



Reproduction Management of Buffalo (*Bubalus Bubalis*) In People's Livestock In Tanjung Lolo District, Sijunjung Regency

Pengelolaan Reproduksi Kerbau (*Bubalus Bubalis*) Pada Peternakan Rakyat Di Kenagarian Tanjung Lolo, Kabupaten Sijunjung

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Article History: Received: 20-05-2023 Revised: 20-06-2023 Accepted: 25-06-2023 Published: 29- 06-2023	Abstract Sijunjung Regency is one of the centers for the development of buffalo livestock in West Sumatra. Even though the buffalo population in this area is quite large, from year to year the population increase is not as expected. One reason is the management of livestock reproduction that is not well controlled by breeders. This community service activity (CSA) for the buffalo livestock group aims to: change the behavior of farmers regarding the reproduction of buffalo livestock by providing knowledge about reproduction management, especially regarding puberty, detection of lust and artificial insemination programs in buffalo livestock. The program targets are buffalo breeders in Nagari Tanjung Lolo, Tanjung Gadang District, Sijunjung Regency. The approach method used is counseling with a lecture approach and direct demonstrations. In addition, to determine the state of reproduction (ovaries) of buffalo cattle palpation is carried out. Guidance and coaching for breeders is carried out periodically through coordination with one of the breeders in the group. The mentoring activities carried out involved students of the animal husbandry study program. The results of the community service program activities are: 1) breeders know the age of puberty and signs of lust in buffalo cattle. 2) breeders know the reproductive condition (ovaries) of their livestock, 3) breeders know the ideal body condition of a livestock, 4) vitamin E administration to improve growth and body condition of livestock. Keywords: (BCS, Buffalo and Reproduction) Abstrak Kabupaten Sijunjung merupakan salah satu sentra pengembangan ternak kerbau di Sumatera Barat. Walaupun populasi ternak kerbau di daerah ini cukup banyak namun dari tahun ke tahun peningkatan populasinya tidak sesuai dengan yang diharapkan. Salah satu penyebabnya adalah pengelolaan reproduksi ternak yang tidak dikuasai peternak dengan baik. Kegiatan pengabdian kepada masyarakat (PkM) pada kelompok ternak kerbau ini bertujuan untuk: merubah perilaku peternak tentang reproduksi ternak kerbau dengan memberikan pengetahuan mengenai pengelolaan reproduksi terutama mengenai pubertas, deteksi birahi dan program inseminasi buatan pada ternak kerbau. Sasaran program adalah peternak kerbau yang berada di Nagari Tanjung Lolo Kecamatan Tanjung Gadang Kabupaten Sijunjung. Metode pendekatan yang digunakan adalah penyuluhan dengan pendekatan ceramah dan demonstrasi langsung. Disamping itu untuk mengetahui keadaan reproduksi (ovarium) ternak kerbau dilakukan palpasi. Bimbingan dan pembinaan bagi peternak dilakukan secara periodik melalui koordinasi dengan salah satu peternak yang ada dalam kelompok. Kegiatan pendampingan yang dilakukan melibatkan mahasiswa program studi peternakan. Hasil dari kegiatan
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program Pengabdian Kepada Masyarakat ini adalah: 1) peternak mengetahui umur pubertas dan tanda-tanda birahi pada ternak kerbau. 2) peternak mengetahui kondisi reproduksi (ovarium) ternaknya, 3) peternak mengetahui kondisi tubuh yang ideal seekor ternak, 4) pemberian vitamin E untuk meningkatkan pertumbuhan dan kondisi tubuh ternak.

Kata kunci: (BCS, Kerbau Reproduksi)

INTRODUCTION

Buffalo is a large ruminant livestock which has several advantages, namely being able to survive with low quality feed, being able to cope with environmental changes and having high adaptability [1]. Buffalo is one of the livestock that contributes animal protein to the community and has long been developed by rural farmers. However, the maintenance and care methods are still traditional with low feed quality, so that the potential for milk production and the reproductive capacity of buffaloes is also low [2]. As a contributor to the need for animal protein for the community, efforts to meet the needs or requests of the community can be carried out if every year there is always an increase in the livestock population as expected. Thus the meat self-sufficiency program that has long been proclaimed by the government will be realized as expected.

Sijunjung Regency is one of the centers for the development of buffalo livestock in West Sumatra. Even though the buffalo population in this area is quite large, from year to year the population increase is not as expected. Data from the West Sumatra Central Statistics Agency (BPS) [3] recorded that the population of buffalo in Sijunjung Regency in 2019 was 14,540 heads, in 2020 there were 11,913 heads and in 2021 there were 9,633 heads. This statistical data shows that there has been a very significant decrease in the buffalo livestock population in Sijunjung Regency. As one of the centers for developing buffalo livestock in West Sumatra, Sijunjung Regency has not been able to increase the buffalo population every year.

Nagari Tanjung Lolo, Tanjung Gadang District, Sijunjung Regency is one of the nagari in Sijunjung Regency where the majority of the farming community raise buffalo as a side business. Buffalo farming is a hereditary heritage and the existence of these buffalo according to the recognition of the local community turns out to be a complement to the perfection of their lives [2]. This affects the way of raising livestock and the attitude of breeders in managing their buffaloes.

The maintenance of buffaloes in Sijunjung Regency is still carried out traditionally, where buffalo breeders work in groups to herd the buffalo. This group was formed because of the common interests, namely both herding buffalo. According to Arfan [4], there are two types of groups of buffalo breeders, namely formal and informal groups. Formal groups are groups that are deliberately formed to carry out and realize certain tasks, have clear and written goals, regulations and organizational structures. Informal groups are groups that are formed due to repeated relationships, common interests and experiences. Ownership of each head of family in Nagari Tanjung Lolo is on average 3 heads with an average of 1-5 heads, there are some breeders who have 5-10 heads and even those with less than 20 heads.

The maintenance pattern which is still traditional has resulted in the low productivity of buffalo livestock in Nagari Tanjung Lolo. This is due to the absence of guidance and counseling received by buffalo breeders, so that the knowledge and maintenance of buffalo owned by breeders is only an experience passed down from generation to generation. This condition greatly affects the level of knowledge of farmers in raising buffalo and has implications for increasing the ability of farmers to manage their livestock which has a direct effect on the development and increase in the population of buffalo livestock.

Empowerment of group members is an effort to improve the ability of breeders to carry out livestock business. Sunarti [5] states that empowerment indicators are efforts to improve education and training, counseling and assistance, development of infrastructure systems and facilities, land consolidation and guarantees, easy access to knowledge, technology and information, as well as institutional strengthening through groups to increase knowledge, skills, economy and cooperation.



The main obstacle that is felt to hamper the productivity of buffalo livestock is the nutrition of the buffalo feed and reproduction. Reproductive problems for buffaloes that are felt by buffalo breeders in Nagari Tanjung Lolo include the length of time they are sexually mature and the long spacing between children. In addition to natural constraints on buffaloes, breeders are also often late in knowing the conditions of estrus so that they mate late and add to the long line of non-pregnant buffaloes. This community service aims to change the behavior of farmers regarding knowledge and management of reproduction of buffalo livestock by increasing knowledge and skills in reproductive management, especially regarding puberty, detection of lust and artificial insemination programs in livestock.

METHOD

Problem solving methods that can be done are as follows:

1. Provide counseling on reproductive management of buffalo livestock which aims to increase the knowledge and awareness of breeders related to puberty, pubertal age, detection of lust and symptoms of lust shown by buffaloes.
2. Simulation of making pin cages by utilizing existing materials around the cattle colony cages.
3. Direct demonstrations, namely by per rectal palpation to determine the condition of the ovaries of buffalo cattle and direct action if the results of palpation reveal the condition of the ovaries that need treatment. And to handle this, community service activities also involve veterinarians and inseminators from the Muaro Animal Health Center (Puskesmas), Sijunjung District.
4. Conducting guidance and assistance to breeders on buffalo livestock reproduction problems.

The target audience for this community service activity are buffalo breeders in Nagari Nagari Tanjung Lolo. Breeders will be given direct guidance to apply heat detection methods and other reproductive management.

The method of implementing community service activities on people's farms in the Tanjuang Lolo Village consists of several approaches as follows:

a. Counseling

Counseling can be done using several approaches including: Lectures. This lecture approach is carried out to increase knowledge and change the behavior of buffalo breeders regarding reproductive management of the buffalo they keep. In this activity, the material presented was about the importance of: a) knowing the age of puberty in livestock, by knowing the age of puberty in livestock, it is hoped that breeders will be more sensitive to delayed puberty experienced by their livestock in order to examine the condition of the livestock, b) know lust and symptoms of lust that are shown by cattle, This knowledge and skills greatly affect the level of successful marriages that will be carried out by livestock, especially if the livestock are IB acceptors, c) nutritional/nutritional needs for buffalo livestock, aims to increase the awareness of buffalo breeders that to increase productivity and improve reproductive conditions, it is not enough only by grazing all day in the pasture as breeders have been doing.

In carrying out this activity, buffalo breeders are asked to play an active role and are given the opportunity to express problems and opinions that they want to put forward.

**Gambar 1. Penyuluhan****b. Simulation**

The simulation carried out in this activity was the making of a clip cage by utilizing existing materials around the cage area such as bamboo sticks and rubber tree trunks according to the standard size of a clip cage, this was done to support demonstration activities that would be carried out in carrying out rectal palpation

**Gambar 2. Pembuatan Kandang Jepit****c. Demonstration**

The demonstration approach used for this activity included: a) examining the condition of the ovaries of the buffalo by herding the buffalo into the clip cages that have been made and performing rectal palpation to explore the uterus and ovaries b) handling measures if the palpation activities carried out found problems with the condition of the ovaries buffalo cattle, for this activity involving veterinarians and inseminators from the Puskesmas Muaro, Sijunjung District, Sijunjung Regency and c) determining the lust of buffalo livestock.



Gambar 3. Kegiatan Palpasi



Gambar 4. Kegiatan Pemberian Hormon Secara Injeksi

RESULTS AND DISCUSSION

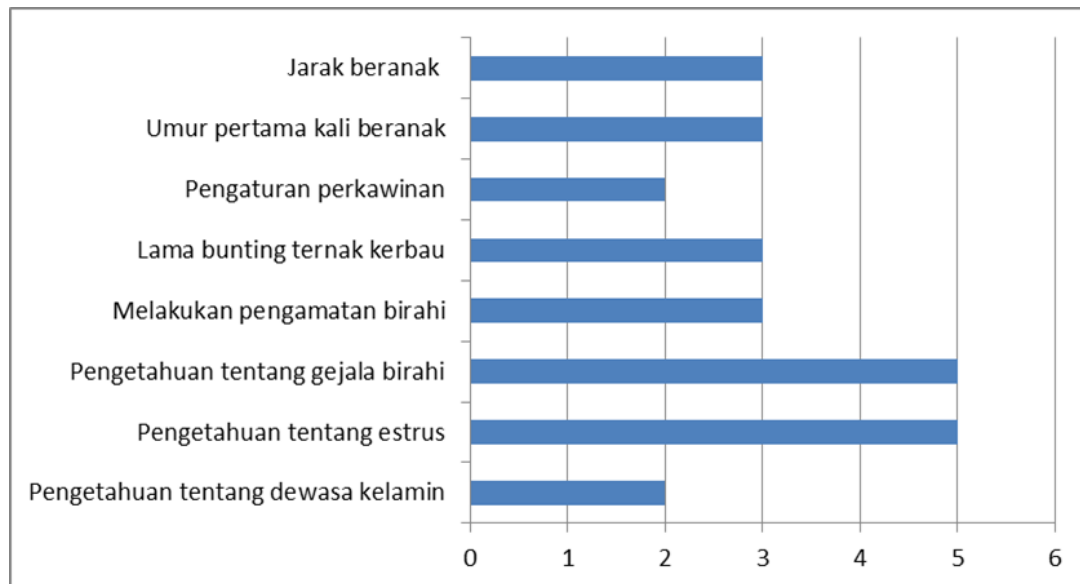
Breeder Knowledge Regarding Reproduction of Buffalo Livestock

Livestock productivity is closely related to reproduction. An increase in population and business development is said to have increased if the livestock business can show an increase in the number of livestock populations from time to time. Population increase is closely related to knowledge and skills in managing livestock reproduction. The problem faced by buffalo breeders in Nagari Tanjung Lolo, Tanjung Gadang District, Sijunjung Regency, in general, is the low knowledge of breeders in the management of livestock rearing and regulation of livestock reproduction.

Maintenance that is carried out at service locations generally breeders release buffaloes in grazing fields so that sometimes breeders do not know that their cattle are in heat or not. According to Setyawan [6], maintenance management in buffalo development efforts is still very traditional because there is no touch of integrated technology, both for increasing livestock populations, feed management and knowledge of production management so that population increases also do not develop. There are many programs run by the government in the context of livestock development, but these programs are more focused on cattle while for buffalo the government's attention is still lacking or almost non-existent [7].

Buffalo livestock mating is done by natural mating, most of which are natural indiscriminate mating. Indiscriminate natural mating means that there is no involvement of breeders in the mating process itself. Buffaloes are only left alone to naturally marry. This condition raises the potential for inbreeding (inbreeding). Inbreeding will have an impact on traits related to survival including the level of viability, fertility and health of livestock [8]. One of the impacts caused by inbreeding is reducing the performance of livestock in the next generation [9]. Discussions in the field with farmers also found that in recent years there have been several cases of buffalo dying when small (calf) or during

the birth process and also the rate of pregnancy and birth of livestock has also decreased. At this service location, buffalo breeders are also not familiar with injecting/artificial insemination mating.



Gambar 5. Pengetahuan Peternak Tentang Reproduksi Ternak Kerbau

Knowledge about the reproduction arrangements of buffalo livestock that have been carried out by breeders so far can be seen in Figure 5. This data shows that only two out of ten farmers who have participated in PkM activities really have knowledge about the reproductive arrangements of their livestock. Counseling given to PKM participants about the importance of knowing about the management of reproduction of buffalo livestock is expected to be able to increase the knowledge and understanding of breeders about reproduction of buffalo livestock, so that marriage arrangements can be made and shortening the spacing of children





Gambar 6. Perjalanan Menuju Lokasi

The reproductive nature of buffalo cattle which is silent heat (quiet heat) makes breeders pay less attention to their livestock when in heat, coupled with the housing model that has ground floor and a sky roof and the habit of wallowing, making the mucus discharge produced by the cervix when in heat cannot be clearly observed by the breeder. According to Subiyanto [10], signs of heat in buffalo are generally not obvious. This trait makes it difficult to monitor estrus for artificial insemination programs. This obstacle can be overcome by using male buffalo, but the scarcity of males and the confined rearing system prevent mating from occurring. Generally estrus in buffalo occurs in the late evening until late at night and early in the morning or at dawn or earlier [11]. Signs of heat and mating activity generally occur at night, at this time the female buffaloes are generally in a cage which makes mating impossible.

Examination of Livestock Reproductive Status and Buffalo BCS

Traditional rearing with makeshift feed sources makes the body condition of palpated female cattle not so good. This affects the development of the ovaries and the sexual maturity of buffalo cattle. For BCS conditions, it can be measured through an objective assessment of the presence of fat in the animal's body which is then given a score according to these conditions. When carrying out a simulation examination of the appearance and reproductive status of female buffaloes on 20 adult female cattle at the PkM location, it was found that in general the female cattle were in a body condition score of 2 for body condition examination (BCS/body condition score). This shows that there has been a decrease in body size in buffalo cattle. The BCS assessment of an animal is considered to be a reflection of the body's energy reserves which will then affect production and reproduction [12]. The reproductive characteristics of a good female swamp buffalo will help maintain the development of the buffalo population in a certain area, while the BCS will reflect how the body condition is obtained from the

nutrition of the feed so that it will affect the production and reproductive performance of the buffalo [13].



Gambar 7. Hasil Pemeriksaan Status Reproduksi Ternak

Five of the 20 cattle that were palpated turned out to be pregnant, however the breeders did not know this, because the mating occurred randomly within the herd without the breeders knowing about it. Naturally mating without the knowledge of the breeder makes the performance of the offspring produced lower because it is believed that mating always occurs in these small groups, the kinship of livestock in the group is quite close. As a concrete form of implementing PkM, female buffaloes that have been identified as having small ovaries are given treatment such as administration of vitamin E (Vigantol E), according to the advice of the veterinarian who assists in the activity. Provision of vitamin E in order to increase the growth and endurance of livestock.

CONCLUSION

Based on the results of the PkM activities carried out, it can be concluded that the provision of counseling and approaches carried out to the buffalo breeder community needs to be carried out to increase the farmer's understanding of the management of reproduction of buffalo livestock. Good reproductive management will increase the productivity of livestock kept. Improvement/increase in the BCS score of buffaloes needs to be done in order to achieve increased livestock productivity and good reproductive performance

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DAFTAR PUSTAKA

1. Elizabeth, Roosganda. Penguatan Dan Pengembangan Ternak Kerbau Melalui Pemberdayaan Kelompok Peternak Dalam Memenuhi Kebutuhan Konsumsi Daging Di Indonesiastrengthening And Developing Buffalo Through The Empowerment Of Breeder Group To Sufficient.Pdf. Unes Journal Of Scientech Research. 2017. 2(1): 38–52.
2. Rahim, F., S. N. Arintonang, E. Roza, T. Afriani, A. Sandra. IbM Perbaikan Reproduksi Kerbau di Sijunjung.



- Universitas Andalas. 2018.
3. BPS (Badan Pusat Statistik) Sumatera Barat. Sumatera Barat Dalam Angka. Padang. 2022.
 4. Arfan, S, J., K. Muatip, R. Widiyanti dan N. A. Setianto. Pengaruh Dinamika Kelompok Terhadap Pemberdayaan Kelompok Formal dan Tidak Formal Pada Peternak Kerbau Di Kabupaten Pemalang. Prosiding Seminar Teknologi dan Agribisnis Peternakan IX. Fakultas Peternakan Universitas Jenderal Soedirman, 14 – 15 Juni 2022.
 5. Sunarti, Neti. Efektivitas Pemberdayaan Dalam Pengembangan Kelompok Tani Di Pedesaan. Moderat: Jurnal Ilmiah Ilmu Pemerintahan. 2019. 5(2): 80–100.
 6. Setyawan. Beternak Sapi Perah Secara Intensif. Agromedia. Jakarta. 2010.
 7. Rustam. A., Maria. Y.L., dan Ulrikus. R.L., Strategi Pengembangan Ternak Kerbau di Kabupaten Manggarai Barat. Jurnal Agribisnis Terpadu. 2020. Vol. 13 No. 2: 222-245.
 8. Paige, K N. The functional genomics of inbreeding depression: A new approach to an old problem. Bioscience. 2010. 60:267-277.
 9. Neaves, L.E., J. Eales, W. Raj, P. M. Hollingsworth, B. Terry, & A.S. Pullin. The fitness consequences of inbreeding in natural populations and their implications for species conservation-A systematic map. Environmental Evidence. 2015. 4:5.
 10. Subiyanto. 2010. Populasi kerbau semakin menurun. http://www.ditjennak.go.id/buletin/artikel_3.pdf. Diakses, 22 Juni 2023
 11. Toilehere, MR. Potensi dan pengembangan kerbau di Indonesia. Suatu tinjauan reproduksi. Workshop kebijakan ketahanan pangan kerbau sebagai sumber keanekaragaman protein hewani. Kerjasama pustlitbang peternakan dan dinas pertanian peternakan provinsi Banten, Cilegon. 2001.
 12. Annisa Salsabela dan Suhardi. Performa Reproduksi dan Body Condition Score Kerbau Rawa (Bubalus bubalis) Betina di Pulau Lanting. Journal of Livestock and Animal Health. JLAH. 2023.Vol. 6, No.1 : 35-40.
 13. Utomo, S., N. Rasminati, and N. Astuti, “Master Plan Pengembangan Ternak Kerbau di Kabupaten Magelang,” Mercu Buana. 2021.