

THE ROLE OF NATIVE CHICKEN IN INDONESIAN RURAL

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Introduction

Native chickens have been well known in Indonesia since centuries ago and traditionally established in rural area. Morphological characteristic of Indonesian local chickens were varied widely. Phylogenetic of native chicken showed a closer genetic relationship with the Black Kedu and Bangkok chicken (Mu'in, 1997). Anonymous (1999) reported that the population number of native chickens was estimated 266 million, which were raised by more than 26,230 farmer groups or more than 480,000 of number of native chicken keeper household. Native chickens have acceptable egg and meat flavor, it has less fat content than broiler that is why the demands are still relatively high caused by special preferences by consumers

Field Situation

Native chickens become a very important livestock commodity to people in village since most of them are small farmers. If we speak of agro-industries to deal with monetary crisis, Indonesian government should develop native chickens as an alternative way to increase family income. It is because native chickens are easy to grow in villages, have higher adaptability to locally available domestic feed resources, they require less cost and less special cares to grow, and easily enter to the market. Native chickens contributed more than 318 ton of meat (46.64 % of Indonesian meat chicken need) and 130,500 ton of egg (32.17 % of Indonesian need) (Table 1). It happened that the contribution from livestock industry during economic crisis decreased as much as 13.01% and gradually increased again to 4.06%. During the last three years of economical crisis, native chicken population decreased as much as 2.95%/year and then increase 5.08%/year after recovery program of the crisis. The decrease of population was followed by the decrease of native chicken meat and egg production as much as 4.51% and 2.02%.

Following the recovery of this crisis, production increase was also noticed 8.09% for meat and 3.41% for native chicken egg. Eventually, in comparison to total chicken population (including modern type), the population of native chicken was increased as much as 46.12% during crisis and 6.63% during recovery of the crisis. The same pictures were also observed on meat and egg production with the values of 35.87% and 57.50% during crisis and 4.02% and 3.33% during the recovery program. However, native chickens are known to have many disadvantages compared to the modern types.

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They are known for being poor egg producer, low production and reproduction performances, slow grower and scavenger in nature, having broodiness, smaller body size as well as performances, slow grower and scavenger in nature, having broodiness, smaller body size as well as late sexual maturity (137 - 196 days) and higher mortality (more than 40%) (Table 2). Generally native chickens are raised under insufficient management practices, they are kept in backyard, scavenging, and little cares are given to their feeds and feeding system with cheap and locally available feed stuff. Consequently, some problems will occur, e.g. likely higher mortality, low production and reproduction due to broodiness.

Table 1. Native chickens status in Indonesia from 1996 to 1999

Items	1996	1997	1998	Crisis impact (%)	1999	Recovery (%)
Livestock to agriculture GDP (%)	11.48	11.60	10.09	20.11	10.50	3.05
Population (000 head)	260,720	260,840	253,133	2.95	266,000	5.08
Meat production (000 ton)	281.50	314.00	294.20	4.51	318.00	8.09
Egg production (000 ton)	128.80	123.70	126.20	2.02	130.50	3.41
Native chicken to total chicken population (%)	23.80	26.82	39.19	46.12	36.59	6.63
Native chicken meat to total meat chicken production (%)	30.38	35.76	48.59	35.87	46.64	4.02
Native chicken egg to total egg chicken production (%)	20.46	20.38	32.10	57.50	32.17	3.33

Source: Soepodo-Boediman (2002), After the table rearrangement

General Performance

In average, one laying period of 15–20 days, produced 10 - 12 eggs, followed then by broodiness for 21 days and rearing period of at least 50 to 60 days. The chickens need 20 - 30 days before starting to lay again after weaning, that there will be only 3-4 cycles of egg production per year. Sexual maturity are reached at about 250 days of age (8.3 weeks) and weight varies between 1.3 to 1.5 kg. The day old chick are weaned after 107 days when the body weight reached 0.4 to 0.5 kg. On natural incubation there are only 10 eggs were incubated and only 7 to 8 eggs hatched (Table 2). Broodiness is one of the problems encountered in raising native chickens. For breaking broodiness farmers utilize the bathing method and then hens were dried in the sun every day for 3 to 5 consecutive days, and laying will be resumed after 10 to 15 days later. Such practices will enable hens to lay more eggs in about 9 to 10 interval times. If one clutch consists of 12 eggs there will be equal to 110 to 120 eggs per year.

Generally chickens were fed by single ingredient as kitchen by product or a mixture between a single ingredient with commercial layer or broiler feed. The nutritional requirement for native chickens has been reported by Resnawati (1998) that nutrient requirement for native chicken at starter period was lower than for broiler, but higher than for layer of National Research Council recommendation. Wihandoyo et al. (1981) reported that protein value of crop content from native chickens that were kept

scavenging system was 9.7 to 11.5%.

Male native chicken kept intensively produces 0.35 ml sperm/ml/week with sperm concentration about 3.26 billion/ml/week. Fertility and hatchability are 86.2% and 54.9 %, respectively (Tri-Yuwanta, 1993). Feed consumption varies 95 to 100 g/day, egg production reach 43.73% and sexual maturity in 196 days with body weight of 1.51 kg for female and 1.87 kg for male. Sex ratio 1/5-8 is capable to produce 86% fertile eggs, beside hatchability is low (54.8%). Lower hatchability was suspected caused by genetic variation and feed ingredient quality. The low egg hatchability is an interesting experimental material to Indonesian researchers.

Table 2. Biological data of native chicken raised under extensive rural condition

Day old body weight (g)	25.8± 2.8
Weaning age (day)	107±26
Weaning body weight (g)	412±173
Age of sexual maturity (day)	250±43
Body weight of sexual maturity (g)	1519±310
Egg production/cycle (unit)	8.9±1.7
One cycle for laying egg (day)	20±4
Brooding (day)	21±1
Rearing period (day)	60±15
Preparation to second laying period (day)	30±7
Fertility (%)	80±6 ¹⁾
Hatchability (%)	75±5 ¹⁾
Sperm volume (ml)	0.35±0.03
Sperm concentration (billion/ml/week)	3.26±0.27
Mortality (DOC to weaning age) (%)	60±4

¹⁾ Natural incubation with 8-10 eggs/period/hen

Source: Wihandoyo *et al.*, (1981) and Tri-Yuwanta (1993)

General Problem

The development of native chicken is hampered by several discouraging facts related to low performance of the native chicken, less motivation in part of the farmers, and government policy regarding research and continuous support to farmers in rural areas (Tri-Yuwanta, 2000). Rate of growth of native chicken is not as good as the modern type, moreover it has low egg production rate caused by its natural call to hatch and brooding. Extensive way of rearing native chicken will produce low egg fertility and also high mortality of young chicks. The farmers still do not raise their native chicken efficiently for better economic purposes. They have the tendency to sell their good quality chickens to get higher prices, at the end what is left are chickens with less quality. Vaccination program offered by the government is conducted only sporadically. It does not reach all population of native chicken, while chickens of different ages will require different management of vaccination. Vaccination program is not yet applied in scavenging system. Some difficulties in managing this vaccination program are namely vaccine availability and lack of refrigeration facilities at rural areas beside vaccination is more advisable

conducted in the evening after dark.

Perspective

Native chicken population is approximately 266 million, with comparison between adult chicken: young chicken: DOC is 3: 2: 5. Sex ratio between adult male and female is 1:6 which means out of 79.8 million adult chicken (11.4 million are males and 68.4 million are females), 53.2 million young chickens and 133 million DOC. Population of young chicken is the lowest, because people prefer to consume young chickens. Increase population of native chicken is 4.92% annually, with a better vaccination program it will reduce mortality rate from 50% to become 20%. Successful vaccination program and reproduction care will produce population increase to become 14.78% or 39.6 million per year. Mathematically, based on assumption that every four months there will be a considerable increase in population, native chicken will be capable of replacing broiler meat as much as 56.60%. The touch of technology, accompanies with available funding support with good motivation in the part of the farmers, will surely be a great contribution for development of native chickens and its considerable potency.

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