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ANALYSIS OF BREEDERS' KNOWLEDGE LEVEL ON CATTLE ESTROUS PERIOD IN BUNTU BATU DISTRICT, ENREKANG REGENCY

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ABSTRACT

This study aimed to determine the breeders' knowledge level on cattle estrous period in buntu batu district, enrekang regency. The type of research used is descriptive quantitative research, which is a type of research that describes the level of knowledge of breeders in knowing the breeding period of female cows in Buntu Batu District, Enrekang Regency. This research was conducted in Buntu Batu District, Enrekang Regency, South Sulawesi from January to April 2022. The population in this study were all cattle breeders in Buntu Batu District, Enrekang Regency. The sample in this study totaled 92 respondents in Buntu Batu District. Data collection consisted of primary and secondary data. Primary data was obtained by direct observation. While secondary data was taken from the Enrekang Livestock Service Office. Data were analyzed using descriptive methods for the overall data in presenting frequency distribution tables. The results of the research analyzed the level of knowledge of breeders on the breeding period of cattle is enoug with a total of 41.3%.

Keywords : Cattle, Estrous, Knowledge Of Breeders, Enrekang

INTRODUCTION

The total beef cattle population has yet to keep up with the population's needs in Indonesia, but the government continues to pursue beef self-sufficiency. Self-sufficiency is intended as an effort to independence, thereby reducing imports. The beef cattle population's growth rate in Indonesia reached 2.70% in 2018.This shows that the growth rate of the beef cattle population has exceeded Indonesia's population growth rate of 1.1%. This means the beef self-sufficiency program is still a discourse worthy of study (Tawaf et al. 2006).

Efforts to increase the beef cattle population can be made in several ways, one of which is a government program focused on improving beef cattle production through artificial insemination (AI). Factors influencing the success rate of artificial insemination is the selection of the right bull, Service Per Conception (S/C) quality is still high at 2.7 and Conception Rate (CR) is low at 57%. Rate (CR) is low at 57.8%. Therefore, the target set S/C is below 1.6 and CR is more significant than 62.5% (Dinas Perikanan dan Peternakan Kabupaten Bogor, 2018). Implementation of AI in livestock can increase the population of beef cattle if high pregnancy rates can be achieved and mortality rates can be reduced, suppressed, and optimal lambing spacing (Nurpika et al., 2022).

However, the main problems associated with the spread of artificial insemination of course cannot be separated from the common issues such as the source of artificial insemination services, inseminator expertise, and the difficulty of reaching remote areas. Apart from these weaknesses, the most crucial element is breeders acceptance of the technology it self. of the technology itself by breeders. Besides the most common problem faced by Indonesian livestock farming is the low level of

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knowledge of the knowledge in animal husbandry so that existing breeders still carry out old habits in animal husbandry. Old habits in farming. Breeders in Indonesia generally run smallholder farms with limited knowledge, skills, capital and others that support the success of a livestock business (Indey et al., 2021).

Viewed from the human factor, failure in reproduction lies in mismanagement which can be divided into failure to detect estrous and failure to report and mate the heifer at the right time, too short a time after parturition, and failure to recognize the presence of males too short a period of mating after parturition, and failure to acknowledge the existence of infertile males on a farm (Karmuji and Wirjaatmadja, 2014).

The pregnant rate of cattle in 2019 was a target of 76 and a realization of 25 and in 2020 the target of 66 and a completion of 11. This shows that the pregnancy rate in Buntu Batu subdistrict, Enrekang district, is decreasing (Livestock and Fisheries Service Office of Enrekang district). Livestock and Fisheries Service Office of Enrekang District). This is due to several problems such as still relying on natural mating and specifically the need for breeders' knowledge in detecting lambing.

Based on the explanation above, the author conducted a study entitled "Analysis of breeders' knowledge Level on Cattle estrous Period in Buntu Batu Subdistrict, Enrekang Regency".

RESEARCH METHODS

Type Of Research and Data Source

The type of research used is quantitative descriptive research, This research uses primary and secondary data. For primary data, namely data sourced from direct interviews with cattle breeders as respondents who are guided by questionnaires such as data on the number of breeders who have cattle and how to find out the breeding period of the cow. Secondary data is data obtained by collecting data from relevant agencies, such as Dinas Peternakan dan Perikanan Kabupaten Enrekang.

Location and Time Of Research

This research will be conducted from January to April 2022 in Buntu Batu District, Enrekang Regency.

Population, Sample and Sampling Technique

The population in this study were all cattle farmers in Buntu Batu District, Enrekang Regency with a population of 120 people breeders. For the number of samples in this study were 92 breeders. The sampling method in this study used the simple random sampling method.

Data Analysis

In this study, the analysis technique used was descriptive analysis.

RESULTS AND DISCUSSION

Respondent Characteristics

Age of respondent

A person's age can affect their ability to work and mindset in action. People who have a younger age will certainly will certainly have an impact on the ability to think better or more productively. This is in accordance with Suwaryo and Yuwono (2017) opinion that age is one of the factors that affect a person's thinking ability. factors that affect a person's thinking ability. The age table respondents based on age in Buntu Batu District, Enrekang Regency can be seen in the table 1.

Table 1. Age of respondent

Respondent Characteristics	Number Of Respondents	Percentage (%)
Breeders Age :		
a. 20-40	30	32,7
b. 41-60	61	66,3
c. >60	1	1
Total	92	100

Source : Primary data (2022)

Based on table 1 above, it shows that most respondents were between 41-60 years old, namely 61 respondents or 66.3%. Breeders in Buntu Batu Subdistrict who are classified as young productive age are only 32.7% 20-40 years old, while those classified as young productive age aged 41-60 years are 66.3%. This will affect productivity in livestock management. According to Dilla et al (2017), the age of 20-40 years is the most productive age because physically and mentally they are still strong enough, which significantly affects the productivity in managing their livestock.

Education Respondent

This study also differentiates respondents based on characteristics related to their latest education, which includes the level of no school, elementary level, junior high school, high school, and college. The table can be seen in table 2.

Table 2. Education Respondent

Respondent Characteristics	Number Of Respondents	Percentage (%)
Education Respondent :		
a. Not School	9	9,7
b. Elementary School	14	15,2
c. Junior High School	22	24
d. Senior High School	36	39,1
e. College	11	12
Total	92	100

Source : Primary data (2022)

Based on table 2, it can be seen that the education of respondents in Buntu Batu District, Enrekang Regency is dominated by high school graduates, namely 36 respondents or 39.1% of the total number of respondents studied, while the lowest number of respondents with no school education level is only 9 people or 9.7%. According to Dilla, (2017), the education obtained by farmers will have broad knowledge and insight, making it easier to respond to innovations that are beneficial to their business. (Astuti et al., 2015), education influences knowledge about estrous and the success of AI, the higher a person's education, the easier it is to accept something compared to someone with a higher education. easier to accept something compared to someone with a lower education.

Respondent's livelihood

Livelihood is a human activity to obtain a decent standard of living which differs from one region to another according to the level of ability of the population and its demographic situation. Livelihoods can be divided into two, namely main livelihoods and side livelihoods. The livelihoods of respondents in Buntu Batu district, Enrekang Regency can be seen in Table 3.

Table 3. Respondents Livelihood

Respondent Characteristics	Number Of Respondents	Percentage (%)
Respondent's livelihood		
a. Civil Servant	3	3
b. Farmers	75	82
c. Breeders	14	15
Total	92	100

Source : Primary data (2022)

Based on table 3, it can be seen that the livelihood of respondents is more dominant in the main livelihood of farming, namely 75 respondents or 82% of the total number of respondents studied. Meanwhile, the lowest number of main livelihoods are civil servants, namely as many as three respondents or 3%. Most respondents are not pure breeders, but have other jobs, so the time used in livestock maintenance could be better. According to Sukoco et al, (2023) the function of the livestock business is mainly intended as savings and is used for urgent needs with more significant amounts, while for daily consumption it is fulfilled by other business activities such as farming, stalls, fishermen, and civil servants.

Number of respondents and how livestock are raised

Cattle rearing management includes three systems: intensive rearing, semi-intensive rearing and extensive rearing. Intensive rearing is most commonly used in Indonesia, done entirely in cages. Intensively reared cattle are more efficient because they receive more regular treatment in terms of feeding, cleaning cages, and bathing cattle (Tito and Sevita, 2021). The semi-intensive rearing system is where cattle are reared in cages and grazed, while the extensive rearing system is where cattle are reared by releasing them in grazing fields (Putra and Hendrita, 2019). The number of cattle and how respondents are raised can be seen in Table 4.

Table 4. Number of respondents and how livestock are *raised*

Respondent Characteristics	Number Of Respondents	Percentage (%)
Number of cattle owned:		
a. 1-5 ekor	46	50
b. 6-10 ekor	42	46
c. > 10 ekor	4	4
Total	92	100
How cattle are raised		
a. Intensive rearing system	24	26
b. Semi-intensive rearing system	68	74
Total	92	100

Source : Primary Data (2022)

Based on Table 4 above, it can be seen that the number of cows owned is mostly 1-5 heads, 46 respondents or 50%, while the way cows are raised is dominantly stabled and grazed, namely 68 respondents or 74% of the total number of respondents studied. Meanwhile, the least number of cattle owned was approximately 10 cows, 4 respondents or 4%. Cattle owned by respondents for the purpose of fattening are kept in cages. Most of the cattle grazed by breeders are in the rice fields, if it is not planting season. Some are also grazed in the field and field.

According to Nurdiansyah et al (2020), farming experience will affect a farmer's ability to care for his cattle.

Respondents' experience and knowledge sources

Someone with a lot of experience will have a better ability and skill. The many lessons learned from these experiences can be used as lessons in the world of animal husbandry. Length of farming can also affect the breeder's source of knowle

dge. The respondents' understanding and source of knowledge can be seen in Table 5.

Table 5. *Respondents' experience and knowledge sources*

Respondent Characteristics	Number Of Respondents	Percentage (%)
Length of farming experience		
a. 1-5 year	30	32
b. 6-10 year	44	48
c. 11-15 year	10	11
d. > 15 year	8	9
Total	92	100
Breeder's source of knowledge		
a. From instructors and books	16	17
b. Hereditary	76	83
Total	92	100

Source : Primary Data (2022)

Based on Table 5 above, it shows that out of 92 respondents, the respondents who have been raising livestock for the longest time are 6-10 years, namely 48 respondents or 48%, while the least experience is approximately 15 years as many as 8 respondents or 9%. While the source of breeders is more dominantly sourced from hereditary there are as many as 76 respondents or 83%. According to Tarmizi et al, (2018) the longer the experience of breeders, the greater the ability to farm, the experience of breeders varies from one year, there is even more than 15 years of experience of breeders.

Breeders knowledge of the estrous period of cattle

Breeders knowledge of signs of estrous in cattle

One of the knowledge that breeders must have in detecting estrous is knowing the signs of estrous in cattle. Increasing breeders knowledge in terms of the detection of estrous is very important because it can affect the success of AI. Therefore, breeders must know the signs of estrous. Breeders knowledge of symptoms of estrous can be seen in Table 6.

Table 6. Breeders knowledge of signs of estrous in cattle

Knowledge About Estrous	Number Of Respondents	Percentage (%)
Signs of Estrous known to Breeders		
a. Vulva swollen, colored red, warm to the touch, oozing mucus, restless, mounts and ride other cattle, appetite decreased	50	54
b. Vulva swollen, red and warm to the touch	30	33
c. Restlessness, vocalization, decreased appetite decreased	12	13
Total	92	100

Source : Primary Data (2022)

Based on Table 6 above, it shows that breeders predominantly know the signs of estrous, such as swollen vulva, red, warm to the touch, mucus discharge, restlessness, riding and being ridden by other cows, and decreased appetite there are 50 respondents or 54%, while those who know cows are restless, vocalizing, and decreased appetite are only 12 respondents or 13%. Samsudewa, (2017) states that the limited knowledge about cattle's estrous which shows symptoms of cattle such as restlessness, decreased appetite, approaching males, not running away when males ride them, swollen reddened vulva and discharge of clear mucus and artificial insemination is often caused by the attitude of breeders who do not want to do what has been explained by extension workers.

Breeders knowledge on time of observation of Estrous

To improve cattle reproduction, knowledge of observation of estrous is very important because the beginning of the success of cattle pregnancy starts from observation of estrous, good observation of estrous will increase the efficiency of cattle reproduction itself. The knowledge of breeders about the observation of lambing can be seen in Table 7.

Table 7. *Breeders knowledge on time of observation of Estrous*

Knowledge About Estrous	Number Of Respondents	Percentage (%)
Estrous Observations Can Be Made		
a. Morning, Afternoon, Evening, and Night	22	24
b. Morning, Afternoon, Evening,	37	40
c. Unspecified	33	36
Total	92	100

Source : Primary Data (2022)

Based on table 7 above, we can see that breeders predominantly observe their cattle in estrous in the morning, afternoon and evening, namely 37 respondents or 40% of the total number of respondents studied, while for the morning, afternoon, evening and night as many as 22 respondents or 24%. Morning, afternoon, evening and night as many as 22 respondents or 24%. According to Wirdahayati et al, (2006) the function of the livestock business is more significant, while daily needs are met by companies other than livestock such as food cropping, traders, and civil servants.

Breeders knowledge of lambing cycle length

Detection of estrous is one of the essential factors of concern in cultivating ruminants. Accuracy in detecting lambing will affect the accuracy of mating time. Therefore, breeders must know about the length of the estrous cycle. The table of breeders knowledge about the length of the estrous process can be seen in Table 8.

Table 8. Breeders knowledge of lambing cycle length

Knowledge About Estrous	Number Of Respondents	Percentage (%)
Duration Of Know Estrous (Hour)		
a. <18	42	46
b. 18-20	40	43
c. >20	10	11
Total	92	100
Known Length Of Estrous Cycle (Hour)		
a. 21 days for cattle 20 days for heifers	32	35
b. 17-15	32	35
c. >25	28	30
Total	92	100

Source : Primary Data (2022)

Based on Table 8 above, it shows that breeders predominantly know the length of the estrous cycle in hours < 18 hours, namely 42 respondents or 46%, as for the count of days, breeders predominantly know the length of the estrous cycle 21 days for cattles 20 days for heifers, namely 32 respondents or 35% of the total number of respondents studied. Breeders in Buntu Batu district know well when the right time to implement AI is when the cattle are in estrous, if the cattle are in heat in the morning then insemination is carried out in the afternoon and if in estrous in the afternoon, then inseminated in the morning the next day. This is following the opinion of Yulyanto *et al* (2014), the proper implementation of AI is that if the first signs of estrous are seen in the morning, they must be inseminated on the same day, if in the afternoon, they must be inseminated on the next day in the morning and no later than noon.

Table 9. Knowledge of observation of estrous distance after calving

Knowledge About Estrous	Number Of Respondents	Percentage (%)
Distance between cattle in estrous after calving		
a. 40 days	34	37
b. 50 days	20	22
c. 60 days	38	41
Total	92	100

Source : Primary Data (2022)

Knowledge of observation of estrous distance after calving

One of the triggering aspects of low cattle population growth is inappropriate reproductive management techniques, namely, improper observation of estrous distance, which affects the number of cows born. Breeders' knowledge on observation of lambing length can be seen in Table 9.

Based on the table, it shows that breeders are more dominant in knowing the distance of cows in heat after calving 60 days, namely 38 respondents or 41%, of the total number of respondents studied. And who know the distance of cattle in estrous after giving birth 50 days only 22%, while those who know the length of cattle in estrous after 40 days of heat as much as 37%. The first ovulation can occur in postpartum estrous at 62 days postpartum with a free drafting model (Sinclair et al. 2002).

Knowledge of artificial insemination

The limited knowledge of the public about estrous about the success of artificial insemination is often due to the attitude of breeders who do not want to do what has been explained by extension workers. The breeders' knowledge about artificial insemination can be seen in the table 10.

Table 10. *Knowledge of artificial insemination*

Knowledge of artificial Insemination	Number of Respondents	Percentage (%)
What to do when Estrous		
a. Immediately report to the AI post tie up or confine cows that are in estrous	60	65
b. Report to AI officer	30	33
c. Let loose	2	2
Total	92	100
Age of first heifer mated (years)		
a. 1-1,5	34	37
b. 1,5-2	20	22
c. >2	38	41
Total	92	100

Source : Primary Data (2022)

Table 10 shows that breeders are more dominant in choosing to report to the AI post immediately, tie up or cage their cattles in case of estrous , namely as many as 60 respondents or

65% of the total number of respondents studied. As for the age of first mated heifers, the dominant breeders know the age of 1-1.5 years, namely 34 respondents or 37% of the number of respondents studied. One of the things that breeders must master in raising cattle for the implementation of artificial insemination is knowing the signs of lambing and the fertile period in cows. This is following the opinion of Jurame et al (2018), that the detection of lust is when the female animal is willing to accept the male for copulation, the lust period of the cow lasts for 18 hours. This is following the opinion of Rianto and Purbowawti (2009), the first time a heifer is in estrous is the first time a cattle is in estrous. The first time in heifers must be really considered, indeed at the age of 12-15 months heifers already show symptoms of estrous. However, at that age, cattles cannot be mated because their body growth has not yet reached the optimum point. It is recommended that heifers be mated for the first time at 18-24 months of age. At this age, the cattles body growth has reached the optimum to support fetal growth.The level of knowledge of breeders is categorized into very good, good, enough, not good, and very bad. Very good get a point value of 19 to 21, good get a point value of 16 to 18, enough get a point value of 13 to 15, not good get a point value of 10 to 12, and very bad get a point value of 7 to 9. In the questionnaire there are 5 questions about birahi and 2 questions about AI, each question has 3 choices, namely a (3 points), b (2 points), and c (1 point).

A total of 92 respondents received 21 points from 1 breeders and 19 points from 2 breeders. There were 6 breeders with 18 points, 17 points, 12 breeders, 16 points, 14 breeders, 15 points. 16 there were 14 breeders, point 15 there were 14 breeders, point 13 there were 9 farmers, point 12 there were 8 breeders, point 11 there were 4 breeders, point 10 there were 5 breeders and breeders with points 9 and 8 there were 1 farmer (Table 11).

Tabel. 11 Breeders Knowledge Level Based on Questionnaire Point Values

Total points	Point Values	Number of Breeders	Information	Percentage (%)
19-21	21	1	Very Good	3,2
	20	0		
	19	2		
16-18	18	6	Good	34,8
	17	12		
	16	14		
13-15	15	14	Enough	41,3
	14	15		
	13	9		
10-12	12	8	Not Good	18,5
	11	4		
	10	5		
7-9	9	1	Very Bad	2,2
	8	1		
	7	0		
Total		92		100

Source : Primary Data (2022)

Based on the point value of the questionnaire, 3.2% of breeders' knowledge of the breeding period of female cows is classified as very good. Knowledge of breeders classified as good in the knowledge of breeding cows as much as 34.8%, enough there are 41.3%, which is not good there are 18.5%, while very bad there are 2.2% (Table 11). Breeders' knowledge of the estrous period of cattle and the success of artificial insemination is influenced by age, education, occupation, number of cows, farming experience, source of livestock, source of income, and knowledge of artificial insemination. Cattle, breeders' experience, the head of breeders' knowledge, and how livestock are raised.

CONCLUSIONS

Based on the results of research analysis, the level of knowledge of breeders regarding the estrous period of cattle in Buntu Batu District, Enrekang Regency is sufficient with a percentage of 41.4%.

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