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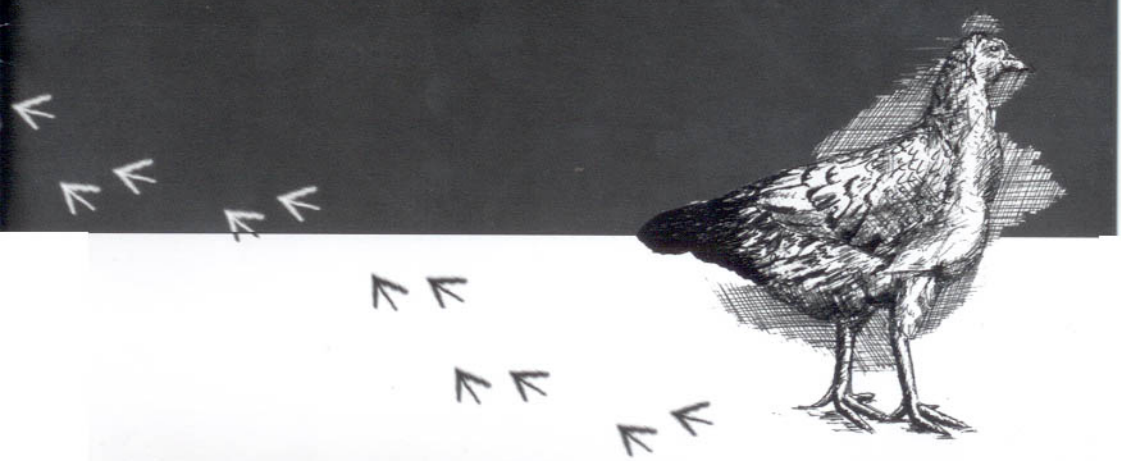
UPLAND HOLISTIC DEVELOPMENT PROJECT

BACKYARD CHICKEN PRODUCTION USING LOCAL BREEDS

Sustainable Agriculture for the Golden Triangle Uplands Series

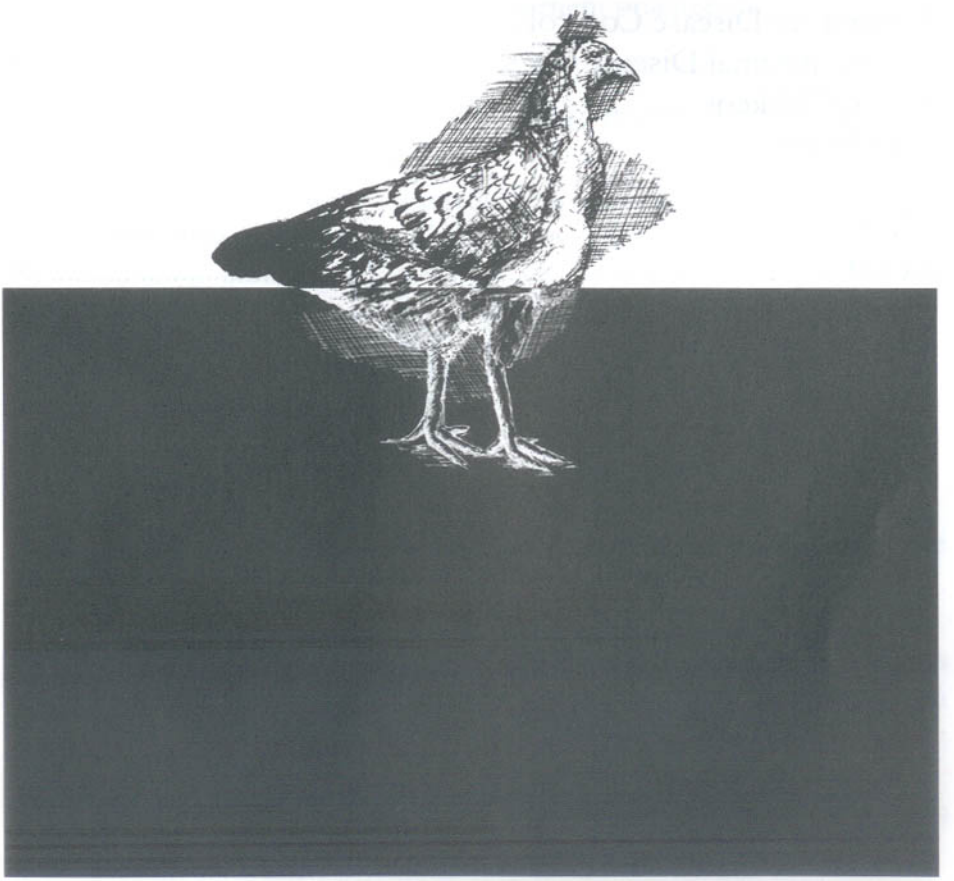


BACKYARD CHICKEN PRODUCTION USING LOCAL BREEDS

Sustainable Agriculture for the Golden Triangle Uplands Series

Richard R. Burnette, Jamlong Pawkham and Singkham Nuka

Adapted from Readings in Small-Scale Poultry Production: 2. Third-World Farmer Manuals by John Bishop, DVM, PhD



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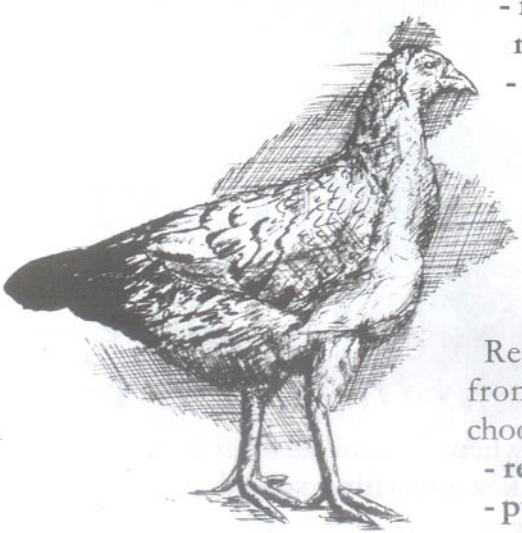
The Challenges and Benefits of Raising Chickens At Home

Chickens are one of the most common types of farm animals in villages around the Golden Triangle of Southeast Asia. However, due to losses from diseases and predators such as rats and dogs, home flocks aren't usually very large. Few village flocks produce enough eggs and chickens to make a substantial difference in home diets and income.

However, according to Dr. John P. Bishop, a small-scale poultry production expert, starting with one broody hen and 12 eggs, a village farmer can potentially raise 50 adult chickens in two years. This, of course, depends heavily on basic management practices that emphasize:

- **good feeding**
- **adequate shelter**
- **proper health care for the whole flock**

For those who are successful in raising chickens at home, there are numerous benefits:



- **meat and eggs for family nutrition**
- **contribution to family income by selling chickens and eggs**
- **insect control**
- **fertilizer (manure) for the garden**

Regarding breeds of chickens from which village farmers can choose, there are two basic choices:

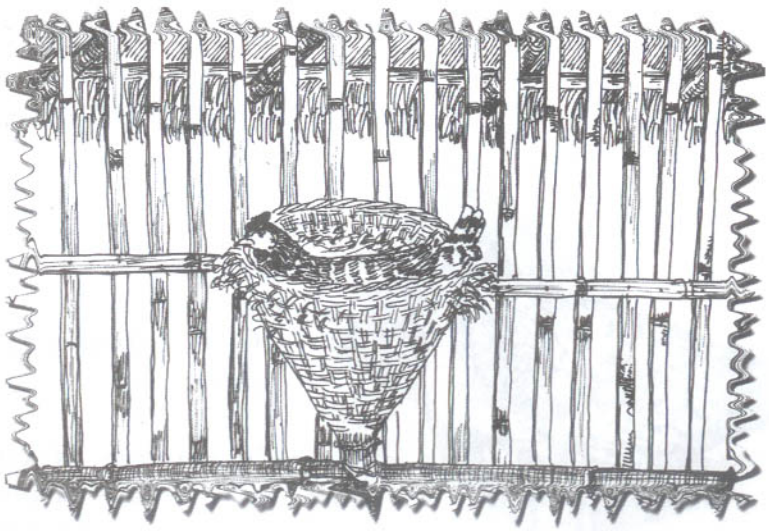
- **readily available local breeds**
- **purchased commercial breeds**

Under favorable, highly controlled conditions, the introduced commercial chicken breeds may produce more eggs as well as grow faster and larger than the local breeds. However, for small farmers in the Golden Triangle region, the benefits of raising local, traditional chicken breeds outweigh those of the commercial breeds. The benefits of raising local breeds include:

- **better flavor preferred by local consumers**
- **higher local market value**
- **better instincts for hatching eggs and raising young**
- **little special feeding needed as they are able to attain adequate nutrition from foraging in their environment**
- **hardy to local conditions**

Breeding Local Chickens

Although hens from local chicken breeds can instinctively hatch eggs and raise young, farmers wishing to expand home flocks must pay attention to certain details related to the management of broody hens (i.e., hens showing signs of setting eggs). The first step is to be able to



recognize the signs of a broody hen:

- **lifts feathers and makes a warning sound**
- **seldom leaves the nest**

Sometimes a hen will appear broody for a day or two but then

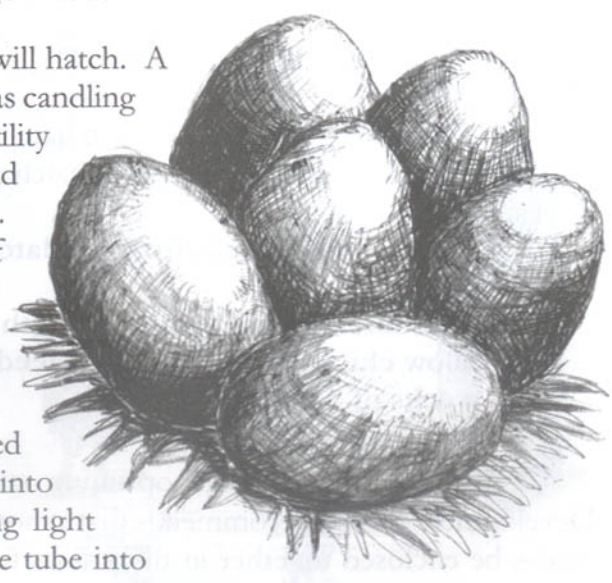
lose interest in setting. To determine whether a hen is truly ready to set (so as to avoid eggs being abandoned after a false start) it is best to observe the signs of a broody hen for **2-3 days** before allowing the natural incubation process to begin.

It is also best to select broody hens that can adequately set **10 - 12 eggs.** Hens that are too small to set this number of eggs, or hens which display other unfavorable mothering tendencies should be broken from setting by enclosing each hen in a wire-bottomed pen for several days. Hens with unfavorable mothering traits can be sold. But to retain such hens as layers, some Thai farmers enclose them in pens for one to two weeks along with an extra rooster and good quality feed. The farmers believe that such confinement will help broody hens to return to laying eggs in a shorter amount of time.

Natural Incubation

Dr. Bishop also stresses that for successful natural incubation, it is important for quality eggs to be chosen. Such eggs should be:

- well-formed
- medium to large sized.



Only fertile eggs will hatch. A simple technique known as candling can be used to test for fertility during the first and second weeks of incubation. Simply roll a sheet of paper into the shape of a tube with one end somewhat smaller than the size of an egg. Then hold each egg to be tested onto the end of the tube into the direction of a strong light source, looking inside the tube into

the egg being illuminated. When examining each egg during the seventh day of incubation, one should be able to determine a veined mass inside. On the 14th day of incubation, a much larger veined mass should be visible. At this point, spoiled, infertile eggs will appear dark or liquid like within. To ensure a supply of fertile eggs, home flocks must have **at least one rooster for every 15 hens.**

Occasionally, when the setting hen has left the nest in search of food, other hens will lay additional eggs in the nest. Such eggs, if left in the nest with the original eggs, will not have time to hatch and therefore will be wasted. Dr. Bishop suggests that to keep from confusing freshly laid eggs with eggs that are being set, **use a pencil to write the date on each egg to be incubated. You may record the original number of eggs in the clutch on each egg as well.**

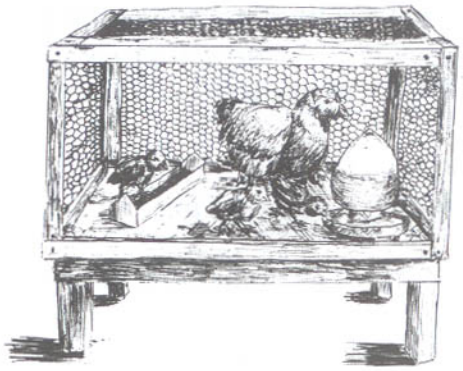
A new setting hen may need assistance in becoming acclimated to her nest. To do so, Dr. Bishop recommends **enclosing the hen within the nest for the first day.** On the second day, begin turning the hen loose for an hour each morning so that she can eat and drink. Before the hen returns to the nest remove any unmarked eggs from the clutch. Afterwards, enclose the hen in the nest again.

Caring for Young Chicks

Chicken eggs require 21 days to hatch. After hatching, it is very important for farmers to enclose newly hatched chicks and their mothers in nest cages in order to:

- **protect small chicks from predators such as rats, cats and dogs**
- **give chicks time to gain strength**
- **allow chicks ample access to feed during the first critical weeks of growth**

To give the chicks an optimum start, the Upland Holistic Development Project recommends that a mother hen and her new baby chicks be enclosed together in their nests for one week. Afterwards



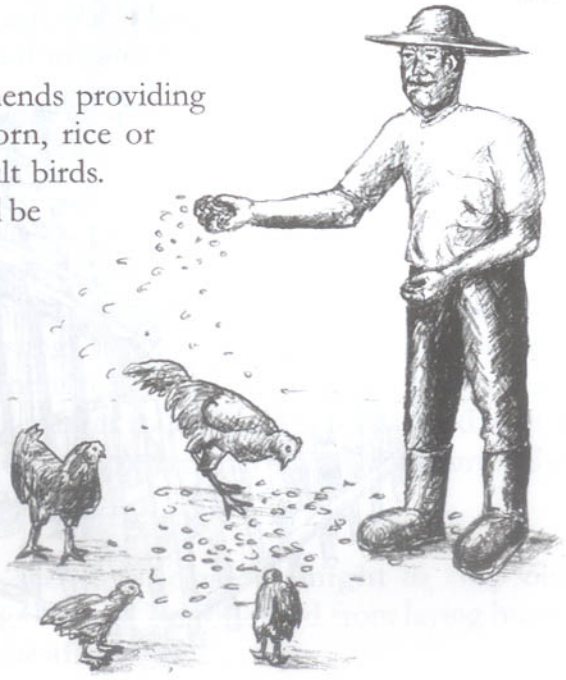
the mother may be released during daylight hours so that she can forage for food on her own.

UHDP recommends enclosing baby chicks in nest cages (with mothers being allowed to return to the chicks at night to protect them from the cold) for one week to one month prior to being released. During this time, adequate food, such as concentrated feed, cracked corn and/or rice as well as water should be made available at all times.

Feeding Hens and Chicks

One of the benefits of backyard chicken flocks is that the bulk of the chicken's nutrition comes from the feed that they manage to forage for themselves. However, additional corn, rice or other grains is also needed for backyard chicken flocks in order to increase egg production.

Dr. Bishop recommends providing 0.45 kg (1 lb) of grain (corn, rice or sorghum) per every 10 adult birds. This amount of feed should be divided into two daily feedings: morning and evening. At this rate, how much grain would be needed per day and per year for 40 adult chickens?



- **1 lb grain x 4 (for 40 chickens) = 4 lb of grain needed per day**
- **4 lbs grain x 365 days = 1,460 lbs of grain needed per year**

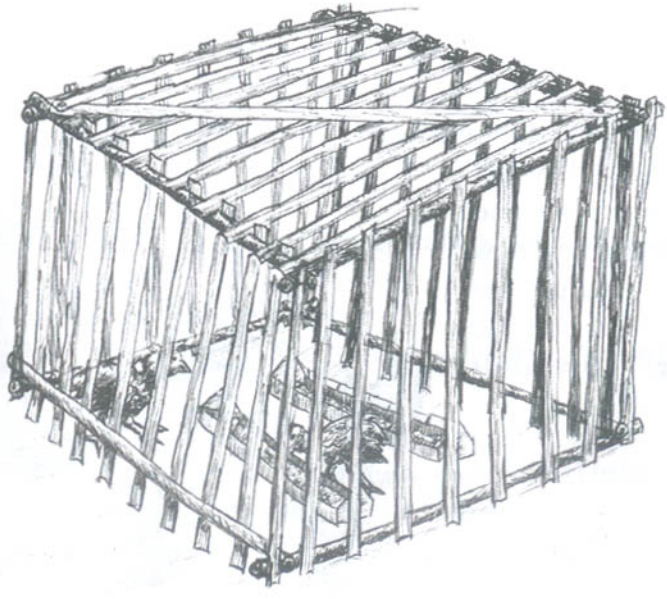
Or using the International Metric System:

- **45 kg grain x 4 (for 40 chickens) = 1.8 kg of grain needed per day**
- **1.8 kg grain x 365 days = 657 kg of grain needed per year**

Besides grain, supplemental amounts of **spoiled root crops, bananas, fruit, etc.** can be offered for backyard flocks as well.

For baby chicks, **rice or corn should be ground with a mortar and pestle or hand-operated grinder** to make the grains more edible. Additionally, older chicks that have been released from nest cages should be fed in a creep feeder to prevent their feed from being eaten by adults. A creep feeder is a small, portable pen or cage that can be easily constructed from bamboo in which the chick's feed is placed. **Slats spaced about 1.5 inches (3.5 cm) apart will allow chicks to enter and leave the feeder while excluding larger birds.**

To protect the feed and chicks, the best place to place a creep feeder is **within the chicken house or beneath a raised home.** It is

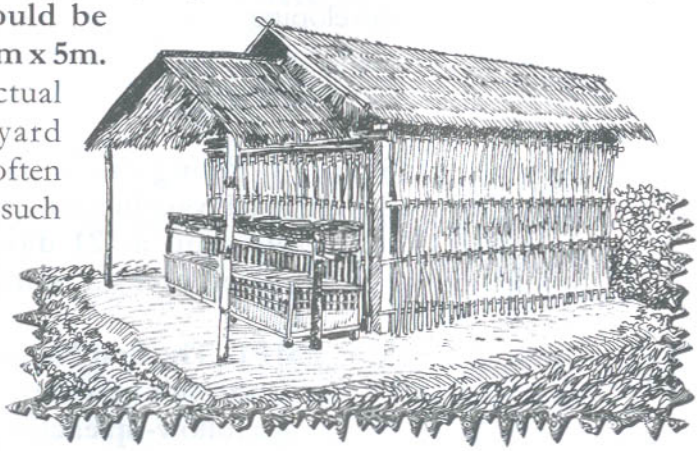


important to provide the chicks with **enough feed to last all day but not excessively so.**

Chicken House Management

The purpose of a chicken house is to:
- provide shelter and protection for the chickens
- offer a place for hens to lay eggs and set

Dr. Bishop recommends that in order for a backyard chicken house to be built sufficiently large to accommodate 50 adult birds, **its dimensions should be approximately 5m x 5m.** However, the actual size of a backyard chicken house is often dictated by factors such as available area, materials and the size of the flock.



Additionally, an adequate chicken house should have **two rooms.** The larger room should be used for roosting and must be **equipped with elevated horizontal poles (heights of 0.7 to 1.5 m) to be used as perches.** The smaller room should be used for nesting. It should be **equipped with laying boxes and nests.** Enclosed nests for incubation (brooding) can be built under the laying boxes. The smaller room should be equipped with a holding pen to be used for housing mothers and small chicks during the first few weeks of the chick's lives.

The chicken house should be closed at **night** to keep out predators. Additionally, **eggs should be collected** from laying boxes in the chicken house during the **afternoon.**

Disease Control

It is necessary to practice disease control for backyard chicken flocks in order to:

- **avoid the loss of chickens**
- **avoid the loss of time, feed and other inputs invested in them**

To maintain the health of the entire flock, particularly the breeding chickens, all chicks and adult birds **will need to be on a vaccination program.** So as to assist farmers in developing an adequate disease prevention program for backyard chicken flocks, the following is a list of common local chicken diseases with recommended vaccination treatments:

- **<u>Newcastles (Strain F)</u> - Young chicks should receive their first Newcastles Strain F vaccination (eye treatment) at 3-7 days with a follow up at 21 days. Afterwards, vaccinations are repeated every 3 months for breeding stock.**
- **<u>Newcastles (Strain MP)</u> - The first Newcastles Strain MP vaccination (jab into underside of wing) should be applied at 45 days of age with a follow-up each year.**

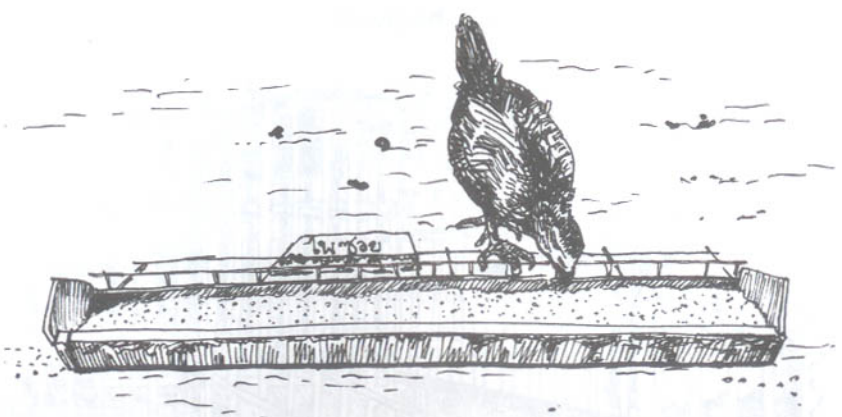
- **Cholera - The first vaccination (injection into large muscle) is at one month. Subsequent vaccinations should be repeated every three months thereafter for breeding stock.**
- **Fowl Pox - Jab into underside of wing at 14-21 days. Only one application is needed.**
- **Infectious Bronchitis - Administer eye treatment at 15-16 days. Repeat every three months for breeding stock.**

These vaccines are often available at livestock feed and supply stores, veterinarian clinics or the District Livestock Office. All vaccines, except cholera, must be stored in a refrigerator.

Internal Parasite Control

If internal parasites are not controlled, backyard flocks may experience the following problems:

- **slower growth**
- **lay fewer eggs**
- **increased susceptibility to other diseases**



In general, medicines that control parasites in chickens (e.g. Urazine) may also be found in livestock feed and supply stores, veterinarian clinics or the District Livestock Office. These medicines can be mixed with food or water according to directions. Internal parasite treatments should be repeated as a program every 3-4 months.

External Parasite Control

Problems that chickens can experience if external parasites are not controlled include:

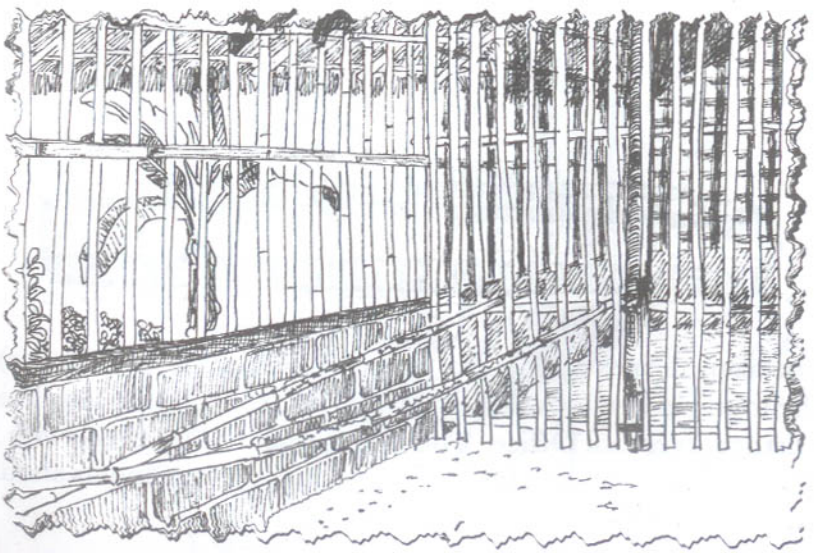
- **weight loss**
- **lower egg production**
- **death of chicks**

External parasites that commonly need to be controlled for chickens include:

- **fleas**
- **mites**

Methods for the treatment and prevention of external parasites include:

- **Neguvon**, sold in Thailand, is a pesticide powder for livestock use. It should be mixed with water according to directions. Chickens infected with external parasites can be dipped into the solution (keeping the beak and eyes out of the solution) for effective control of the pests.



- A natural preventive approach is to spray a **neem solution** in the chicken house, around nests, etc., every month or two to prevent parasites from infesting the birds. Additionally, **wood ash** or the leaves of **lemon grass, tobacco or *Glyricidia*** placed in nests are reported to repel parasites as well.
- Local farmers wipe the area around the eyes of chicks with **kerosene** in order to eliminate attached blood-sucking insects.
- **Maintaining the cleanliness** of the chicken house, the nests and even the perch is needed to prevent infestation of external parasites.

Respiratory Disease Control

The symptoms of chronic respiratory disease in chickens include:

- **nasal discharge**
- **rattling or bubbling sound when breathing**
- **loss of appetite**
- **decreased egg production**
- **possible death of chicks**

To control respiratory disease in chickens, when symptoms appear, treat all birds in the flock with recommended antibiotics (e.g., Norfloxacin) mixed with drinking water according to the directions

Gastrointestinal Disease Control

Two common gastrointestinal diseases (and accompanying symptoms) among village chickens include:

1. Salmonellosis
- **Diarrhea**
- **White feces caked around the anus**
- **Poor appetite and listlessness**

2. Fowl Dysentery
- **Diarrhea**

- **Poor appetite and listlessness**

Treatments for these two major gastro-intestinal diseases are as follows:

1. **Salmonellosis** - When an infection is discovered in the flock, begin treating all birds with recommended antibiotics (e.g., **Neomycin**) mixed with drinking water according to the directions
2. **Fowl Dysentery** - When an infection is discovered in the flock, begin treating all birds with recommended antibiotics such as **Sulfa quinoxaline, Furazolidone** and **Oxytetracycline** according to the directions

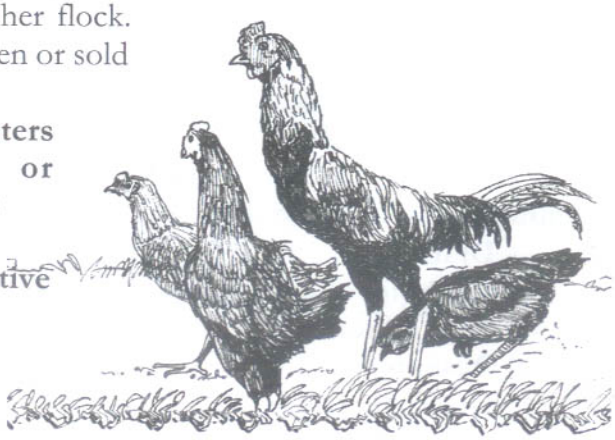
Gastro-intestinal diseases can be prevented in backyard chicken flocks through:

- **maintaining the cleanliness of the housing and equipment at all times**
- **culling infected hens from the flock (this is especially important for Salmonellosis)**

Selling Chickens

Two of the purposes of the home chicken flock are to produce extra income or additional food in the home. Therefore, the farmer must actively manage the culling and sale of his/her flock. Birds that should be eaten or sold include:

- **excessive roosters**
- **excessive or undesirable young hens**
- **old, unproductive hens**

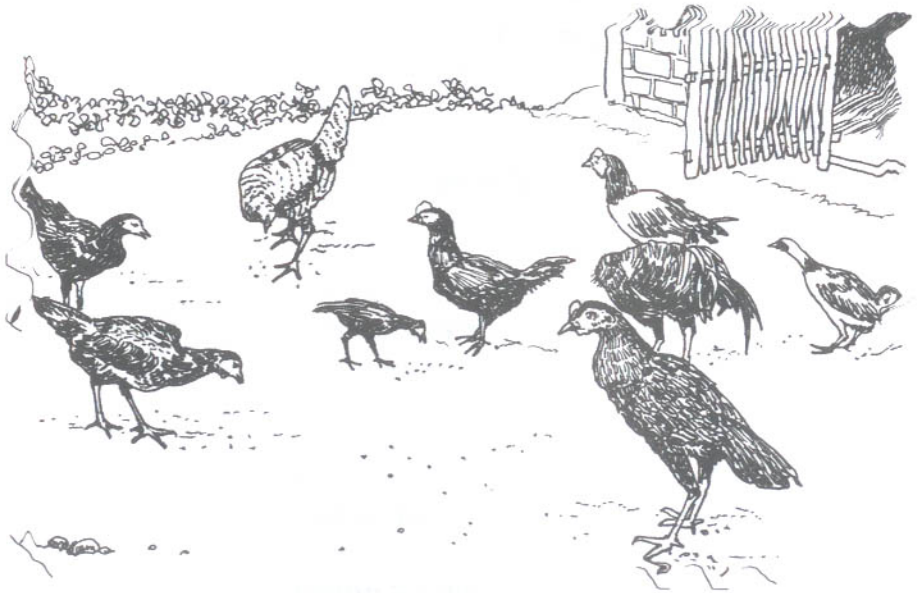


Older birds can be identified by:

- **fallen crests**
- **-destroyed feathers**
- **bad feet (misshapen)**

Special Management of Flocks Consisting of 12 Hens And One Rooster in Order to Increase Flock Size

Dr. Bishop has stated that a farmer starting with one broody hen and 12 eggs can potentially increase his/her flock to 50 adult chickens in two years. Additionally, income from selling eggs and extra chickens can be maximized by regulating the number of hens that set



eggs and by managing the number of replacement hens to be added to the flock each month. Such management is systematic and may require more careful management than many farmers will care to provide. However, good managers should be able to increase their production and subsequent income by using the following practices suggested by Dr. Bishop for a sample flock of 12 hens:

1. To maximize monthly egg production and to provide regular

monthly replacement of hens, **one good broody hen should be allowed to set per month.**

2. Each broody hen should set **10 - 12 eggs**, therefore, after egg losses to incubation and brooding are accounted for, approximately **four replacement chicks (hens)** can be added to the flock.
3. It takes approximately **3-4 months** for a hen to set and care for chicks. Consequently, with a flock of 12 hens under a good management system, about **four hens will be raising chicks** at any given time. **The remaining eight hens will be laying eggs at any given time.**

4. With supplemental feeding of 1 lb (0.45 kg) of grain per day, **about four eggs a day** will be laid by the 8 laying hens. However, additional supplemental feed will be needed as the flock expands.

5. There will be **approximately 120 eggs per month** available to eat or sell.

6. Besides having replacement chickens for expanding the flock, there will be about **seven extra chickens a month** to sell or eat (e.g., four old hens and three extra roosters).

7. Considering current, local market prices in northern Thailand, the approximate monthly **gross income** from eggs and extra chickens sold from a **flock of 12 hens** would be:

1 avg. mature chicken = approximately 55 baht*
1 med. egg = 2 baht

55 B x 7 = 385 baht per month for selling seven chickens
2 B x 120 = 240 baht per month for selling 120 eggs

Potential gross income = 625 baht*

8. The approximate monthly expenses related to purchasing

field corn as supplemental feed and medicines (vaccines and other) for a flock of **12 hens, one rooster and 27 chicks** would include:

Corn: 40 kg x 4.5 baht/kg = 180 baht**
Medicines: 3 baht x 40 birds = 120 baht
Total Expenses 300 baht

9. Approximate monthly **net income** (or savings from the family food budget) from a well managed flock of 12 hens:

625 baht - 300 baht = 325 baht profit***
(with a possible **yearly income of 3,900 baht**)****

*Current exchange rate of the Thai baht to the US dollar = 42:1

**Current market price of corn in north Thailand

***The profit margin will depend heavily on whether farmers are producing their own supplemental feeds or the degree of expense for any purchased feeds

****Typical annual incomes for upland families in UHDP target communities in north Thailand are in the range of 15-30,000 baht.

Conclusion

In addition to adequate housing, feeding and health care, the systematic management of the flock size can improve the production of eggs and chickens for improved family nutrition and income.

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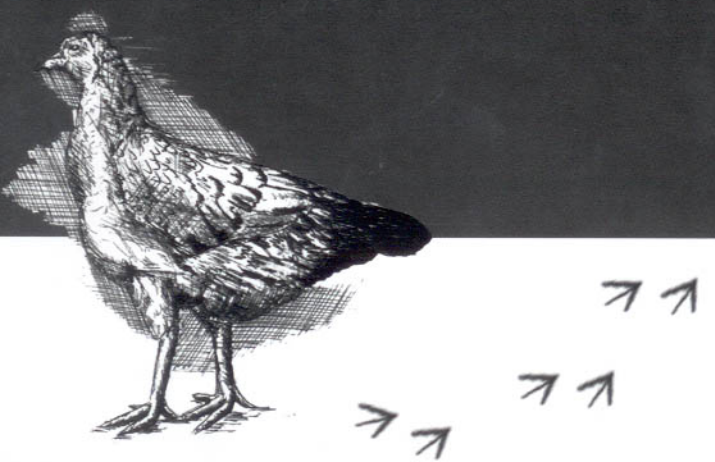

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