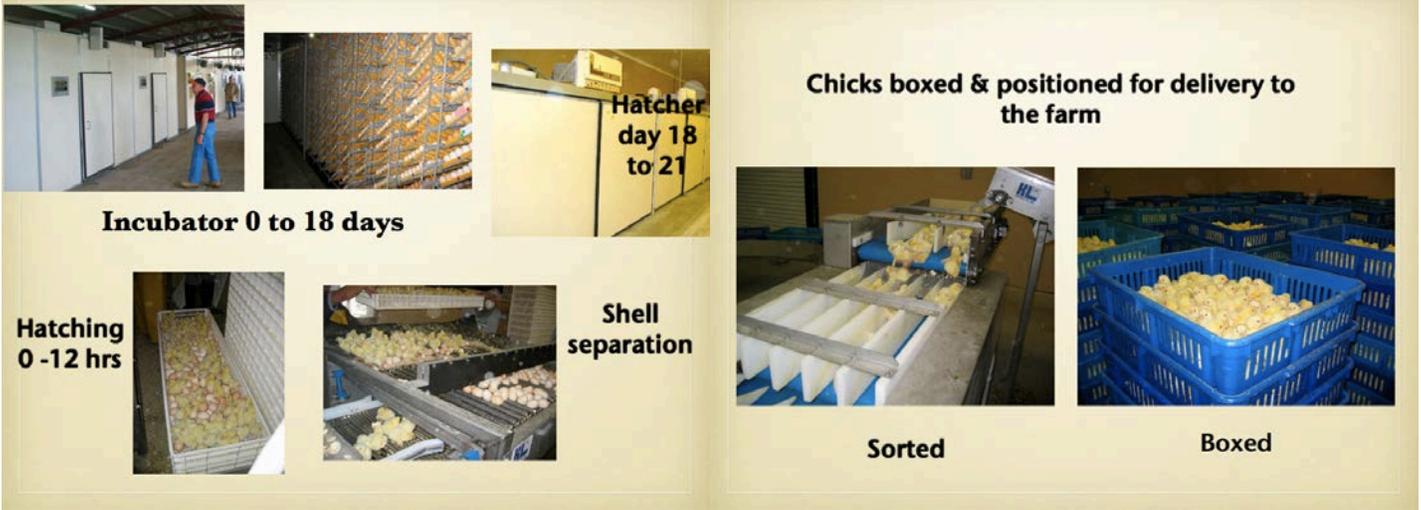
**Transiting from
egg to chick**



**Breeder
Farm**



Boxed



Once the chick leaves the egg the chick faces a problem due to the lack of water, feed and varied temperatures during delivery. As a result, a hydrating powder has been developed to provide the chick with water as soon as possible. Another innovation has been the use of chick paper in starting birds. The goal is to achieve a full crop of feed in the chicks within the first 48 hours.

**No food
No water
Varied temperature
2 to 48 hrs**

Result.....uneven, slow growth, mortality

Hydrating Powder, 10 gm

➔ **Plus 100 ml water**

After 3 hours

Goal

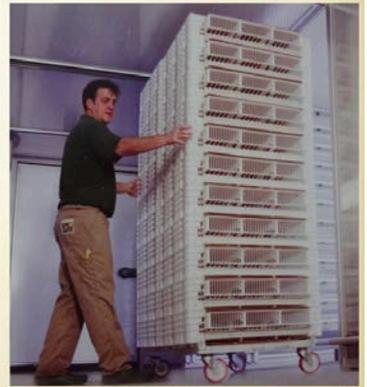
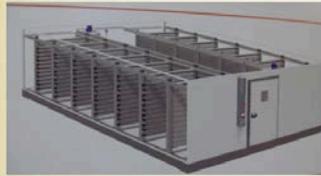
After Placement	Percent Crop Fill
2 hrs.	75%
12 hrs.	85%
25 hrs.	95%

1. Paper attracts chicks
2. Promotes water & feed intake
3. Lowers 1st week mortality
4. Chicks weigh +10 grams at 7 days

Another innovation has been developed by a European company, Hatchbrood. Baby chicks are put into a cabinet. The cabinet looks much like an incubator. One hundred chicks are placed in a box and boxes are stacked into a rolling dolly. The dollies are rolled into a cabinet. Inside the cabinet, the chicks have an light, water and a tinny 2mm feed pellet available. The benefit after one week inside the cabinet is a baby chick with at least 10 grams more weight and a great deal of resistance.

HATCHBROOD

BROODING CONTROL



Pelleted Feed (2 mm)

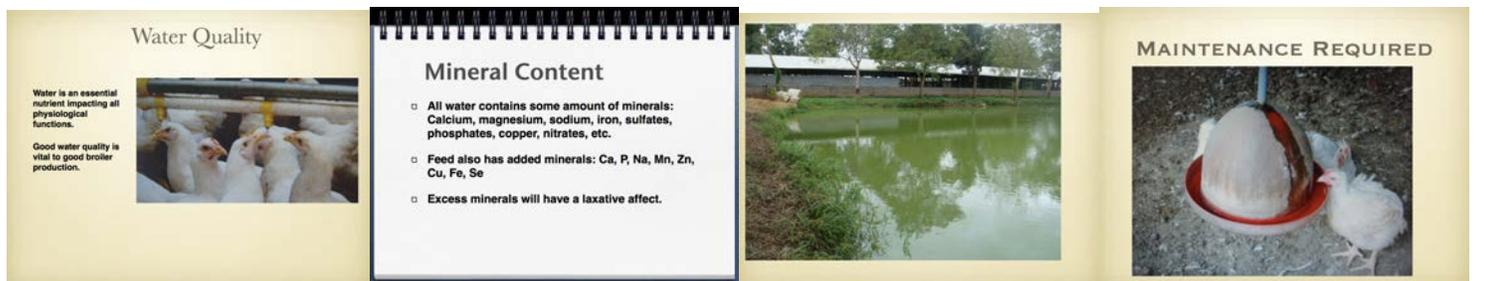
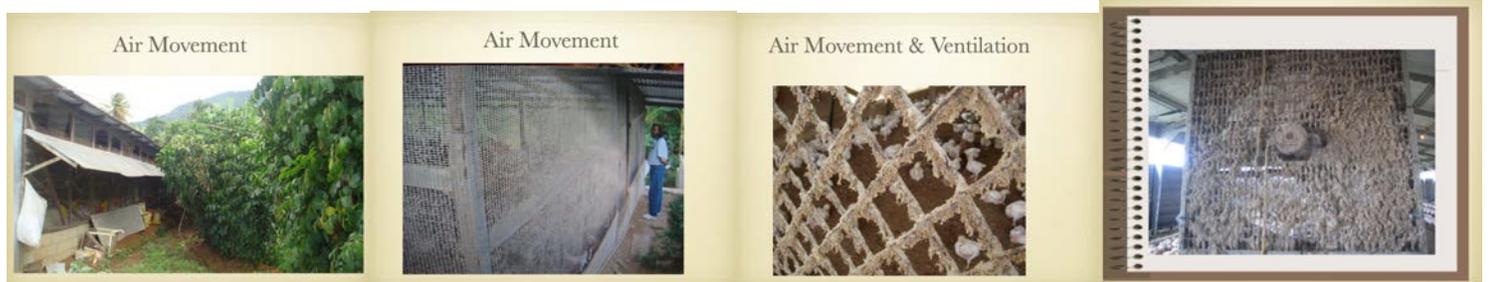


Remarkable Progress

	1963	2013
Broiler (42 days)	3.0 lbs	5.5 lbs
Feed Conversion	2.8 : 1	1.7 : 1
Layer (80 wks)	270 eggs	350 eggs
Turkey (20 wks)	15 lbs	35 lbs

The remarkable progress over the last 50 years has been due to advancements in genetics, feed, nutrition, and management.

What do all these advancements have to do with traditional poultry production in the Caribbean? The Caribbean poultry producer has no control over the genetics of the bird, no control over the feed or nutrition. How can the Caribbean poultry producer benefit from these costly advancements? The answer is **MANAGEMENT**. The Caribbean poultry producer has control over the management of his birds. He controls the air in the house, the water, the litter, the space per bird, the light, equipment such as waterers, and feeders. In addition, the producer has control over sanitation and security.



Air should move through the house without obstructions like trees and foliage. The wire and fans should be free of accumulated dust.

Water quality is important. The natural mineral content along with minerals in the feed as well as supplemental electrolytes in the drinking water could result in excess minerals and wet litter. If water is being used from a pond and where waterers are not cleaned, water should be treated with chlorine, or household bleach, 2.5 quarts per 2,500 gallons of drinking water. Test strips to measure the chlorine in the drinking water are an easy measurement. A more precise measurement is to use an oxidation-reduction meter that takes into account an adjustment for pH.

Litter quality is very important and can be from a variety of sources such as wood shavings, wood sawdust, or even sand. Sand makes a good quality litter. Some caution with wood shavings and sawdust is the possibility that it may have been from treated lumber. Some wood treatments are toxic chemicals and can intoxicate poultry. Nervous symptoms from litter poisoning may appear like a vitamin E deficiency.



Litter needs to be maintained. If it is matted down due to leaking waterers or diarrhea from the birds, the litter needs to be removed. Crusted areas can easily be maintained even with birds in the house with a garden rototiller. Where litter is not well maintained, ammonia in the air damages the lungs of the birds as well as causing painful burns on the bottom of their feet.



Over crowding should be avoided, both in broilers and layers. Layers need to have sufficient nests.

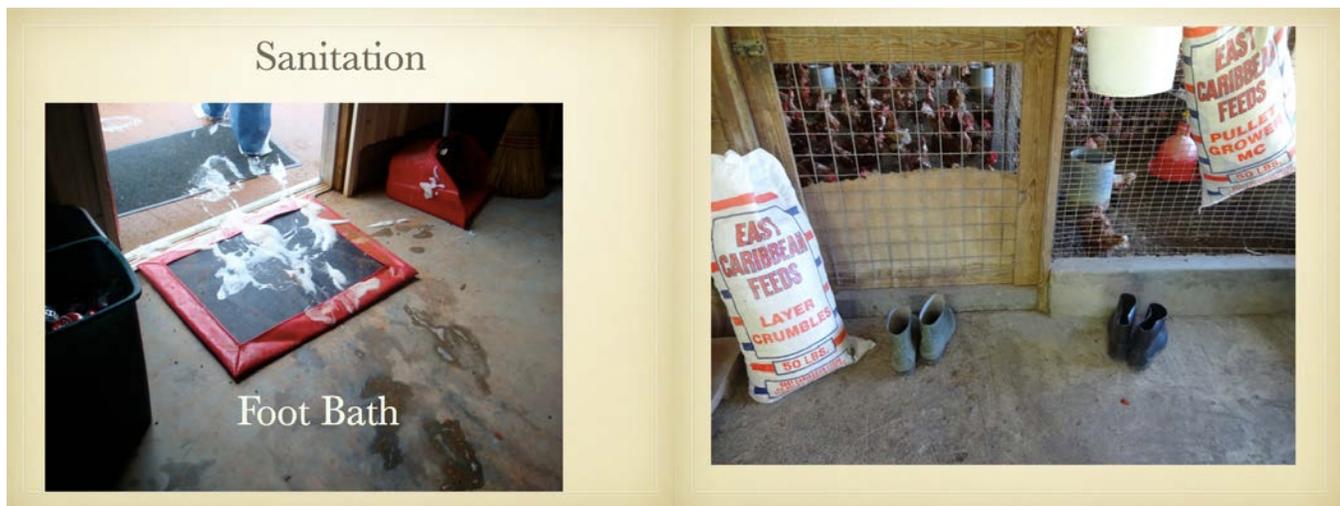


Lighting as a great influence on production. There is a difference in the types of lights. LED lights are the newest types of lights and preferred for poultry. Although they are the most expensive, they also last over 30,000 hours.

A growing bird needs some hours of darkness to provide for the development of their immune system. The system of 24 hours of light to encourage feed consumption at night does not increase growth. On the other hand, it causes a defect in the immune system, slower growth and a damaged intestine. The period from 7 days to 21 days is the most important for the development of the bird's immune system. During these critical 14 days, birds should have only natural daylight.

<p>WHAT TYPE OF LIGHT BULBS WORK BEST FOR POULTRY.....?????</p> 	 = 1,000 hrs  = 10,000 hrs  = 30,000 hrs	<p>Basic Lighting Program (open side houses)</p> <ul style="list-style-type: none"> • Day 1 to 724 hrs light • Day 7 to 21.....no light at night • Day 28 to market...24 hrs light 
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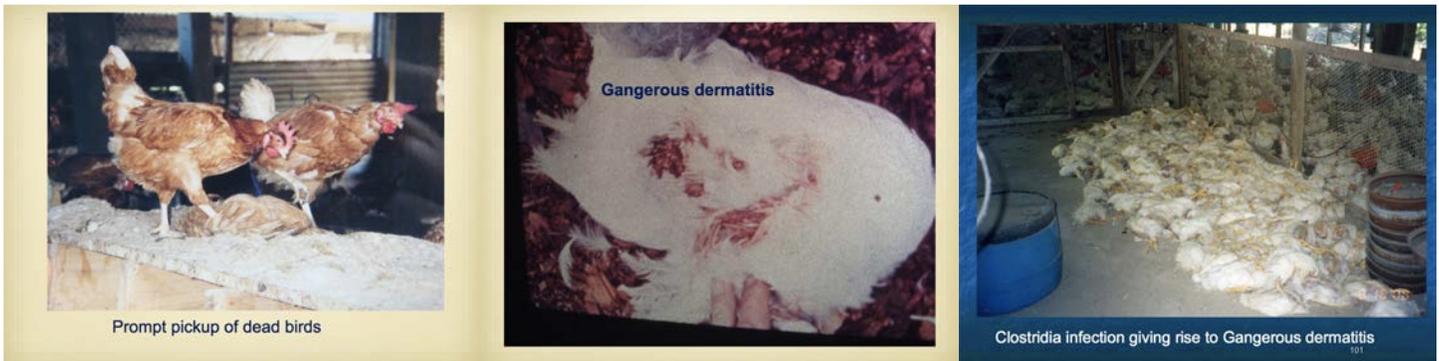
Sanitation is control by the poultryman. A foot bath at the entrance of a pen is recommended, however, a simple set of boots at the entrance works well. Put these boots on before entering the pen and use them only inside the pen and never elsewhere on the property.



Parasites are a constant problem. Round worms are mostly a layer problem, although may infect broilers as well. Broilers should be treated with Piperazine at the first sign and then treated again 10 days later. Layers should be treated at 16 weeks of age and again at 18 weeks prior to lay. Tape worms should be treated with Fenbendazole. Coccidiosis should be treated with Amprolium.



Prompt pickup of dead birds is essential. Dead birds can seed the litter or ground with a pathogenic strain of Clostridia bacteria. Once imbedded in the litter the Clostridia bacteria is very difficult to irradiate. It can lead to gangerous dermatitis and may cause a devastating late mortality.



Darkling beetles are another problem needing management control by the poultryman. The darkling beetle is a potential carrier of viruses such as Marek's, Fowl Pox, and Bursal Disease as well as bacteria diseases such as E. coli, Salmonella and Aspergillus. A proper insecticide specific to control of darkling beetles should be used immediately after the birds vacate the premises. Don't wait until the next day as the beetle will hide deep in the grown as soon the birds leave and insecticide application will have no affect. The house should be sprayed the same day the birds leave. Spray especially under the waterers, feeders, cracks and edges of the walls.

Darkling Beetle

A Huge Industry Disease Threat

Darkling beetle adult (Photo by Aubree Roche)

Rotate between classes

<p>1) Pyrethroids Cyfluthrin (Crush) Cyfluthrin (Tempo) Cyhalothrin (Karate)</p> <p>3) Organochlorides DDT</p> <p>5) Inorganic Boric Acid</p>	<p>2) Organophosphates Pirimiphos (Actellic) Chlorpyrifos (Pyrofos)</p> <p>4) Neonicotinoids Imidacloprid (Credo)</p> <p>6) Biologicals Spinosad (Bacillus thuringiensis)</p>
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Areas of Concern

- Along the walls
- Under the feeders
- Under the drinkers
- Along the outside wall
- Any cracks or crevasses

Feeders and drinkers should be properly adjusted.

Equipment

Wild birds should be kept out with proper wire mesh. Wild birds not only rob from the feeders they can carry major diseases.

Temperatures during brooding need to be monitored at the chick level. Where chicks are chilled or placed on damp litter, the results can be devastating and hundreds of baby chicks can be lost.



Here are examples of well equipment and modestly equipped naturally ventilated open sided houses.



Thus, the poultry producer controls management: Air, Water, Litter, Space, Light, Equipment, Sanitation, and Security. Now, managing the feed by feeding the right feed at the right time is under the poultry man's control as well.

Pullets should be weighed starting at 4 weeks of age and the timing to switch to the next feed is made on based on their weight. If at 6 weeks, according to the layer guide, the birds are under weight, the birds should remain on the Starter feed. Likewise, if they are underweight at 12 weeks, they should remain on the Grower feed. In warm climates pullets unlikely will have need of a Developer.

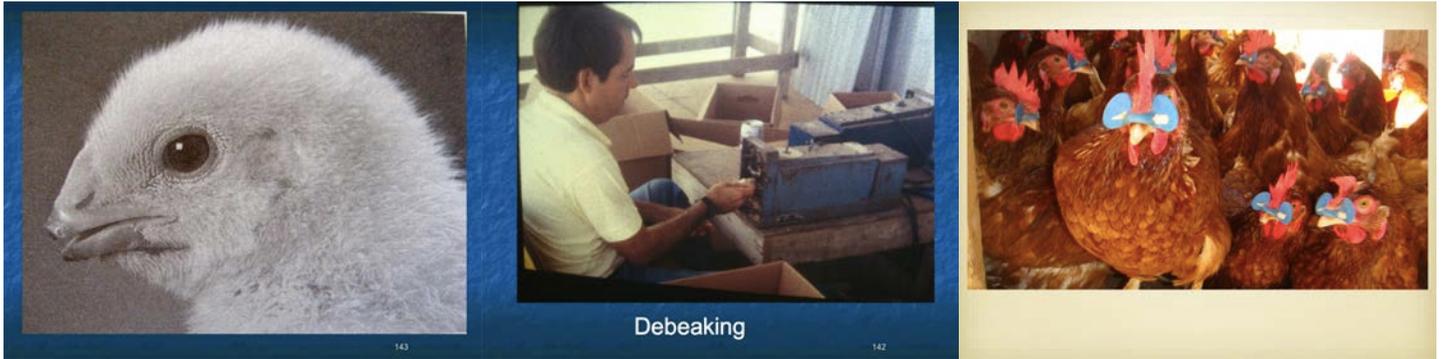
Layers during peak production should be fed a 17% protein ration. After 40 weeks or when layer egg production falls below 80%, a savings in feed cost can be made by switching to a 15% protein diet.

<p>Basic Feeding Program</p> <ul style="list-style-type: none"> <input type="checkbox"/> Starter - 0 to 6 weeks <input type="checkbox"/> Grower - 6 to 12 weeks <input type="checkbox"/> Developer - 12 to 18 weeks <input type="checkbox"/> Pre-Lay (Layer 17%) - to 5% production 	<p>Start Weighing Birds at 4 weeks of age</p> 	<p>Phase Feeding</p> <ul style="list-style-type: none"> <input type="checkbox"/> Peak of lay: 24 to 40 weeks (17% protein) <input type="checkbox"/> Post Peak: >40 (15% protein)  
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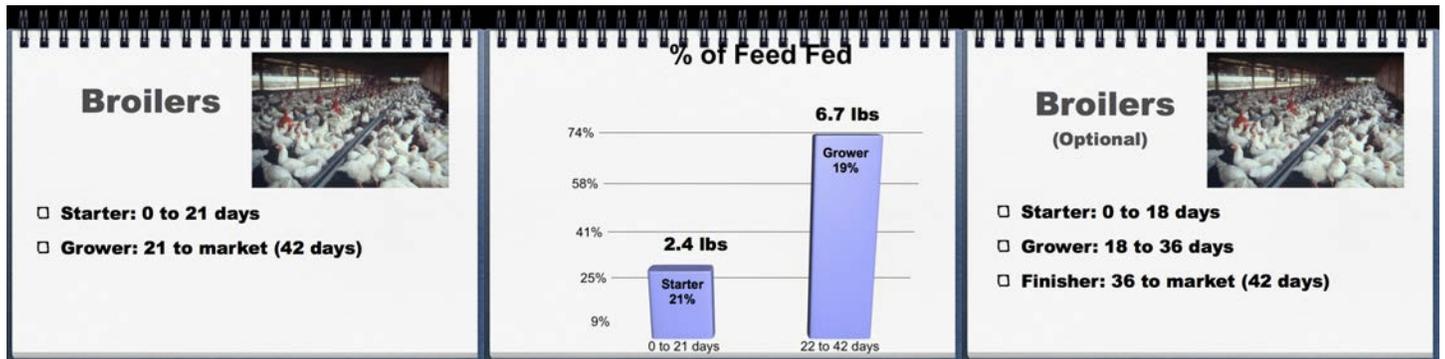
The percent protein as well as the percent calcium in the feed depends on consumption. It is important to know the consumption of feed per bird. Whether the layer bird is eating 100 grams, 105 or 110 grams per day is important to know so as to make the right decision as to which feed to use.

One should expect to attain a 90% livability, a feed conversion of 3.5 lbs of feed per dozen eggs and at least 350 eggs per layer in 80 weeks.

Pullets should be debeaked at 7 days. If necessary they can be debeaked again at 7 weeks. In either case the beaks should be trimmed so as to barely cauterize the lower beak and slightly more the upper beak. The upper beak should not be chopped too far or it can affect the birds ability to feed itself. Properly done there is no need to place “spectacles” on each bird although it does not harm.



Broilers can be feed a 2 or 3 feed program. The 2 feed program uses Starter for 3 weeks followed by Grower to market weight. A 3 feed program uses Grower from 21 days to 36 days followed by Finisher to market. Expectations are less than 5% mortality at 42 days of age, a feed conversion of 1.85 and a weight at 42 days of 4.6 lbs.



The purpose of feed is to convert feed into eggs efficiently or broiler meat efficiently. Scarce money spent on feed should be carefully measured so as to get as much as possible from every pound of feed.

