

Introduction of the Poultry Industry in Japan – History and Present –

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INTRODUCTION

Chicken has been one of the most useful animals for life. They have been not only one of the most economical and abundant sources of valuable nutrients, but also the very good experimental animal to develop modern sciences. In Japan, eggs laid by the chickens have long been good sources of cash income for farmers and in many cases even for Samurais. Although nearly 50 millions of chickens were raised and they were of considerable importance in Japanese agriculture before the World War II, the industrialization or specialization started after the War, substantially since the 1960s. Among other species of poultry then chickens, ducks and Japanese quails are of some importance in Japan. Duck meat is often used in various cuisines at higher class restaurants and Japanese quail eggs are widely used. However those other species of poultry are of minor economic importance compared with chickens.

THE EGG INDUSTRY

Chickens were domesticated in Southeast Asia 5000~6000 years ago and migrated into China about 4000 years ago, and were brought to Japan from China via Korea more than 2000 years ago. In ancient times chickens were mostly used for morning call crowing and cock fighting. Eggs and chicken meat were estimated as valuable nutrients but chicken slaughter to obtain meat had long time been detested or sometimes prohibited since the introduction of Buddhism in the 6th century till the end of the Edo Era 19th century.

The economic breed of chickens once widely kept until the late Edo throughout Japan were good layers producing well over 100 eggs per year for their life time. The longevity of egg laying was one of the distinctive characteristics of the Japanese endemic breed, hence chicken raising was often promoted by the Shogunats as a side business of lower class warriors (Samurai). In some cases one family raised more than

500 laying hens.

With the termination of the Tokugawa Shogunate, Samurais lost their jobs and were forced to find means of livelihood. The Samurais of the Owari Region (Aichi prefecture) started commercial egg production financially assisted by the prefectural government in the late 19th century, which led this region to become the Chicken Kingdom of Japan in the early 20th century.

At the beginning of the 20th century, new breeds of egg type chickens, Nagoya and Mikawa, came out of the cross bred between the endemic breed and the imported European breeds, and these breeds played an important role in the development of the egg industry in the early half of the 20th century in Japan.

The Japanese government started Ten Years Poultry Promotion Plan in 1927. The purpose of the Plan was to replace the improved breeds of chickens to the farmers. At the same time the government gave financial aid to the various facilities and institutions related to egg production, processing and distribution.

As a result of the Plan, the number of the laying hens increased from 18 million birds in

1927 to 27 million in 1937. Egg production increased from 1,981 million eggs in 1927 to 3,643 million in 1937. Eggs laid per bird per year increased from 107 eggs in 1927 to 51 eggs in 1937. The number of farms raising less than 10 layers decreased from 2,519 thousands in 1928 to 2,186 thousands in 1934, whereas the number of farms raising more than 50 layers increased from 76 thousands to 118 thousands in the same period of time.

Although the egg industry was seriously damaged during the World War II, it has recovered and expanded very rapidly after the War (Table 1). Since around 1960 a new type of high efficiency breeds of layers, mostly strain cross of white Leghorn were introduced mainly from USA and Canada. They were not only superior egg producers, but their livability were tremendously high and yet their performance was uniform. By around 1970 local breeds and old type layers were almost completely replaced with the new type layers which had been improved by foreign primary breeders. The competition among those primary breeders has been so keen that only several breeders survive today in the whole world.

Table 1. Number of laying hens, egg farms, laying hens per farm and per capita egg consumption in Japan, 1925~1997

Year	Number of laying hens: thousands	Number of egg farms* thousands	Number of laying hens per farm: bird	Per capita egg consumption: (kg)
1925	16,922	3,475	5	2.0
1930	23,367	3,364	7	2.4
1940	26,418	2,552	10	2.6
1950	26,072	3,756	7	2.2
1960	44,500	3,839	12	5.5
1970	118,201	1,690	70	14.5
1981	121,822	186	655	14.3
1990	136,961	87	1,574	16.5
1997	146,152	6.5	22,382	17.6

In the past 40 years, the average number of eggs laid per hen per year almost doubled, egg size increased from 50 grams to 65 grams and feed conversion efficiency reduced more than only one-thirds (Table 2).

With the increased size of operation, automation in feeding, watering and egg gathering, the labor efficiency has greatly improved. The amount of labor required to produce 100 kg of eggs is reduced today to nearly one-tenth of 25 years ago. As the result of this efficient egg production, the production cost of eggs were reduced so that the egg price has been kept almost unchanged during the past 47 years (Table 3).

In recent years the industrialization or specialization in egg industry has been acc-

elerated. The total number of farms raising less than 5,000 birds on farm decreased rapidly, whereas the number of large farms raising more than 50,000 layers on farm increased from only 290 in 1981 to 860 in 1990: as a result, the share of large size farms in total number of layers increased. In 1998 the share of more than 100,000 layers on farm is 47% (table 4). The number of very large farms which raise more than one million layers is not so many as they are in USA, but there are already 15 farms in Japan, although the number of laying farms tumbled since the mid-1980's from almost 13,000 to under 5,000 (Table 4), the number of layers has climbed around 126 million to a little over 145 million. Having reached a peak of 147.2 million in 1993, Japan's laying flock has since shown a small but steady decline.

The quantity of eggs produced in 1997 was 2,552,261 metric tons and it is estimated that 77% were white-shelled, 14% brown and 9% tinted. In 1997 the quantity of egg distributed amount to 2.470 million tons and some 400,591 tons were processed. Egg imports (adjusted to shell egg weight) was 48,475 tons and thus, of total available supplies, 17.9% were processed in 1997.

Table 2. Improved production efficiency of layers

Year	Eggs laid by hen	Feed conversion
1925	101	10.0
1930	114	8.7
1940	133	7.5
1950	148	6.7
1960	215	4.6
1970	253	3.1
1980	266	2.6
1990	285	2.3
1997	292	2.0

Table 3. Whole egg price in Japan (Tokyo Market area)

Year	Egg price (Yen/kg)
1950	212
1960	198
1970	194
1980	305
1990	223
1997	200

Table 4. Japanese egg farms as of 1, February, 1998

Farm size(hens)	No of farms	Share of hen(%)
1,000~4,999	1,490	2.5
5,000~9,999	910	4.3
10,000~49,999	1,840	28.1
50,000~99,999	370	17.3
100,000 and over	350	47.0
Total	4,960	100.0

Note: There were 330 farms with only replacement pullets.

THE BROILER INDUSTRY

The broiler industry in Japan started in 1960 with introduction of a small number of broiler type breeds from the USA. At the same time, almost 100% of the 32 million of broiler chicks started were cockerels of white Leghorn x Dual Purpose Breed Crossbred or by-products of egg type chickens.

In 1965 the share of broiler type breeds expanded to 83% and in 1970 they took 100% of the market. The chicken meat consumption per capita per year increased from only 1.5 kg in 1965 to 10.7 kg in 1997. Average live weight of broilers slaughtered increased from 1,234g per bird to 2,057g in 1997. The reason for heavier weight of broilers in Japan is that about 80% of broilers are processed in and sold as deboned or boneless meat and larger size birds are less costly for deboning. Having peaked at just over 745 million in 1987, the number of broiler slaughtered each year has tumbled annually falling to a new low in 1997 of just over 589 million birds, which corresponds to 27% drop. The number of broiler farms has shown an even greater decline-almost halving from around 7000 to 3980 (Table 5). Imports of chicken meat are

Table 5. Japanese broiler farms in 1997

Farm size(birds)	Farms(%)	Output(%)
Less than 50,000	31	5
50,000~100,000	19	9
100,000~200,000	32	32
200,000~300,000	10	17
300,000~500,000	5	13
500,000 and over	3	24
Total	3980 farms	589.3 million birds

mostly from China, USA and Brazil and are around 496,000 tones in 1997 and which account for nearly 40% of the total amount of chicken meat distributed.

Processing plant numbers have changed little in recent years, the total standing at 708. Of these, 253 handled broilers, 93 other meat type chickens, 395 spent hens and 90 other poultry. These individual figures total more than 708 because some plants process more than one form of poultry. In 1997 there were 618 breeding farms of which 222 were for laying stocks, 377 for broilers with 19 having both types. Of a total of 11.17 million breeders, 7.08 million were for broilers and 2.1 million for layers. Some 94 feed companies have a total of 24.5 million tons of animal formulating feed of which, poultry feed account for 10.8 million tons.