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production of meat and egg. The semi-intensive system, compared to the extensive system, had a higher rate of eggs production. 1. Introduction Native chicken is an indigenous breed that exhibits high adaptability and provides meat and egg as food sources [1]. The meat of native chicken is popular because it is delicious, low-fat, and has low cholesterol [2]. Meanwhile, native eggs are superior to laying eggs for their savory taste and less rancid smell, thus safe for consumption either raw or cooked [3]. Native chickens are generally kept in traditional or extensive systems, but nowadays, a semi-intensive system has gained popularity [4]. Extensive maintenance is a traditional system where farmers play a minimum role and let the chickens forage to feed themselves. In a semi-intensive system, the farmers provide reserved space for the chickens, complete with the cage and its equipment, regular feeding, and an enclosed area with fences or partitions for the chickens to forage nearby. The intensive maintenance allows farmers to perform a fast-handling system, proper animal health management, disease control and evaluation, business added-value, and improved aesthetic aspects and sanitary quality [5]. Improving the maintenance system of native chicken has been known to increase chicken productivity up to 50% [6]. Accordingly, this study evaluated the discrepancy in population and production performance of native chickens between the extensive and intensive maintenance systems. [Content from this work may be used under the terms of the Creative Commons Attribution 3.0 licence. Any further distribution of this work must maintain attribution to the author\(s\) and the title of the work, journal citation and DOI. Published under licence by IOP Publishing Ltd 1](#)

[2. Materials and methods](#) Study Area and Source of Data. We surveyed the farmers who kept their native chickens under extensive and semi-intensive systems in Banyumas (36 vs. 44 farmers) and Kebumen (42 vs. 40 farmers). In the survey, we observed and measured egg production performance, conducted a structured interview using a questionnaire as an instrument, and analyzed the secondary data obtained from the reports of related agencies. The samples were collected using purposive sampling to select native chicken farming that implemented traditionally (extensive) or semi-intensive maintenance systems. The collected data included the population of native chickens based on chickens' sex and age and chicken productivity (egg production, egg weight, hatching eggs, and hatchability). The data were processed and presented in tables and graphs to evaluate the population growth. The production [performance, including egg production, egg weight](#), hatching eggs, [and](#) hatchability, was analyzed with the [General Linear Model \(GLM\)](#). [3. Results and discussion 3.1.](#) Population and production of native chicken Native chickens keep developing and are now the highest poultry population in Banyumas and Kebumen districts. The contrasting geographic and climatic conditions of both districts, i.e., the high-land Banyumas and low-land/coastal Kebumen, and the different maintenance systems for native chickens are assumed to have produced discrepancies in the productivity of native chickens. Table 1. Production and population of native chicken. Population of native chicken (bird) Districts 2016 2017 Banyumas 1,320,970 1,334,568 Kebumen 3,926,990 3,927,265 Central Java 41,976,727 41,960,085 Indonesia 294,333,000 299,701,000 Meat production of native chicken (kg) Districts 2016 2017 Banyumas 694,243 619,861 Kebumen 33,860 69,590 Central Java 31,603,000 32,103,000 Indonesia 285,000,000 300,100,000 Egg production of native chicken (kg) Districts 2016 2017 Banyumas 777,245 667,568 Kebumen 1,869,393 1,894,552 Central Java 32,855,000 29,283,000 Indonesia 196,700,000 221,000,000 Source: BPS [7] 2018 1,053,940 3,927,540 40,633,383 300,978,000 2018 811,534 5,085,400 31,405,000 287,200,000 2018 566,914 1,894,557 32,189,000 212,300,000 2019 1,071,350 3,927,820 41,554,574 301,761,000 2019 811,530 5,085,400 38,202,000 292,300,000 2019 566,910 1,894,560 30,668,000 246,700,000 2020 1,189,200 3,182,250 42,754,276 308,477,000 2020 700,789 584,090 34,201,000 293,100,000

2020 685,220 1,899,992 35,077,000 251,000,000 Growth -0.100 -0.190 0.019 0.048 0.009 16.250 0.082 0.028 -0.118 0.016 0.068 0.276 The growing population of native chicken as a meat producer in Indonesia is second only to broilers and the third biggest egg producer [8]. The ever-increasing population is widespread across Indonesia. From 2016 to 2020, both the population and production of native chickens increased (Table 1). By 2020, the population of native chickens in Banyumas and Kebumen was 1,189,202 and 1,182,250, respectively. Banyumas produced 700.7 tons of meat and 685.22 tons of eggs, while Kebumen produced 3,584.09 tons of meat and 3,004.47 tons of eggs [7]. The trend of population growth and increased production of meat and eggs are not always positive because they may decrease in any years (Table 1). However, indigenous chickens exhibit a relatively fast recovery rate despite the decrease [9], attributed to the chicken's biological factors and farmers' interest in breeding indigenous chickens.

3.2. The different productivity of native chickens in extensive and semi-intensive systems

Based on its geographic and climatological conditions, together with a vast range of area and feeds, Banyumas and Kebumen districts are potential areas for developing native chickens. Situated at an elevation of 17-420 meters above sea level, Banyumas has an average temperature of 21.4°C-30.9°C, with 57-86.62% humidity and 623.50 mm precipitation [7]. When undertaking the study, we found that Banyumas had an average temperature of 29.82°C with 78.05% humidity, while Kebumen was averagely 29.99°C with 68.82% humidity. Banyumas district is dominated by highland areas, while Kebumen is mostly low-land or coastal areas. Hence different management and maintenance systems for native chickens farming affect animal productivity.

Number Of chickens	80	70	60	50	40	30	20	10	0	M	F	M	F
1-4 weeks	5-8 weeks	Banyumas	Extensive	Kebumen	Extensive	M	F	8-12 weeks	sex and sge	M	F	12-16 weeks	>16 weeks
Banyumas	Semi-Intensive	Kebumen	Semi-Intensive	Figure 1.	The population of native chickens based on sex and age.	A parameter in native chicken productivity is the growing population affected <u>by the farming system</u> that includes <u>the male-to-female ratio</u> . A suitable mating system <u>and a proper male-to-female ratio are the</u> success factors of producing fertile eggs. The number of native chickens in the area of study based on age and sex is presented in Figure 1. Table 2. Average egg production in Banyumas and Kebumen Districts. Variables							

	Banyumas	Kebumen	Extensive	Semi-intensive
Production/chicken/period	11.44±2.06b	13.28±1.76a	12.3±2.00b	12.50±2.12b
Egg weight (g)	41.78±1.77a	41.61±3.70a	41.62±1.36a	39.46±2.42b
Total hatched eggs	10.31±2.44	11.24±3.18	10.05±1.82	11.00±2.18
Hatchability (%)	77.14±15.07	83.89±7.87	72.87±23.07	78.29±14.71

Note: Different superscripts within row show a significant difference (P<0.05) The result showed that the average population (in percent) of female native chicken was higher than males across ages, but the male-to-female ratio was relatively low (Figure 1). A previous study reported a mating system with a male-to-female ratio of 1:7, 1:5, and 1:9 showed a better fertility percentage than the 1:11. In addition, the 1:7 and 1:9 ratio produced a higher percentage of hatchability than the 1:5 and 1:11. Salamony et al. [10] recommended a 1:7 male-to-female ratio to produce higher egg fertility. Egg production refers to the number of eggs produced by a native chicken parent in a hatching period. The average egg production in Banyumas and Kebumen districts in this study is presented in Table 2. The result of variance analysis shows a significant difference (>0.05) in the production and egg weight variables according to each maintenance system. However, the geographic area and maintenance system did not produce a significant difference (P<0.05) on total hatched eggs and hatchability (Tabel 2). In Banyumas, native chickens in the semi-intensive maintenance produced more eggs than those in extensive systems. Meanwhile, the egg production in Banyumas and Kebumen in the present study was lower than in another study [11], which reported an 85% fertility, an average

production of 20 eggs/chicken/period, and an average weight of 38.8g/egg. The contributing factors to egg production and egg weight are the parent's age and body weight, genetic factors, medicine, feed nutrient, disease, and environmental factors [12-14].

4. Conclusions

The population growth and the increased egg production of native chickens in Central Java were relatively lower than the national rates in the past five years, but their meat production was higher. The egg production in a semi-intensive system is higher than that in an extensive system.

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References

- [1] Kartika A, Widayati K, Burhanuddin and M Ulfah 2016 Jurnal Ilmu Peternakan Indonesia 21 180–185
- [2] Arni, Hafid H and Aka E 2016 Jurnal Ilmu dan Teknologi Peternakan Tropis 3 104–108
- [3] Sujinohaji K 2013 Ayam Kampung Petelur (Yogyakarta: PT. Niaga Swadaya)
- [4] Kestaria, Nu H and Malik 2016 Jurnal Peternakan Nusantara 2 43–48
- [5] Wibowo B and Sartika T 2011 Prosiding Seminar Nasional Teknologi Peternakan dan Veteriner ed Prasetyo L H, Damayanti R, Iskandar S, Herawati T, Priyanto D, Puastuti P, Anggraeni A, Tarigan S, Wardhana A H, Dharmayanti N L P I (Bogor: Indonesian Center for Animal Research and Development)
- [6] Sujionohadi K and Setiawan A I 2012 Ayam Kampung Petelur (Jakarta: Penebar Swadaya)
- [7] BPS 2021 Populasi Unggas Menurut Districts/kota dan Jenis Unggas di Provinsi Jawa Tengah (KG), 2018–2020 (Semarang: Badan Pusat Statistik)
- [8] Dirjen Peternakan dan Kesehatan Hewan 2020 Buku Statistik Peternakan dan Kesehatan Hewan Tahun 2020 (Jakarta: Direktorat Jenderal Peternakan dan Kesehatan Hewan: Kementerian Pertanian RI)
- [9] Wibowo B 2016 WARTAZOA 26 191–202
- [10] Salamony S M, Soukta N, Telussa S P and Andari G 2019 Musamus Journal of Livestock Science 2 21–27
- [11] Helendra, Imanidar and Sumarmin R 2011 EKSakta 1 29–37
- [12] Ahmadi F and Rahimi F 2011 World Applied Sciences Journal 12 372–384
- [13] Jacob J P, Wilson H R, Miles R D, Butcher G D and Mather F B 2017 Factors Affecting Egg Production in Backyard Chicken Flocks (Gainesville: University of Florida)
- [14] Irwan, Has H and Saili T 2020 Jurnal Ilmiah Peternakan Halu Oleo 2 98–102

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