The growth and productivity of selected kampung chicken

Heti Resnawati and Tike Sartika

Research Institute for Animal Production, Bogor, Indonesia

ABSTRACT: The experiment was conducted at Balai Penelitian Ternak, Ciawi-Bogor. The aimed of this experiment was to investigate the performance of selected kampung chicken kept under intensive management. The 100 hens and 10 cockerels of selected kampung chicken were placed in individual cages until preparing 400 day-old-chicks (DOC) replacement stock as requirement. According to the assumption of sex ratio (1:1), then it was selected to become 200 pullets and 20 cockerels. Observation were conducted on body weight, feed consumption and feed conversion ratio. The result showed that performance of selected kampung chicken up to 12 weeks of age were average body weight (745.90 g), feed consumption (2827 g), feed conversion ratio (4.13), while the young chicks at 20 weeks of age were average (1110.88 g), feed consumption (6082.71 g) and feed conversion (6.57). The first age of laying egg was 155-167 days, average first egg weight (30.48 g), egg production up to 12 weeks 40.34 percent. Hen day production, feed consumption 75.22 g/d/bird and feed conversion ratio 5.09. The performance of laying hen up to 20 weeks was average hen-day egg production 37.22 percent. Hen day production, feed consumption 76.68 g/d/bird and feed conversion ratio 5.59. It was concluded that performance of selected kampung chicken can be improved by keeping under intensive management.

Key words: growth, productivity, selected kampong chicken

INTRODUCTION

Kampung chicken (*Gallus domesticus*) is one kind of breed which is popular meat and egg preference and it has been known in Indonesia for centuries. Generally, the farmers keep kampung chicken under extensive system. The farmers use various traditional feeding, breeding and management system. The condition is one of the problem that kampung chicken have a low growth rate and egg production. Performance of kampung chicken under extensive system were age maturity 6-7 months, body weight 1.4-1.6 kg, egg production 40-45 eggs per year, egg weight 40 g per egg, carcass weight 75 percent, hatchability 84.6 percent and mortality rate 31 percent (Diwiyanto, 1996).

The solution in improving performance kampung chicken is to change traditional keeping system to semi intensive and intensive management system. Objective of this experiment is to produce high breed kampung chicken with egg production more than 40 percent, to increase population of selected kampung chicken, to contribute day old chicks to the multipliers continuously and consistency.

MATERIALS AND METHODS

An experiment w2aqs conducted using 100 females and 10 males of selected kampong chicken at 18-20 months of age. It was producing 400 day old chicks. The assumption of sex ratio (1:1), it was preparing 200 females and 20 males for replacement stock.

The birds were placed in colony cages at growing period (0-20 weeks) and individual battery cages at laying period (21-42 weeks). Feed and water provided about 70 g/bird/day. The composition of diets was given in Table 1.

Mareks and New Castle Disease Vaccinations were administered to all birds as program recommended. Data were calculated based on average and standard deviation for all parameters. Observations were conducted on body weight, feed consumption and feed conversion at growing period, whereas egg production, egg weight, feed consumption and feed conversion were monitored at laying period.

Table 1. Chemical composition in diets of experiment

Chemical composition	Growing period (0 – 20 weeks)	Laying period (21 – 42 weeks)
Energy, kcal/kg	4179	4476
Crude protein, %	21.84	17.15
Water, %	10.84	10.62
Fat, %	6.59	10.70
Crude fiber, %	2.60	7.26
Ash, %	5.50	12.51
Ca, %	0.81	2.01
P, %	0.59	1.22

RESULTS AND DISCUSSION

Growing Period

The average body weight, feed consumption and feed conversion of selected kampong chicken at 12 weeks and 20 weeks of age are shown in Table 2.

Table 2. Performance of selected kampong chicken at 12 weeks and 20 weeks of age

Item	Age in weeks	
	12 weeks	20 weeks
Body weight, g	745.90 (83.90)	1110.88 (102.48)
Body weight gain, g	717.98 (80.76)	1082.95 (99.91)
Feed consumption, g	2827.00 (260.79)	7082.71 (472.18
Feed conversion, g/g	4.13	6.57

Based on Table 2, it was indicated that body weight was higher compared to kampung chicken which was kept under extensive system, as reported by Nataamijaya *et al.* (1990); those are body weight was 590.2 gram at 12 weeks and was 1020.4 gram at 20 weeks of age. But, it was less than body weight of selected kampung chicken as reported by Sartika *et al* (2008); those are 668.48 gram and 1228.56 gram of body weight at 12 and 20 weeks, respectively. The various body weight of chicken was influenced by several factors, among other things were breed, temperature of environment, quantity and quality of diet (Say, 1987).

Feed consumption of birds at 12 weeks and 20 weeks of age were 2827 gram and 7082.71 gram, respectively. Similar results have been reported by Sartika *et al.* (2008) who found that feed consumption average of selected kampung chicken at 10 weeks of age were 2676 gram. Kartasudjana (1999) reported that feed consumption average of kampung chicken up to 16 weeks was 5750 gram.

Feed conversion of selected kampung chicken at 12 weeks and 20 weeks of age were 4.13 and 6.57 respectively. Results of the experiment agree with Zainuddin and Nazar (1999), that feed conversion of selected kampung chicken at 10 weeks of age was 4.71-4.93. Resnawati (2010) reported that feed conversion of kampung chicken at 12 weeks of age were about 4.1 – 4.72.

Laying period

Generally, farmers keep native chicken by three types of management i.e. extensive, semi intensive and intensive system. This system affect different performance of kampung chicken, as presented in Table 3.

Table 3. Performance of kampung chicken layer under extensive, semi intensive and intensive system.

Performance	Management system		
	Extensive	Semi Intensive	Intensive
Egg production, egg/bird/year	47	59	146
Egg production, %	13	29	40
Laying frequency, times/year	3	6	7
Hatchability, %	74	79	84
Egg weight, g/egg	39-48	39-48	39-43
Feed consumption, g/bird	<60	60-68	80-100
Feed conversion, g/g	>10	8-10	4.9 – 6.4
Mortality 0-6 weeks, %	50-56	34-42	<27
Mortality >20 weeks, %	>15	15	<6

Source: Diwiyanto *et al.* (1996)

There are several factors of importance in pullet development. Each group of egg-type pullets must reach sexual maturity at the correct weight for that particular strain and at an age that is optimum to produce eggs economically during her laying year (North, 1984). The sexual maturity of chicken has various age, it depends on genetics, practices and feed management.

The first laying egg of selected kampong chicken in this experiment has the variation 155-167 days. This results agreed with the findings of Putra (1999) who reported that sexual maturity of selected kampung chicken between 139-180 days (163.05 $\pm$ 13,58 days). Sartika *et al.*, (2008) studied that sexual maturity of selected kampong chicken 174.1 days. But, Mansjur (1989) defines sexual maturity of kampong chicken under extensive and intensive systems were 191 and 139 days, respectively. According to this experiment, sexual maturity of selected kampung chicken was at the optimal results.

The younger the bird at sexual maturity, the smaller the size of her first eggs, high egg production, but shorter age of laying (Parkhust and Mountney, 1987). Average first egg weight of selected kampung chicken was 30.48 gram. This results was less than what it has been reported by previous experiments that first egg weight of kampung chicken were 32.99 gram (Sartika *et al.*, 2008), 31.5 gram (Putra, 1999), 31.6 gram (Mansjur, 1989). Egg weight was influenced by several factors among other things were sexual maturity, genetics, quantity and quality of diet especially the requirement of protein and amino acids (North, 1994) and (Summers and Lesson, 1994). Egg weight at 12 weeks was 37.06 gram and at 20 weeks was 38.59 gram which increases gradually in accordance with age of selected kampung chicken.

Hen-day egg production is one of the parameter to calculate the day-to-day variation in egg production (eggs per hen per day x 100). Performance of selected kampong chicken at 12 weeks and at 20 weeks of age, are given in Table 4.

Table 4 shows that average hen-day egg production of selected kampung chicken at 12 weeks (40.34 %) and at 20 weeks (37.22 %). Result of this experiment is higher than previous experiment that hen-day egg production of bird at 12 weeks and at 20 weeks, were 35.0 % and 34.56 % (Sartika *et al.*, 2008).

Table 4. Hen-day egg production, feed consumption and feed conversion of selected kampung chicken

Performance	Period of egg production	
	12 weeks	20 weeks
Hen-day egg production, %	40.34 ( )	37.22 ( )
Feed consumption, g/d/bird	75.22 ( )	76.68 ( )
Feed conversion, g/g	5.09	5.59

Peak production of bird was 58.46 %. Hen-day egg production was at 31 weeks and it decreases to 39.89 % at 40 weeks of laying age. Feed consumption and feed conversion at 12 weeks and at 20

weeks, were 75.22 g/d/bird and 76.68 g/d/bird; 5.09 and 5.59, respectively. Selected kampung chicken of this research can improve their performance compared to previous research work. This was caused by the improvement of management, particularly in feeding and biosecurity programs.

CONCLUSIONS

According to the results of this experiment, it was concluded that kampung chicken had a better performance if it was kept by the improvement of breeding, feeding and management program programs.

LITERATURE CITED

Diwiyanto, K., D. Zainuddin, T. Sartika, S. Rahayu, Djufri, C. Arifin dan Cholil. 1996. Model pengemnangan peternakan rakyat terpadu beorientasi agribisnis. Komoditasternak ayam buras. Laporan. Dit Jen Nak bekerja sama dengan Balitnak. Bogor. 94 Halaman.

Mansjur, S.S. Pengembangan ayam local di Indonesia. Prosiding Seminar Nasional tentang Unggas Lokal. Lustrum V. Fakultas Peternakan, UNDIP Semarang, 28 September 1989.

Nataamijaya, A.G., H. Resnawati, T. Antawijaya, I. Barchia dan D. Zainuddin. 1990. Produktivitas ayam buras di dataran tinggi dan dataran rendah. Ilmu dan Peternakan. Pusat Penelitian dan pengembangan Peternakan. Bogor. September 1990. 4(3)283-286.

North, M.O. 1994. Commercial Chicken Production Manual. Fourth Ed. The AVI Publishing Co., Inc., Westport. Connecticut.

Parkhurst, C.R. and G. J. Mountney. 1987. Poultry Meat and Egg Production. An AVI Book. Published by Van Nostrand Reinhold, New York, USA.

Putra, F. 1999. Pengaruh sifat bentuk jengger terhadap produksi telur ayam kampong selama tiga bulan pertama. Skripsi. Jurusan Peternakan, Fakultas Peternakan, Universitas Djuanda, Bogor.

Resnawati, H. 2010. Inovaqsi Teknologi Pemanfaatan Bahan Lokal Mendukung Pengembangan Industri Ayam Kampung. Orasai Pengukuhan Profesor Riset Bidang Pakan dan Nutrisi Ternak. Badan Penelitian dan Pengembangan Pertanian. Kementrian Pertanian, Bogor. 21 Juni 2010. 66 Hlm'

Sartika, T., D. Zainuddin, S. Iskandar, H. Resnawati, E. Juarini, T. Herawati, A. Udjianto, Gunadi dan Yulianti. 2008. Pengembangan ayam kampung unggul petelur melalui sistem pembibitan "open nucleus". Kumpulam hasil-hasil Penelitian Tahun Anggaran DIPA 2007. Buku II Non Ruminansia. Edisi Khusus. Balai Penelitian Ternak, Ciawi-Bogor. Hlm 1-42.

Say, R.R. 1987. Manual of Poultry Prodution in Tropics. English Ed. Published by CAB International, Wallingford, Oxon, UK.

Sudaryani, T. dan H. Santoso. 1996. Pembibitan Ayam Buras. Penebar Swadaya, Jakarta.

Summers, O.J. and S. Lesson. 1994. Laying hen performance influence by protein intake to sixteen weeks of age and body weight at point of lay. Poultry Sci. 73:495-501

Zainuddin, D. dan A. Nazar. 1999. Upaya menekan biaya pakan dengan teknologi pemanfaatan limbah restoran untuk ransum ayam buras. Jurnal Pengembangan Peternakan Tropis. Edisi Khusus. Fakultas Peternakan Diponegoro, Semarang Jawa Tengah. Hlm. 84-92.