



Performance Population of Kacang Goat as One of Indonesian Germplasm in Talawi District, Sawahlunto Regency, West Sumatera

Lendrawati^(✉), Yulia Yellita, Mangku Mundana, and Hari Sandi

Technology and Animal Production, Faculty of Animal Science, Andalas University,
Padang 25163, Indonesia
lendrawati003@gmail.com

Abstract. This study was conducted to determine the population performance of the kacang goats as natural resources in Talawi District, Sawahlunto Regency. This study was carried out on 628 small farmers in Talawi district in Sawahlunto for approximately two months, from June to August 2022. The selection of the research location was through purposive sampling. In collecting the data, the researchers applied direct observation (survey), interviews with the farmer using a questionnaire, and documentation. The data was collected form of primary and secondary data. In this study, the research variables were the population of the kacang goat, livestock input, livestock output, and natural increase value. The data in this study were tabulated and analyzed using descriptive statistical analysis. The results showed that the highest Kacang goats in Talawi District population were adult females, with as 281 heads or 44.74% of the total population. The lowest population was found in the young male, 39 heads or 6.21% of the total population. Moreover, livestock input was 29.14% from births and 6.37% from purchases. Furthermore, the output of kacang goats was 22.09% death, 2.71% slaughter, 9.07% sales, and natural increase. It can be concluded that the population performance of the Kacang goat was not in good condition. Therefore, improving the reproductive performance of adult female goats and the rearing system of newborns until the weaning of goats needs to be done in this area.

Keywords: Kacang Goat · Performance · Population · Natural Increase

1 Introduction

Goats are one of the most adaptable species to local conditions and are growing in numbers around the world. Goats are also must-have commodity for smallholder farmers in Indonesia. Ironically, however their existence is often forgotten, and neglected in livestock policy. Although many adopt goats, agriculture remains traditional [1, 2]. The way goats are reared has not changed for decades [3]. Although there has been little interest in goats the so-called Kacang goats has been domesticated in Indonesia for over 200 years (1800) [4, 5]. At the beginning of the last century, Jamnapari goats called Etawa In Indonesia, was imported from India to improve the Kacang goats.

© The Author(s) 2023

E. Widodo et al. (Eds.): ICESAI 2022, ABSR 28, pp. 195–200, 2023.

https://doi.org/10.2991/978-94-6463-116-6_25

Farmers highly value these goat breeds. Their protection or conservation, as well as their use, exist only on paper. Both farmers and scientists have expressed concern that their existence is under threat [6]. The erosion of local animal diversity is critical to sustaining current production levels and meeting changing market demands in the future.

The concept of protection, conservation, development and utilization of local animal germplasm must be supported by policies that can protect the genetic potency of local breeds and ensure their livelihoods. But natural genetic resources do contain genes that enable them to withstand harsh environments, cope with thorny vegetation in drought-prone areas, travel long distances on food, and fend off disease and pest attacks. Because of these advantages, landraces are either designed so that they can be bred in the pure form, or to increase productivity and to ensure that traits such as disease and parasite resistance are passed on their offspring, for use as matriarch in a mating program that has been developed [7].

The hassle with the breeding goat approach in Indonesia is the constrained facts on number one information for generating and reproducing goats as a foundation for growing productivity [8]. This paper gives the populace overall performance of Kacang goat as one of the Indonesian germplasm in Talawi district, Sawahlunto Regency, West Sumatera Province that, evolved through smallholder farmers with conventional management. It changed into predicted that this paper should illustrate the efficiency of goat germplasm in Indonesia as preliminary information to protect, conserve, and use it for scientific and economic advantages.

2 Materials and Methods

This study was carried out on 128 small farmers in Talawi district in Sawahlunto for approximately two months, from June to August 2022. The choice of the studies place via purposive sampling. In gathering the information, the researchers implemented direct observation (survey), interviews with the farmer the use of a questionnaire, and documentation. The gathered information had been within the shape of number one and secondary information. In this take a look at, the studies variables has been the populace of the Kacang goat, livestock input, livestock output, and natural increase value. The data in this studies had been tabulated and analyzed the use of descriptive statistical analysis.

3 Results and Discussion

3.1 Characteristics the Farmers of Goat Kacang

Table 1 shows the characteristics of Kacang farmers, such as the number of goats, their ages, their owners, and the rearing system. There are 128 farmers in Talawi district, and his goats population is 4.91 head/farmer, mostly adult goats. There are 58.44% of Kacang goat farmers owned their goats, and 41.56% shared contract with other farmers to keep goats. Livestock farming experience was 3.54 years, mostly in semi-intensive systems (76.56%).

Table 1. Characteristics of Kacang goat farmers in Talawi District

| No. | Parameter | Average |
|-----|---------------------------|---------|
| 1. | Numbers of farmers | 128 |
| 2. | Farmer's age (year) | 48.45 |
| 3. | Goat ownership (head) | 4.91 |
| 4. | Experience keeping (year) | 3.54 |
| 5. | Status of ownership (%) | |
| | Private | 58.44 |
| | Sharing | 41.56 |
| 6. | Farming system (%) | |
| | Extensive | 2.34 |
| | Semi-intensive | 76.56 |
| | Intensive | 21.09 |

Table 2. Structure and dynamics population of Kacang goat in Talawi District

| Variable | Description | Number (head) | Percentage (%) | |
|-----------------------|-----------------------------|---------------|----------------|-------|
| Population structure | Kids | Male | 93 | 14.80 |
| | | Female | 90 | 14.33 |
| | Young | Male | 39 | 6.21 |
| | | Female | 42 | 6.69 |
| | Adult | Male | 83 | 13.21 |
| | | Female | 281 | 44.74 |
| Livestock Input | Birth rate | 183 | 29.14 | |
| | Purchase rate | 40 | 6.37 | |
| Livestock Output | Death rate | 142 | 22.09 | |
| | Slaughter rate | 17 | 2.71 | |
| | Sales rate | 57 | 9.07 | |
| Natural Increase (NI) | Birth rate – The death rate | 38 | 7.05 | |

3.2 Structure and Dynamics Population of Kacang Goat

Population dynamics is a description of the number of livestock populations that are generally affected by livestock input and output levels. Therefore livestock population dynamics are influenced by the increase in livestock productivity. The structure and dynamics population of Kacang goats in Talawi districts presented in Table 2.

The results showed that the highest Kacang goats in Talawi District population were adult females, with as many as 281 heads or 44.74% of the total population. The lowest population was the young male, 39 heads or 6.21% of the total population.

The young and adult population was low because the livestock in this age group was traded or will be consumed (slaughtered) for traditional rituals, religion, and foods [9] stated that when the number of livestock had an ideal population structure, the farmer enabled to increase their livestock productivity, therefore get more benefit.

This increase was due to high fertility rates due to year-on year increases in male and female goat kids. The increase in the number of kids was caused by the annual increase in female adult goats. Adult female goats were naturally mated with male Saburai goats at the trial site. The adult number of male Kacang goats were almost half adult female goats, so is not ideal to compare numbers of adult male and female goats at the study site. The ideal ratio of mature male to female goats is 1:10 [10]. Too many adult male goats only increases maintenance costs. However, they do not increase the population in the same way that female goats support population growth through calving. This condition leads to less use of artificial insemination at the research sites.

Herd of adult female goats on livestock farms are important factor in determining reproductive performance and predicting population growth rates in a given area. Maintenance of the dam increases the population of kids and increases the income of farmers [11].

Based on input data of Kacang goats, input in Talawi District comes from the birth level of as much as 183 heads or 29.14% and purchase level of 40 heads or 6.37%. Increasing the birth and purchase rate is the most crucial part of supporting the increase of the goat population. An increase in livestock population through the birth rate is a sign that livestock management is going well because of being born as the breeder for the goat. At the same time, livestock from the purchase means that the farmer was trying to increase the population faster, thus supporting business productivity. To improve the performance of goat production, the farmer should improve goat productivity management, particularly the birth rate per year (calving interval).

The highest number or percentage of livestock output was the death rate of 140 heads or 22.09% of the total population. It is higher compared to the sales and slaughter rate. The data on livestock output showed that the mortality rate was still high because the goats' rearing system is still traditional. The livestock is not paid attention to, and they are usually released during the day and look for their food, while at night, they have kept in simple cages. This condition caused a high mortality rate in this area. Moreover, the farmer usually sells their goats if there is an urgent need, so livestock had used as savings. It has been seen that the sales rate that still low (9.07%), so it has not been able to maximize the potential of livestock to be used as family income.

The natural increase (NI) in the goat population kept traditionally in Talawi district was 7.05%. This value included low NI categories (0–15%). Putra et al. [12] stated that NI could be grouped become three categories: low NI (0–15.00%), medium NI (15.01–30%), and high NI (30.01–45.90%). The low NI value in this study had influenced by birth rate and mortality rate. In this case, the mortality rate was high, particularly in kids.

4 Conclusions

It could be concluded that the population performance of the Kacang goat in Talawi District, Sawahlunto Regency, West Sumatera Province was not in good condition. A large number of adult female goats in this area does not lead to an increase in the goat population. Therefore, improving the reproductive performance of mature female goats and the rearing system of the newborn until weaning age need to be done in this area to increase the goat population.

Acknowledgment. This research has been supported by PNPB of Andalas University 2022 with contract number: T/11/UN.16.17/PT.01.03/Pangan-RD/2022.

References

1. Elieser S., Sumadi, S., Budisatria, I.G.S., Subandriyo, S.: Productivity comparison between Boer and Kacang goat dam. *J. Indonesian Trop. Anim. Agric.* 37(1), 15–21 (2012).
2. Pakpahan, S., Artama, W.T., Widayanti, R., Budisatria, I.G.S.: Genetic characteristics and relationships in different goat populations of Indonesia based on *Cytochrome B* gene sequences. *Asian J. Anim. Sci.* 10(1), 29–38 (2016).
3. Budisatria, I.G.S. and Udo, H.M.J.: Goat-based aid program in Central Java: an effective intervention for the poor and vulnerable?. *Small Ruminant Research* 109, 76–83 (2013).
4. Budisatria, I.G.S.: Goats and the history of their development in Indonesia. In: Budisatria IGS, Santosa KA (Eds). *Germ Plasm of Goats in Indonesia*. Bawah Sadar Publ. Co, Yogyakarta, Indonesia, 3–16 (2009).
5. Adiwiniarti, R., Budisatria, I.G.S., Kustantinah, Rusman, Purnomoadi A.: Nutritional status evaluation of grazed yearling Kacang bucks estimated using internal lignin indicator. *Animal Production* 17(3), 138–143 (2015).
6. Astuti, M., Agus, A., Budisatria, I.G.S., Yusiati, L.M., Aggraini, M.U.M.: The map of national germplasm potency. *Peta Potensi Plasma Nutfah Ternak nasional*. 1st ed. Ardana Media Publ.Co, Yogyakarta, Indonesia (2007).
7. Lehloeny, K.C., Greyling, J.P.C., Schwabach, L.M.J.: Reproductive performance of South African indigenous goats following estrous synchronization and AI. *Small Ruminant Research* 57, 115–120 (2005).
8. Adhianto, K., Lestari, R.A., Siswanto, Sulastris.: Correlation of pregnancy duration, litter size, birth weight, and sex ratio of Saburai goat in Sumberejo District, Tanggamus Regency, Indonesia. *Advances in Animal and Veterinary Sciences* 7(9), 745–748 (2019).
9. Oktafiana, A., Sukaryana, Y., Kaffi, S.S.: Struktur populasi dan natural increase sapi potong di Kecamatan Terbanggi Besar Kabupaten Lampung Tengah. *PETERPAN* 3(2), 41–47 (2021).
10. Sarwono.: *Beternak kambing*. Penebar Swadaya, Jakarta (2002).
11. Soedjana, T.D., Bahri, S., Priyanti, A., Diwyanto, K., Muharsini, S., Tiesnamurti, B.: *Menakar penyediaan daging sapi dan kerbau di dalam negeri menuju swasembada 2014*. IAARD Press. Badan Penelitian dan Pengembangan Pertanian Kementerian Pertanian, Jakarta (2013).
12. Putra, D.E., Sarbaini, Afriani, T.: Estimasi potensi pembibitan ternak kerbau di Kecamatan Ulakan Tapakis Kabupaten Padang Pariaman Provinsi Sumatera Barat, Indonesia. *Jurnal Veteriner* 18(4), 624–633 (2017).

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

