

Poultry Industry in Taiwan

PART ONE

HISTORY AND PRESENT SITUATION

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A. ENVIRONMENT

Taiwan is a mountainous island in the South China Sea, about 150 kilometers off the southern coast of Mainland China. Including Penghu (Pescadores Islands), it covers 35,961 square kilometers. Thickly forested mountains run lengthwise from the northeastern part to the southern tip of the island and cover about two-thirds of the land area. The highest peak rises 3,997 meters above sea level. In the east, the mountain descend precipitously to the Pacific. Only a few valleys are suitable for farming. In the west, the mountains slope to a broad shelf of gently rolling hills and level land.

Taiwan has a subtropical climate with hot and humid summers (May to October) and mild winter (January and February). The annual average temperature is 70.9°F in the north and 75.7°F in the south. The annual average relative humidity is 81% for the whole island. In addition, typhoons bring damaging rains and winds that sometimes exceed 165 kilometers per hour, in the period of July-September of each year, which may alleviate serious damage.

CHICKENS

1. General Description:

Traditionally farmers in Taiwan all like to raise a few native chickens in their own yard to produce meat and eggs as special food at important festivals or family gatherings. The way to raise chickens like this is called backyard feeding system.

Chickens have been present in Taiwan since time immemorial, though the native chicken has lost its original characteristics for quite some time because of mingling with the imported breeds. However, the native chicken still keeps its broody nature, and its heat tolerance and disease resistance are much better than those of any imported pure breed. Normally, most native chickens weigh about 2 kg for mature males and 1.5 kg for mature females.

Recently, on account of the introduction of modern strains of black chickens, the Fung-Tu-Chi, meaning mimic native chicken, with black feathers, has been produced by using females of modern black strains to cross with Dark Cornish males. In addition, franchise hatcheries sell baby chicks of black strain to the farmers through the feed shops in the villages. The farmer raise these chicks under the backyard feeding system and let the birds roam. Naturally, it take mores time for the

birds to grow than modern breeds, but the former becomes well fleshed and their meat becomes more tasty. People also call such chicken Tu-Chi, meaning native chicken. Accordingly, the meaning of "Native Chicken" is under considerable change.

2. Production Performance, Feeding and Management

Before 1950, almost all farmers kept chickens as a hobby or a sideline, for pleasure and some incidental profit. It took about 7 months for native chickens to reach sexual maturity. The hens laid 50-80 eggs per year and each weighed about 45gm. Most males might be slaughtered for meat from the age of 6 months to one year. The remaining males might be kept for one more year for breeding. Females might be kept as long as they continued to lay eggs. Besides, the mortality was very high.

The chicken industry has shown a tremendous growth in the last thirty-eight years, largely because of a complete and fundamentally change in operation. Every flock owner has come to look on the poultry enterprise on their farms as an economic unit by using imported breeds and improving feeding, housing and management.

Generally speaking, the natural environment is not favorable to the imported modern strains of chickens for either egg production or meat production, because of high

temperature and high relative humidity. Accordingly, the conventional open-sided house is the most common one to allow cooling in the hot summers in Taiwan. Besides, some protective measures, such as the administration of antibiotics for alleviating the stress caused by typhoon, and keeping the birds warm in the winter, are considered to be necessary for maintaining normal egg production.

Originally, males mated with the females for the native chicken, and the eggs are naturally hatched. But now, it has changed. Artificial insemination, together with artificial incubation are practiced for the production of baby chicks on a large scale.

From the economic point of view, the least number of broilers produced at each time for a broiler farm is 30,000 birds. At the present time, the largest broiler farm in Taiwan has facilities to raise 500,000 birds at the same time. The broilers are sold at the age of 8-9 weeks, weighing 1.8-2.4kg.

Among chickens of modern strains, egg producing hens generally lay their first egg at the age of about 5 months and their laying period lasting for one year. Meat-producing hens lay their first eggs at the age of 5.5 months and their laying period lasts for 8-10 months only. The hen-day egg production is 95% for the egg-producing breeder in the whole laying period, and 80% at the beginn-

ing of the laying period for the meat-producing breeder. The hen-day egg production of the meat-producing breeders usually drops to 40-50% by the 8th-10th month of the laying period. By that time these breeders are culled for economic reasons, except when the price of the baby chicks is very high.

When the egg-producing breeders and the meat-producing breeders are kept on the floor, the proportion of males to female is 100 to 1,000 for the former and 150 to 1,000 for the latter. Fertility, hatchability of fertile eggs, and mortality to sexual maturity are 95%, 90% and 5%, respectively, for both egg-producing and meat-producing breeders. However, the mortality for the adult layers by the end of the laying period is almost 40%.

As for feeding and management, the larger farms have strictly followed the directions or instruction of the foreign farms which supply the chicks through their franchise hatcheries in Taiwan. Water is supplied ad libitum for all kinds of poultry at all times. The feed efficiency for the chicken broiler, chicken layer are 2.4 and 2.5, respectively.

The most serious disease, such as Marek's disease, Newcastle disease, chicken pox and chronic respiratory disease have been controlled through vaccination. Some disease, such as bronchitis, fowl cholera, and coccidiosis also have been controlled through timely application of

antibiotics and (or) sulfa|drugs. Other diseases, such as avian encephalomyelitis, pullorum disease, and infectious laryngotracheitis, have become less serious through elimination of the infected birds, and more progress is being made.

Having improved production efficiency and controlled diseases means a lower feed cost for each dozen eggs or kilogram meat, which makes it possible that the prices of egg and meat nowadays are the same as those twenty years ago.

3. Future Efforts

In order to make industry more efficient and more profitable, certain important measures are being taken. These are:

1. Advise egg and broiler farms to enter into a producer's cooperation to prevent overproduction.
2. Build up a complete eggs marketing system, such as the use of conveyor-egg washer, commercial egg processing plant, etc. to make it effective to put sanitary eggs in the hands of the consumers.
3. Go into liquid egg production to absorb surplus, or cracked eggs.
4. Build up an automatic broiler slaughter system to produce clean and sanitary, poultry products.

Duck

1. Current species and breed

- a. Egg Production: The domestic duck (Anas Platyrhynchos var. domesticus) is the most important breed. The original domestic duck was brought in by immigrants from mainland China. The population of the Khaki Campbell and the Australia duck is nominal.
- b. Meat Production: The Pekin duck was first introduced into Taiwan from U.S.A. in 1950. Since then, sporadic importation occurred continually. Recently duck with the commercial name of either Cherry Valley or Hejgaard have been introduced from England and Denmark, respectively. As for Muscovy ducks (Cairina moschats), the males are of special importance in breeding. They are used to cross with the female domestic duck for producing mule ducks for meat production.

2. Description

There are three varieties of Muscovy ducks in Taiwan based on the color of the feathers: Pure white, pure black, and white and black. The most popular one is the White and Black. Pure Black is the next most popular one. Pure White is very scarce, but is steadily increasing because of its use in producing white mule ducks. An adult male weighs

4kg and a female 2-2.5kg.

As for domestic ducks (Tsai-ya), females are used not only for egg production but also for crossing with male Muscovies for producing mule ducks. Adult males weigh 1.0-1.2kg, females, 1.2-1.5kg. Recently, on account of the crossing between pure white Tsai-ya and Pekin drakes, a new variety, called by the farmers Kai-ya, meaning "improved duck" has been developed. Accordingly, this breed of duck is changing rapidly. An adult male Kai-ya weighs 2.4kg, while a female weighs 2.5kg.

Mule ducks is a cross between Muscovy drakes and female Domestic ducks, used for meat production. Being an intergeneric cross, the mule duck lacks reproductive ability. Originally, the color of the mule duck is brownish black; the back and wing become lustrous in the adult. The bill and shank are dark brown. However white mule ducks are being produced, Since the development of white Kai-ya.

3. Production performance, Feeding and Management

Originally farms, especially those which were near a creek or pond, liked to raise a few ducks, feeding on algae and floating organisms grown in the water, for meat or feather and down.

Normally, duck are also raised in flocks. Before 1960, farmers liked to treat it as sideline, and the size

was small. For example, 100-200 duck layers or 200-300 mule ducks. The industry was growing gradually after 1960.

Duck farms are usually located in such places as the bank of the river or a pond, or even a ditch, with access to water. The farm is surrounded by bamboo fences, and is chiefly made up of two sections, i.e., the exercise yard provided with a swimming pool and the duck house for staying during the night and for laying. The whole house is simply constructed with bamboo and rice straw, or other cheap materials. Expensive materials, such as wood and/or bricks, are seldom used. Duck are fed in troughs. Feeding is carried out in the exercise yard, with the formulated feeds as the basic ration, blended with crop by-products, such as sweet potato chips, rice bran, vegetables or even rice hulls, etc.

Continued selection and breeding of White mule duck, together with improved feeding and management, have made it possible to increase the proportion of white feather in a duck. Today it is not easy to find a black mule duck in market. Besides, the white mule duck grow fast, it takes about 70 days to reach market weight of 2.5kg, and its feed efficiency, dressing percent are about 3.0-3.5 and 75%, respectively. Recently, we export frozen boneless breast of White mule duck to Japan and it increases gradually. In addition, we sell about fifteen millions embryo

eggs to Singapore and Hong Kong every year.

In order to reduce cost and pollution problem, many farms about 80% especially in southern Taiwan, are operating under a Fish-duck integrated farming system, that is to recycle duck manure by increasing the growth of algae and planktons; which will be the food of fish.

In 1966, Duck Research Center was built at Ilan, then many important techniques were investigated and extended, such as A.I. and artificial incubation, then the industry developed fast.

The feathers are all white. The Greyish variety has a grey beak and sometimes, black shank and toes. Almost all the feathers in the back and the wing are grey, while the feathers in the other parts of the body are all white.

3. Production, Feeding and Management

Geese are fond of eating grasses, so they are not bred in the open ground for grazing. In recent years, some flocks of 200-300 geese, or even up to 5,000 have been established. Generally speaking, most of goose farms are located in Southern Taiwan, and this industry is still treated as a sideline.

Normally, the native geese reach sexual maturity at the age of about 5 months. At that time, the male weighs about 9 kg and the female 5 kg. The female lays

Goose (Anser anser)

1. Current species and breeds: The native goose, Embden from Holland and White Roman from Denmark are present.
2. Description: The goose is not indigenous to Taiwan. The Taiwan goose is very similar to the goose in the southern part of mainland China, whence the original goose was evidently introduced by immigrants. Taiwan's geese may be divided into two varieties, White and Greyish. The White variety has a yellow beak, shank, and toes. The feathers are all white. The Greyish variety has a grey beak and sometimes, black shank and toes. Almost all the feathers in the back and the wing are grey, while the feathers in the other parts of the body are all white.

3. Production, Feeding and Management

Geese are fond of eating grasses, so they are set free in the open ground for grazing. In recent years, some flocks of 200-300 geese, or even up to 8,000 have been established. Generally speaking, most of goose farms are located in Southern Taiwan, and this industry is still treated as a sideline.

Normally, the native geese reach sexual maturity at the age of about 5 months. At that time, the male weighs about 9 kg and the female 6 kg. The female lays

about 40 eggs per year. The laying season is all year round except summer, especially the month of June, and most eggs are laid in the winter. That is the reason why the price of goose in summer is higher than that of any other season in Taiwan.

Description: The turkey is not indigenous to Taiwan. The native turkeys, as now called, are the descendants of all original imported turkeys.

The native turkeys are scattered all over the island. They may roughly divided into three varieties:

a. The White: Feathers are white. Shank and toes are black. Head and caruncle are red. At the age of one year, a male weighs about 5.5 kg, while a female weighs about 3kg. Most of them are raised in the southern part of Taiwan.

b. The Black: Feathers are lustrous black. At the age of one year, a male weighs about 6.5kg, while a female weighs about 3.5kg. The Black is the most popular variety in Taiwan.

c. The Greyish white: Feathers are white with black bars. About two-thirds of the feathers of the whole body are white, while the remaining one-third is black. At the age of one year, a male weighs about 5.5kg, while a female weighs about 3kg. Most of the Greyish white turkey are raised in the northern part of Taiwan.

Pure varieties are becoming rare and more difficult

Turkey (Meleagris gallopavo)

1. Current species and breeds: The native turkey and the Beltsville Small White Turkey from the U.S.A. are present.

2. Description: The turkey is not indigenous to Taiwan. The native turkeys, as now called, are the descendents of all original imported turkeys.

The native turkeys are scattered all over the island. They may roughly divided into three varieties:

- a. The White: Feather are white. Shank and toes are slate. Snood and caruncle are red. At the age of one year, a male weighs about 5.5 kg, while a female weighs about 3kg. Most of them are raised in the southern part of Taiwan.
- b. The Black: Feathers are lustrous black. At the age of one year, a male weighs about 5.5kg, while a female weighs about 3.5kg. The Black is the most popular variety in Taiwan.
- c. The Greyish White: Feathers are white with black bars. About two-thirds of the feathers of the whole body are white, while the remaining one-third is black. At the age of one year, a male weighs about 5.5kg, while a female weighs about 3kg. Most of the Greyish white turkey are raised in the northern part of Taiwan.

Pure varieties are becoming more and more difficult

MODERN TECHNOLOGY IN TABLE EGG PRODUCTION

to find because of unrestricted intercrossing between the varieties.

Mr. B.C. Rebergen

3. Production

Generally speaking, it is not common for the Chinese people to eat turkey meat. In addition, most turkeys are produced in Spring, while the consuming season is in winter. As a result, the turkey market is not stable and the prices fluctuate very much in Taiwan. In this case, people like to use slope land to raise turkey as a sideline, especially in southern Taiwan. Farms like to raise the Beltsville Small White Turkey, imported from the U.S.A., because of its small-size and fast growing. Being short of turkey poults in summer, we import many day old turkey from U.S.A., France and Canada to supply the demand in winter.