Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

Optimizing Local Chicken Productivity in a Semi-Intensive System in the Sepakat Jaya Livestock Group, Padang Laweh Village, Kampar District

Sadarman[1,*], R. Misrianti[1], Z. Ahmad[2], S. Novianti[3], J. Handoko[1]
[1]Department of Animal Science, Faculty of Agriculture and Animal Science, Universitas Islam Negeri Sultan Syarif Kasim Riau, Pekanbaru 28293, Indonesia.
[2]Graduate Student Department of Animal Science, Faculty of Agriculture and Animal Science, Universitas Islam Negeri Sultan Syarif Kasim Riau, Pekanbaru 28293, Indonesia.
[3] Department of Animal Science, Faculty of Animal Science Universitas Jambi, Muaro Jambi 36361, Indonesia.

***Coresponden email**: sadarman@uin-suska.ac.id

ABSTRACT

The productivity of local chickens can be improved through the enhancement of the rearing system, ranging from extensive to intensive management. This research aims to identify the production characteristics of native chickens reared semi-intensively in the Sepakat Jaya Livestock Group, Padang Laweh Village. Ten farmers who raise more than 20 local chickens were selected as respondents for this study. The research was conducted in the form of a survey, with the selection of the location, farmers as respondents, and the use of native chickens as research samples carried out through purposive sampling. The collected data, such as the age at first egg laying, the body weight of the hens at first egg laying, and the weight of the first egg, were analyzed using descriptive statistics. The results of this study indicate that the production characteristics of local chickens reared semi-intensively in the Sepakat Jaya, Padang Laweh, include age at first egg laying of approximately 178.7 days, a body weight of hens at first egg laying of around 1.46 kg per bird, and a weight of the first egg of about 49.1 grams per egg. This research concludes that semi-intensive rearing can improve the production characteristics of local chickens in the Sepakat Jaya, Padang Laweh.

Kata Kunci: Productivity, local chickens, semi-intensively, Sepakat Jaya, Padang Laweh

PENDAHULUAN

The indigenous chickens, known as local chickens, are omnivorous birds belonging to the Aves class, Galliformes order, and Gallus domesticus species. They have experienced rapid growth in Indonesia, particularly in the Kampar Regency. The local population in Kampar commonly raises these chickens for various purposes, including utilizing their backyard space, meeting nutritional needs, and increasing household income. Native chickens possess a remarkable ability to adapt to diverse conditions, environments, and varying climates. Typically, community members engage in local chicken rearing as a

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

supplementary activity, often using traditional or extensive methods (Pamungkas, 2005; Sadarman et al., 2013).

The population of local chickens in Riau Province in 2021 was 6,882,281, and in 2022, it reached 7,019,927, with an average annual growth rate of 1.97% (Directorate General of Livestock and Animal Health, 2022). The majority of this local chicken population is located in Kampar Regency. The increase in the native chicken population is achieved through proper care, including providing an adequate supply of food and water, effective disease and parasite control, selecting high-quality local chickens for breeding, and maintaining a clean and safe environment (Larkina et al., 2021).

The productivity of local chickens can be enhanced by improving the rearing system, ranging from extensive to semi-intensive and even intensive methods. According to Wihandoyo et al. (1981) and Wiloeto and Rozani (1986), local chickens raised extensively produce approximately 58-78 eggs per year. However, when raised intensively, egg production can reach around 120-151 eggs per year, as noted by Nataamijaya (1988) and Assefa et al. (2018). Similarly, improvements can be observed in the weight gain of chickens at 20 weeks of age, increasing from 950-1200 grams per bird to 1400-1750 grams per bird, as reported by Yaman (2013).

A study on the productivity of semi-intensively raised local chickens in Kampar Regency was reported by Masperi (2014). The average egg production for local chickens in Padang Merbau Barat Hamlet was approximately 7.85±1.98 eggs per bird, with a Hen Day Production (HDP) of 60.4±34.3%. In Padang Merbau Timur Hamlet, the average egg production was around 8.60±2.33 eggs per bird, with an HDP of 57.7±35.9%. The average egg weight for local chickens in Padang Merbau Barat was approximately 37.9±5.13 grams per egg, with an egg mass of about 17.9±14.7 grams. In Padang Merbau Timur, the average egg weight for native chickens was approximately 38.5±3.07 grams per egg, with an egg mass of about 17.4±15.91 grams.

Ahmadani (2015) also reported on the reproductive characteristics of native chickens in two research locations, namely, Padang Merbau Barat Hamlet and Padang Merbau Timur Hamlet. The research findings indicated that the weight of hatched local chicken eggs in Padang Merbau Barat was approximately 36.8±4.85 grams per egg and in Padang Merbau Timur was around 38.3±3.05 grams per egg. The weight of one-day-old native chicken chicks in Padang Merbau Barat was approximately 30.1±2.85 grams per chick and in Padang Merbau Timur was about 31.5±2.90 grams per chick. The hatchability rate of local chicken eggs in Padang Merbau Barat was approximately 90.5±12.4%, and in Padang Merbau Timur, it was approximately 95.2±6.53%.

The Sepakat Jaya is the sole livestock group engaged in local chicken farming in Padang Laweh Village, Tambang Subdistrict, Kampar Regency. This livestock group was established with the aim of increasing family income through local chicken farming. The population of local chickens owned by the

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

Sepakat Jaya is approximately 498, consisting of 145 males and 353 females. The population growth of native chickens in the Sepakat Jaya has not shown satisfactory results when considering its production characteristics.

The assessment of production characteristics, including age at first egg laying (AFEL), weight of hens at first egg laying (WEFL), weight of the first egg (WFE), and egg production (EP), is essential for the future development of local chickens, whether for supplementary income to support families or as a primary livelihood. This research aims to determine the production characteristics of semi-intensively raised local chickens in the Sepakat Jaya Livestock Group.

MATERIALS AND METHODS

Research Materials

In this research, 100 female local chickens aged 5-6 months were used. These chickens were semi-intensively raised by farmers affiliated with the Sepakat Jaya Livestock Group in Padang Laweh Village. The selected local chickens for this study had similar characteristics at the age of 5-6 months, including a body weight ranging from 1 to 1.30 kg per bird, red combs and wattles, reddish-white earlobes, clean and healthy feathers, and no distinction based on their parentage.

Research Methodology

The research was a survey study. The native chickens that were chosen as samples in this research were selected through purposive sampling (Stadnicka et al., 2023), which involved intentionally selecting samples based on the specific criteria needed for this research. The sample criteria included characteristics that reflected the population of the samples themselves. The stages in this research were as follows:

Determination of Research Location

The selection of the research site was carried out using purposive sampling, ensuring that the chosen location had a significant presence of local chicken populations. For the purposes of this study, the population referred to all mature local chickens in the early laying phase that were being semi-intensively raised by farmers within the Sepakat Jaya in Padang Laweh. Ultimately, the research site selected for this study was the Sepakat Jaya located in Padang Laweh.

Determination of Respondents

The respondents in this research were local chicken farmers who are members of the Sepakat Jaya in Padang Laweh. The selection of respondents was carried out through purposive sampling. The characteristics of the respondents were individuals who raised more than 20 local chickens with a semi-intensive rearing system.

The Sepakat Jaya in Padang Laweh had a total of 10 members. On average, each member owned about 50 native chickens. The total number of chickens raised within the livestock group was 498. Based on these

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

criteria, all members were considered respondents in this research.

Sampling of Local Chickens

The choice of native chicken samples was carried out through purposive sampling, considering criteria such as maturity and being in the early production stage. These chickens were being semi-intensively raised by farmers in the selected research location. The total population of native chickens at the research site was approximately 490, including chicks, young hens, and both male and female breeding chickens. Based on these criteria, a sample of 100 local chickens was chosen, with each farmer contributing 9-10 chickens to the sample.

Data Collecting

Data collection in this study followed a sequential process, commencing with the identification of the research site and the selection of participants. Subsequently, native chickens owned by the chosen respondents were documented, and a subset of local chickens was chosen as samples based on criteria aligned with the research objectives. These selected chickens were marked as samples by trimming their tail feathers, and relevant research parameters were recorded.

Observed Parameters

Age at First Egg Laying (days), the age at which a chicken starts producing eggs for the first time. Weight of Hens at First Egg Laying (g/bird), the weight of hens is measured by weighing them after they lay their first egg. Weight of the First Egg (g/egg), the weight of the first egg is determined by weighing the egg produced by the chicken for the first time.

Data Analysis

The collected data is tabulated and then described by calculating the mean (average), standard deviation, and coefficient of variation following the methods outlined by Stadnicka et al. (2023).

a. Mean

$$\overline{X} = \frac{\sum Xi}{n}$$

Where $\bar{X}$ is the mean (average) of all the values in the sample, *Xi* is represents individual data points in the sample, $\sum$ is addition, and *n* is sample size.

b. Standard Deviation

If have a sample of size n with data X1, X2, …, Xn, then the standard deviation, according to Cetinkaya-Rundel and Hardin (2021), is calculated using the formula:

$$S = \frac{\sqrt{\sum (Xi - \overline{X})^2}}{n-1}$$

Where S is standard deviation, $\bar{X}$ is the mean (average) of all the values in the sample, $\sum$ is addition, *Xi* is represents individual data points in the sample, and *n* is the number of data points in the sample.

c. Coefficient of Variation

The Coefficient of Variation (CV) according to Cetinkaya-Rundel and Hardin (2021) is calculated as follows:

$$\text{CV} = (\frac{\sigma}{\bar{X}})\ x\ 100\%$$

Where CV is the coefficient of variation, S is standard deviation, and $\bar{X}$ is the mean (average) of all the values in the sample.

RESULTS AND DISCUSSION

Overview of the Research Location

Padang Laweh Village is situated in the Tambang Subdistrict of Kampar Regency, Riau Province. Its location is strategically advantageous, being just a 30-minute drive from the provincial capital, Pekanbaru.

Padang Laweh shares its borders with Pekanbaru to the East, Terantang to the West, Tambang to the South, and Kuapan Village to the North. The primary occupation of its residents revolves around agriculture, particularly the cultivation of rubber and oil palm. Other vocations include civil service, private sector employment, farming, and a minority engaged in livestock husbandry.

In Padang Laweh, poultry farming practices, including native chicken farming, predominantly follow extensive methods. Extensive farming is perceived as challenging for improving livestock productivity due to minimal farmer intervention in managing the chickens. Furthermore, Gade et al. (2017) stated that nutrition and feed quality are critical factors in poultry farming, with chickens requiring adequate levels of energy and protein for growth and reproduction.

High-quality feed is characterized by its nutritional suitability for the specific age or rearing phase of the chickens. Extensive poultry farming allows chickens to source their food from the natural environment, leading to varied nutritional intake. This is further exacerbated by the competitive nature of extensively raised chickens (Assefa et al., 2018).

Efforts to enhance native chicken productivity are actively pursued by Padang Laweh farmers. Initiatives include the formation of livestock groups, driven by village authorities and Field Agricultural Extension Workers. Among these groups, the Sepakat Jaya continues to thrive in native chicken farming endeavors.

Overview of Sepakat Jaya Livestock Group

Sepakat Jaya was established in collaboration between Almaturidi (the Village Secretary of Padang Laweh) and local community members. The formation of this group was initiated based on a collective agreement among community members who shared a common interest, namely, native chicken farming.

The inception of Sepakat Jaya began when several villagers with a strong interest started visiting Almaturidi's local chicken coop. Almaturidi had been involved in local chicken farming for an extended period. Starting as a hobby, his endeavor gradually attracted the attention of local residents, inspiring them to pursue the same passion as Almaturidi.

This group comprises 20 members from Padang Laweh, each engaged in semi-intensive local chicken farming. Semi-intensive farming doesn't require continuous supervision because the chickens are allowed to roam freely during the day and are confined to their coops in the evening. Field observations indicate that farmers construct coops for their native chickens. These coops are raised about 1 meter above the ground and are primarily made from wood

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

and bamboo, with roofs crafted from zinc and thatch.

The local chicken coops belonging to members of Sepakat Jaya Padang Laweh are equipped with roosting areas and nesting spaces. Roosting areas are constructed from rounded pieces of wood, while nesting spaces are created from repurposed plastic containers. Some group members have designed nesting spaces using bamboo, referred to as "sangkar bertelur."

Members of Sepakat Jaya Padang Laweh have implemented basic management practices for their native chicken farming. These practices include selecting high-quality breeding stock, providing coops and nesting areas, supplying feed, disease prevention, and marketing.

In the process of selecting superior breeding stock, group members have adopted a mating system that involves elder chickens displaying superior traits. Offspring from these elder chickens are raised with the intention of becoming potential breeders for the next generation.

The coops owned by members of Sepakat Jaya Padang Laweh consist of elevated coops, and some have postal coops. Nesting boxes are provided by members in each coop. The nesting spaces for the chickens are quite basic, often utilizing repurposed buckets or containers that have been modified to accommodate the size of the chickens.

Feed is partially provided by Sepakat Jaya Padang Laweh for the chickens they raise, while some of it is foraged by the chickens in their yards or the surrounding areas. The group members supply complete feed or commercially prepared feed obtained from poultry shops in the nearby area and in Panam, Pekanbaru City.

Disease prevention and treatment are partially managed by farmers with the assistance of Field Agricultural Extension Workers. Preventive measures include vaccinating the chickens against Newcastle disease (ND). Farmers also maintain records related to the vaccination activities.

The Age of First Egg Laying in Local Chickens

The research data related to the average age at which local chickens lay their first egg is presented in Table 1.

Table 1. The Average Age of First Egg Laying in Local Chickens at the Sepakat Jaya in Padang Laweh

No.	Origin of Chickens	Sample Size (Bird)	Age of First Egg Laying (Days)
1.	Farmer 1	11	178
2.	Farmer 2	10	180
3.	Farmer 3	11	178
4.	Farmer 4	9	179
5.	Farmer 5	11	180
6.	Farmer 6	10	178
7.	Farmer 7	10	180

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

8.	Farmer 8	10	179
9.	Farmer 9	9	178
10.	Farmer 10	9	176
	Means	15.2	179
	STDEV		1.39

Note: The data displayed are the mean values and standard deviations

Table 1 provides data indicating that the native chickens under the care of Sepakat Jaya members initiate egg laying at a slower rate compared to previous research findings. Statistical analysis reveals that these local chickens, on average, begin laying eggs at approximately 178.7 days of age, which is roughly equivalent to 5.9 months. In contrast, Powell (2022) suggests that local chickens typically commence egg laying at 20 weeks of age, or around 5 months.

The research conducted by Sartika and Gunawan (2007) reports that the average age at which native chickens in several West Java regions, such as Cianjur (around 166.9 days) and Jatiwangi (approximately 172.9 days), start laying eggs is lower, indicating a faster egg-laying onset compared to the findings of this study. However, in Depok (around 180.8 days) and Bogor (approximately 183.1 days), the local chickens tend to start laying eggs at an older age, indicating a longer onset period compared to those raised in Sepakat Jaya in Padang Laweh.

The timing of egg-laying in local chickens, whether it's faster or slower, is influenced by various factors, including the husbandry system employed (Owens, 2019), the availability of appropriate quantity and quality of feed for the chickens (Yuwanta, 2010), and the implementation of disease prevention and treatment programs (Tabbu, 2015).

Ghosh's classification (2020) divides local chicken husbandry systems into three distinct categories. Firstly, there is the traditional or extensive system, characterized by chickens freely roaming without confinement and relying on foraging for their food, often accompanied by various traditional management practices. Secondly, the semi-intensive system blends traditional and modern husbandry methods. Lastly, the intensive system involves confining chickens throughout their entire life and ensuring their nutritional needs are met through appropriate feed and water.

The Sepakat Jaya in Padang Laweh adopts a semi-intensive husbandry system for their native chickens. This means that in addition to allowing the chickens to freely range part of the time, group members actively care for their chickens. According to Yuwanta (2010), in a semi-intensive local chicken husbandry system, farmers play a significant role in taking care of their chickens, contributing about 50% of the care effort, while the remaining aspects involve chickens foraging in the surrounding environment. This implies that farmers continue to provide feed, water, and other elements related to the production and reproduction of their local chickens.

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

Apart from the husbandry system, local chickens require an ample supply of high-quality feed. This aligns with Scanes and Christensen's assertion (2020) that the production of native chickens is closely tied to both the quantity and quality of the feed they consume. In essence, when chickens have access to a sufficient quantity of nutritious feed, they tend to commence egg-laying at an earlier stage. In the research area, feed availability remains inadequate, prompting livestock group members to source commercial feed from poultry shops. This situation impacts the timing of egg laying for local chickens in the Sepakat Jaya in Padang Laweh, with egg laying typically occurring around 5-6 months, consistent with established standards (Yuwanta, 2010, and Yaman, 2013).

Parent Hen Weight at Laying

The research data related to the average weight of parent hens at their first laying is presented in Table 2.

Table 2. Average Body Weight of Parent Hens at the Onset of Laying in Sepakat Jaya, Padang Laweh

No.	Origin of Chickens	Sample Size (Bird)	Initial Laying Hen Weight (Kg/Bird)
1.	Farmer 1	11	1.42
2.	Farmer 2	10	1.47
3.	Farmer 3	11	1.43
4.	Farmer 4	9	1.49
5.	Farmer 5	11	1.49
6.	Farmer 6	10	1.47
7.	Farmer 7	10	1.52
8.	Farmer 8	10	1.47
9.	Farmer 9	9	1.48
10.	Farmer 10	9	1.40
	Means	15.2	1.46
	STDEV		0.04

Note: The data displayed are the mean values and standard deviations

The weight of the chickens is linked to their feed intake. Chickens that consume the maximum amount of feed will achieve their optimal body weight (Tyasi et al., 2021). The findings of this study reveal that the initial body weight of the parent hens is approximately 1.46 kg per bird. This observation aligns with the standard body weight for laying hens, which falls within the range of 1.3-1.5 kg per bird (Yuwanta, 2010; Waddell, 2017). As reported by Sartika and Gunawan (2007), in the production phase of laying hens within the base selection population, achieving the optimal body weight typically ranges from 1.40-1.70 kg per bird. The attainment of the optimal body weight at the outset of production in this research is facilitated by the availability of feed, which is directly provided by the farmers (Tyasi et al., 2021).

According to Islam et al. (2016), chickens can thrive and grow

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

properly when the required feed is readily available in sufficient quantities and of high quality. Adequate feeding refers to providing chickens with the right amount of nutrition to meet their needs. Local chickens typically require around 100-120 grams of feed per bird per day. The semi-intensive farming system ensures that chickens have access to feed from two sources: the natural environment and the farmers who care for them.

Observations made at the research site indicate that members of the Sepakat Jaya have taken measures to provide feed for the chickens they are raising, allowing the chickens to grow and develop according to established standards. The feeding system employed by each member of the group is a collective one. Feeding involves the use of feeding trays that are filled with both wet and dry feed and strategically placed around the coop.

According to Scanes and Christensen (2020), the availability of high-quality feed can have an impact on the growth and development of raised chickens. Feeding practices should be adapted to the specific dietary needs of the chickens. As noted by Stadnicka et al. (2023), chickens that consume nutritionally appropriate feed for their specific requirements tend to initiate their production phase earlier. Furthermore, the quality of chicken products, including meat and eggs, can be influenced by both the quantity and nutritional composition of the feed that chickens consume. This suggests that attributes such as egg weight can be influenced by the amount and nutritional content of the feed provided to the hens during their production phase.

Weight of The First Egg

The research data related to the average weight of the first eggs of native chickens is presented in Table 3.

Table 3. Average Weight of the First Eggs of Local Chickens in the Sepakat Jaya, Padang Laweh

No.	Origin of Chickens	Sample Size (Bird)	Weight of the First Eggs (g/Egg)
1.	Farmer 1	11	47,70
2.	Farmer 2	10	48,90
3.	Farmer 3	11	47,41
4.	Farmer 4	9	50,48
5.	Farmer 5	11	50,62
6.	Farmer 6	10	49,81
7.	Farmer 7	10	50,16
8.	Farmer 8	10	49,32
9.	Farmer 9	9	49,58
10.	Farmer 10	9	47,45
	Means	15.2	49,14
	STDEV		1,23

Note: The data displayed are the mean values and standard deviations

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

Egg weight serves as an indicator of egg quality, but consumer preferences and interests can affect the demand for eggs of varying weights. Generally, producers and consumers prefer heavier eggs, while breeders opt for eggs of ideal weight for incubation (Yuwanta, 2010).

Table 3 indicates that the average weight of initial eggs from native chickens in the Sepakat Jaya Livestock Group aligns with previous research findings. Asep (2000) reported that the weight of local chicken eggs at the onset of production typically ranges from 40-49 grams per egg. Sartika and Gunawan (2007) found that at the beginning of the laying phase, the average egg weight for local chickens falls in the range of approximately 29.9-40.3 grams per egg. Indigenous Dayak chickens' eggs were reported to have an average weight of 34.5±4.2 grams per egg (Mugiyono et al., 1989), and according to Trisiwi (2014), local chickens at the start of production tend to lay eggs weighing around 37.9-40.4 grams each.

Sartika and Gunawan (2007) noted that egg weight correlates with egg size, meaning that larger eggs produced at the beginning of laying result in higher egg weights. Powell (2022) also explained that egg weight can be influenced by the size of the laying hens, with larger hens having the potential to lay larger eggs, consequently leading to higher egg weights.

Furthermore, factors affecting egg size, and thus egg weight, include the breed of hens, the adequacy of nutrition and quantity of feed consumed by chickens, and genetic factors, as mentioned by Scanes and Christensen (2020). Genetically, hens from parents that produce larger eggs are likely to lay larger eggs themselves, as stated by Scanes et al (2003).

Conclusion

The conclusion from this research is that the production characteristics of local chickens raised semi-intensively in the Sepakat Jaya can be optimized. This is evident from the first egg-laying age at approximately 178.7 days, the body weight of the hens at the first egg-laying at around 1.46 kg per bird, and the weight of the first egg at about 49.14 g per egg.

CONFLICT OF INTEREST

We certify that there is no conflict of interest with any financial, personal, or other relationships with other people or organization related to the material discussed in the manuscript

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

REFERENCES

Ahmadani, R. 2015. Weight of Hatched Eggs, Egg Weight, and Hatchability of Local Chickens Raised Semi-Intensively in Koto Perambahan Village, Kampar Timur District, Kampar Regency. *Thesis*. Faculty of Agriculture and Animal Science, Universitas Islam Negeri Sultan Syarif Kasim Riau. Pekanbaru.

Assefa, S.; Melesse, A.; Banerjee, S. 2018. Egg Production and Linear Body Measurement Traits of Local and Three Exotic Chicken Genotypes Reared under Two Agroecological Zones. Int. J. Ecol. Ecosolut. 2018, 5, 18–23.

Directorate General of Livestock and Animal Health. 2022. Livestock and Animal Health Statistics. Ministry of Agriculture. Jakarta.

Gadde, U., W.H. Kim., S.T. Oh, and H.S. Lillehoj. 2017. Alternatives to antibiotics for maximizing growth performance and feed efficiency in poultry: a review. Animal Health Research Reviews, Page 1 of 20.

Ghosh, N. 2020. Poultry Science. CBS Publishers. India.

Islam RM, Oomah DB and Diarra MS. 2016. Potential immunomodulatory effects of non-dialyzable materials of cranberry extract in poultry production. Poultry Science 1–10. [Available online at http://dx.doi.org/10.3382/ps/pew302.].

Larkina, T.A.; Barkova, O.Y.; Peglivanyan, G.K.; Mitrofanova, O.V.; Dementieva, N.V.; Stanishevskaya, O.I.; Vakhrameev, A.B.; Makarova, A.V.; Shcherbakov, Y.S.; Pozovnikova, M.V.; et al. 2021. Evolutionary Subdivision of Domestic Chickens: Implications for Local Breeds as Assessed by Phenotype and Genotype in Comparison to Commercial and Fancy Breeds. Agriculture 2021, 11, 914. https://doi.org/10.3390/agriculture11100914.

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

Masperi. 2014. Reproductive Performance of Village Chickens in Koto Perambahan Village, East Kampar Sub-District, Kampar District. *Thesis*. Faculty of Agriculture and Animal Science, Universitas Islam Negeri Sultan Syarif Kasim Riau. Pekanbaru.

Nataamijaya, A.G. 1988. Productivity of indigenous chickens in litter cages with various calorie-protein ratios. pp. 238-244. Proceedings of the National Livestock Seminar and Poultry and Various Livestock Farmers Forum II, July 18-20, 1988. Research and Development Center for Livestock, Bogor.

Scanes, C.G., G. Brant, and M.E. Ensminger. 2003. *Poultry Science*. 4th Ed. Prentice Hall. New York.

Owens, R. 2019. Handbook of Poultry Science. Syrawood Publishing House. New York.

Pamungkas, F.A. 2005. Some Criteria for Estimating Hatch Weight and 12-Week Weight in Village Chicken Selection. Journal of Animal Science and Veterinary Medicine. 10(4): 1-5.

Powell. E. 2022. Poultry Science. Syrawood Publishing House. New York.

Sadarman., Elfawati and Sadriadi. 2013. Frequency Study of Qualitative Traits in Village Chickens in Menaming Village, Rambah District, Rokan Hulu Regency, Riau Province. Proceedings of the National Seminar on Animal Husbandry and Veterinary. Research and Development Center for Livestock, Bogor.

Sartika, T. and B. Gunawan. 2007. Characteristics of Productivity Traits in Female Native Chickens During the Production Phase in the Basic Selection Population. Proceedings of the National Seminar on Livestock and Veterinary Technology. Research Institute for Livestock, Bogor.

Scanes, C.G and K.D. Christensen. 2020. *Poultry Science*. 5th Ed. Waveland Press. New York.

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

Cetinkaya-Rundel, M and J. Hardin. 2021. Introduction to Modern Statistics. 1st Ed. Openintro Publishing. New York.

Stadnicka, K., A. Dunistawska, and B. Tylkowski. 2023. Poultry Science: The Many Faces of Chemistry in Poultry Production and Processing. Deutsche Nationalbibliothek, Berlin.

Mugiyono, S., Suhardi and E. Tugiyanti. 1989. Comparison of Traditional and Semi-Intensive Native Chicken Farming. Proceedings of the National Seminar on Local Poultry. Semarang, September 28, 1989.

Tyasi, T.L.; Mashiloane, K.; Mokoena, K. 2021. Comparison of Some Linear Body Measurement Traits of Local and Commercial Chicken Breeds of South Africa. Sib. J. Life Sci. Agric. 2021, 13, 134–143.

Waddell, G. 2017. Poultry Science. Published by Library Press. New York.

Wihandoyo., H. Mulyadi, and Triyuwanto. 1981. Study on the Productivity of Village-Raised Native Chickens. Faculty of Animal Husbandry, Gadjah Mada University, Yogyakarta.

Wiloeto, D and H.R. Rozani. 1986. Several Aspects Affecting the Productivity of Native Chickens in the Development of Native Chickens in Central Java. Subsector Livestock Research Meeting No. 1, Klepu Livestock Research.

Yaman, M.A. 2013. *Indonesian Native Chickens in Broiler and Layer Agribusiness. Agriflo. Jakarta.*

Yuwanta, T. 2010. *Eggs and Egg Quality. Gadjah Mada University Press. Yogyakarta.*

Yuwanta, T. 2012. *Poultry Farming Basics. Gadjah Mada University Press. Yogyakarta.*

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

Research Documentation

Figure 1. Semi-Intensively Raised Indigenous Chickens in the Member of the Sepakat Jaya Livestock Group in Padang Laweh Village

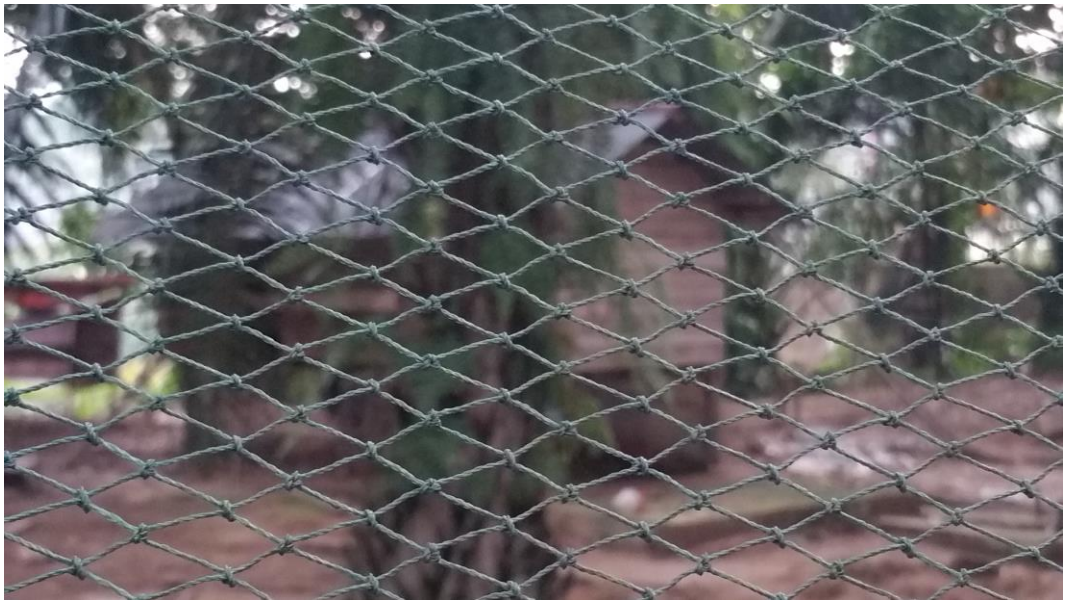

Figure 2. Farmer Using Nets for Free-Range Grazing

Vol 02 (02) Tahun 2023, Page 97- 108
P- ISSN: 30248442
E-ISSN: 3025-3748
Available online at: http://ojs.ummy.ac.id/index.php/janaps

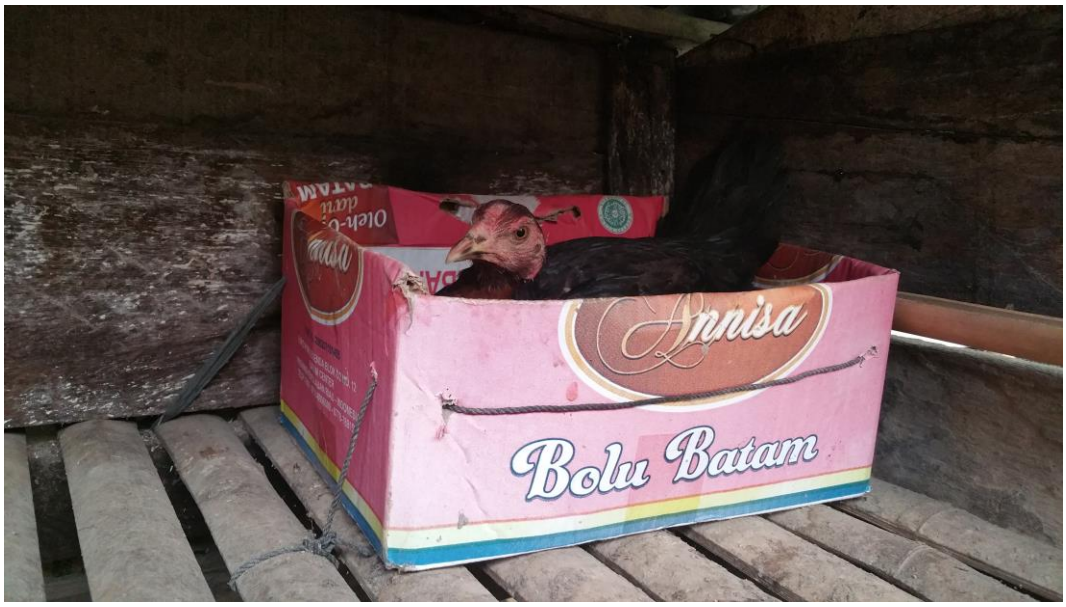

Figure 3. Cage for Nesting

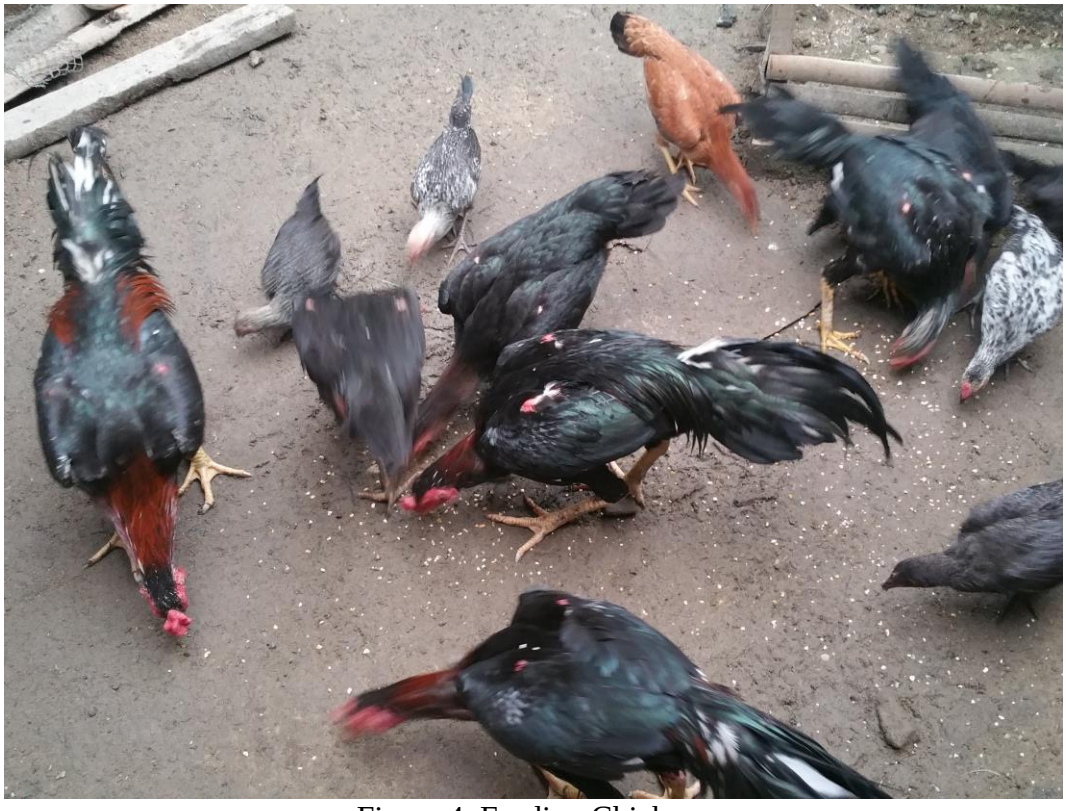

Figure 4. Feeding Chickens