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Development of Poultry Industry in Japan: Prospects of Guinea Fowl Production

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ABSTRACT: Poultry products are mainly eggs and meat, both production are increasing in Japan although the number of farmers continue to decrease. This has resulted from the enlargement of the management scale. There is a necessity to find a new poultry product that could sell at a higher price for the small-scale farmers to keep retain their management. In recent years, the preference of consumers have been diversified and there is a demand for many kinds of poultry products. Therefore, the guinea fowl, seems to be bird that has replaced chicken in Japan. Though guinea fowl is a bird of the tropical region around West Africa, many commercial guinea fowls are being reared in Europe. Although the guinea fowl is mainly used for meat production, they are also excellent not only for broilers but also for layers. The merits of guinea fowl is as follows: (1) Resistance to serious infectious disease in chicken and turkey is greater, (2) Polyphonic and the behavior of moving is suitable for grazing, (3) Since the egg shell is thick, egg is not easy to crack and could maintain quality, (4) Where the egg is small, the ratio of the egg yolk is high and the concentration of no saturation fat acids in the yolk are higher than in chicken eggs. As mentioned above, guinea fowls has some merits for poultry production. It is necessary to control the environment for premeditated production in Japan, since the breeding season is limited under natural conditions. Therefore, the establishment of managerials techniques for guinea fowl is expected.

Key Words: Guinea Fowl, Poultry Production, Merit, Japan

Introduction

Although the number of farmers rearing layers continue to decrease, the number of layer hens increased until 1971. While, the increase of egg consumption reached the ceiling, the number of layers changed to about 150,000,000 from 1971 to 1981 and consequently the number of birds decrease and reached less than 10,000 in 1979 and to 5,529 in 1990. Then the number of broiler reared in the farm increased markedly and reached 27,200 in 1990 (Ministry of Agriculture, 1993). These changes have resulted from the enlargement of the management as some farmers had enlarged their business. On the other hand, many small farmers stopped work. There is necessity to find a new poultry product that could sell at a higher price for small-scale farmers to retain their management. In recent years, the preferences of consumers have been diversified and there is a demand for many kinds of poultry products. It seems that the guinea fowl has a possibility to replace a part of the chicken's market in Japan. Characteristic point of the guinea fowl are shown.

Species

The original home of the guinea fowl is West Africa. There are five genera and seven species. One of these species, *Numida meleagris*, is domesticated for many centuries. In recent years, many commercial guinea fowl are being reared as broilers in Europe. In Japan, French commercial guinea fowl (*Galor strain*) can be obtained. In spite of domestication, the guinea fowl remains many instincts. Some of them are useful for poultry production.

Tolerance to Serious Infectious Diseases

As the guinea fowl is a hardy bird, there are less problems regarding infectious diseases. It is known that the serious infectious diseases of chicken or turkey is greater in guinea fowl. Newcastle

disease (ND) is not very serious in guinea fowl. Though guinea fowl production is hardly affected by ND or other diseases, they do not always catch ND or other infectious diseases. They have possibility to infectious omphalitis, vent infection, salmonella infections, louse's infections, helminthiasis, coccidiosis and other protozoal diseases causing enteritis (Okaeme, 1983). There is a risk of their own infection and the probability of infecting on other poultry. Therefore, vaccinations for ND and some infectious diseases are recommended (Nishiwaki, et al., 1984).

Polyphonic and The Behavior of Moving

In their wild state, guinea fowls eat seeds of plants and grasses, beetles, grasshoppers and ants. When they are being fed, they move through their territory in large flocks. The guinea fowl may be seen throughout the year in coveys of 50-100 birds (Northeastern Region, 1976; Rutgerss and Norris, 1970). These habits are convenient for grazing. Inoue et al, (1977) reported that 30% of guinea fowl food could be replaced by grass, since the grazing is effecting for the guinea fowl raising.

Component and Chemical Composition of the Egg

It is well known that the egg shell is thick and it is not easy to crack in the guinea fowl. This point is excellent to maintain egg quality. Yamanaka and Furukawa (Yamanaka and Furukawa, 1975) reported the proportion of the yolk, albumen and shell to the total egg weight in various birds. In this study, it was shown that the egg shell amounted of 17.5% of the whole egg in the guinea fowl. This value was highest (Chickens 8.7-10.6%; Japanese quail, 7.9%; Pheasants 9.9-10.4%; Turkey 9.4%; Geese 10.8%; Muscovy duck 10.2%; Duck 9.5%). Moreover, where the egg is small, the ratio of egg yolk to albumen is comparatively high. On the other hand, there are some observations of chemical constituents in the egg. It was reported that concentration of no saturation acids (arachidonic acid and linoleic acid) in concentration in the yolk was lower (Yamanaka, et al., 1981; Bair and Marion).

Reproduction

Under natural condition in Japan, guinea fowl has a breeding season. Authors have reported the annual variation in the fertility of the guinea fowl (Itoh, et al., 1985; Ogawa, et al., 1990). The breeding season male and female guinea fowl is between mid spring and early autumn in Japan under natural conditions. It is difficult to collect semen during the cold season. Guinea hen also cannot lay from early October to late March. In Nigeria, Guinea hens (*Numida melagris galeata*) start to lay between 28-32 weeks under captivity conditions and each bird lays 50-100 eggs per reproductive season (Ayeni, 1983). In Japan, guinea fowl hatched in spring time do not start to lay until the next breeding season. It is a demerit for premeditated production in Japan. However, under the long day conditions, the hens can start to lay eggs and males become capable of ejaculating semen regardless of the season. Guinea hen started to lay at the age of 18 weeks (Ogawa, et al., 1993) and the rooster reached full maturation within 16 weeks of age under 14 hours light condition (Ogawa, et al., 1993).

Conclusion

Although guinea fowl production is popular in Europe and African countries, it is not popular in Japan. Both Japanese consumers and farmers are searching for new poultry products. Guinea fowl has some merits for poultry. Although the guinea fowl is mainly used for meat production, they are also excellent for egg production. However, it is necessary to control environment (photoperiod and temperature) for premeditated production in Japan. Therefore, establishment of managerial techniques for guinea fowl is expected. On the other hand, the environment of tropical countries is suitable for guine fowl production. It seems that the guinea fowl production is promising for protein supplies in tropical countries.

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