

# Service per Conception on Sheep in Langkat District

## ABSTRACT

**Aims:** To find out the Service per Conception of sheep in the Artificial Insemination program in Langkat Regency.

**Study design:** Descriptive analysis

**Place and Duration of Study:** Langkat Regency, Indonesia. between July 2022 and October 2022.

**Methodology:** Artificially inseminated sheep are 50 lambs using frozen semen. Data were obtained through interviews using questionnaires with sheep farmers. Data were analyzed descriptively.

**Results:** The results showed that the average Service per Conception observation value for sheep in Langkat Regency was  $1.30 \pm 0.20$ .

**Conclusion:** Service per Conception of sheep in Langkat Regency is still normal. But the management of maintenance and handling of Artificial Insemination needs to be improved.

*Keywords: Artificial Insemination, Service Per Conception, Sheep*

## 1. INTRODUCTION

Observation of reproductive efficiency is essential to measure the success of a sheep breeding business [1]. The effort is Artificial Insemination carried out by breeders in Langkat Regency. So far, the Artificial Insemination program's success has been measured by calculating services per conception [2].

“Langkat Regency is where many people do sheep farming to increase their income. Breeders consider the livestock business only as a sideline; labor comes from family members. Support the implementation of livestock development. Especially sheep to maximize the productivity of sheep livestock, objective data and information are needed, actual and meet information standards” [3]. It is necessary to evaluate the reproductive properties of sheep, to know the reproductive potential of sheep in Langkat Regency.

“Langkat Regency is where many people do sheep farming to increase their income. Breeders consider the livestock business only as a sideline; labor comes from family members. Especially sheep to maximize the productivity of sheep livestock, objective data and information are needed, actual and meet information standards” [4]. This observation is necessary to obtain accurate and in-depth data on the reproducibility and reproductive efficiency of sheep.

## 2. MATERIAL AND METHODS

### 2.1. Research Materials

The material used in this study was 50 sheep resulting from artificial insemination relating to all data and field studies obtained.

### 2.2. Research Procedure

39 “The research was designed by making observations to study the difficulties that arise. The  
40 results of observations are into scenarios that support and create a flow of problems. The  
41 second stage is the data analysis stage. The third stage is data interpretation by interpreting  
42 the results of the predicted values of each variable and comparing them with the theory and  
43 results of previous studies. Interpretation can prove a theory, challenge a theory and develop  
44 a new theory as a reference for research results. The next stage is drawing conclusions,  
45 which conclude the results achieved and recommends them to related parties”.[4]

### 46 **2.3. Observed Parameters**

47 The observed research parameter is Service per Conception. Service per Conception is the  
48 number of mature or inseminations until pregnancy. The lower the Service per Conception,  
49 the higher the fertility of the female livestock.

### 51 **2.4. Place and time of research**

52 This research will be carried out from July 2022 to October 2022 in Langkat Regency  
53 because this area has excellent potential for developing sheep farming businesses in  
54 Indonesia.

55

### 56 **2.5. Type and Scope of Research**

57 This type of research is descriptive quantitative research, namely, researchers who describe  
58 the variable conditions obtained by sheep farming business actors. The scope of this  
59 research is in Langkat Regency, Indonesia. The method used in this study was direct  
60 interviews with farmers regarding the recording of the sheep they kept using a questionnaire  
61 that had beforehand. The research location takes purposively, considering that it is one of  
62 the areas with great potential in efforts to develop a sheep farming business.

63

### 64 **2.6. Population and Sample**

65 The population in this study were sheep in Langkat Regency. This study's sampling was  
66 carried out by census or as a whole. The census method, also known as the complete  
67 enumeration method, investigate or interviews all individuals as respondents.

68

### 69 **2.7. Methods and Data Analysis**

70 Research conducted descriptive. The tabulated data was using the excel program, and the  
71 research data was analyzed using the t-test. Analysis of data using Genstat software.

72

## 73 **3. RESULTS AND DISCUSSION**

74 “Service per Conception (S/C) calculates the number of matings needed by female livestock  
75 until pregnancy or conception” [5]. “Service per conception or S/C (number of marriages per  
76 pregnancy) is a factor that affects reproductive efficiency, and the best is once. The lower  
77 the S/C value, the higher the livestock fertility rate, and conversely, the higher the S/C value,  
78 the lower the fertility rate” [6]. The results showed that the mean S/C of sheep in Langkat  
79 Regency was  $1.30 \pm 0.20$ .

80 Reports of Artificial Insemination pregnancy rates in goats and sheep are still very  
81 diverse but generally still low. The results of artificial insemination with frozen semen in  
82 goats are between 30-60% [7] and 26-61% in sheep [8]. The pregnancy conception rate in  
83 this study could have been higher if AI had twice. The IB conception rate once was 38.89%,  
84 while the IB twice showed a conception rate of 55.56% [9].

85

86 Artificial insemination in goats is challenging, especially in penetrating the cervix.  
87 Artificial insemination can only be done in rings one and two, some even at the mouth of the  
88 cervix, so spermatozoa must have a higher strength to pass through the cervix and reach  
89 the egg [10]. The results of this study were lower when compared to intrauterine AI, which  
was 70-82% [11]. Transport of spermatozoa is better in Artificial intrauterine because there

90 are fewer obstacles for spermatozoa to reach the fertilization site. However, this method is  
91 unsuitable for field application because it is less practical and requires better skills and  
92 equipment [12].

93 A good number per marriage is 1.5 – 1.7 [13]. “The lower the service per conception  
94 value, the higher the livestock fertility rate. Conversely, the higher the service per conception  
95 value, the lower the fertility rate” [14]. “The standard S/C value ranges from 1.6 to 2.0. The  
96 lower the S/C value, the higher the fertility value of female cattle” [15]. The value of service  
97 per conception in DEG broodstock reared in a semi-intensive manner ranges from 1-2 times  
98 with an average figure of  $1.4 \pm 0.51$  times or 0.2 times higher than DEG broodstock  
99 intensively [16]. The rearing system does not affect the matings needed until pregnancy,  
100 indicating that mating time is essential in determining conception success in every livestock  
101 mating [17].

102

#### 103 **4. CONCLUSION**

104

105 Service per Conception on sheep in Langkat Regency is standard, with a  $1.30 \pm 0.20$ .  
106 Management of maintenance and handling of Artificial Insemination needs to be improved to  
107 get a better value.

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114 data needed.

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#### 117 **COMPETING INTERESTS**

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119 Authors have declared that no competing interests exist.

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#### 122 **AUTHORS' CONTRIBUTIONS**

123

124 This work was carried out in collaboration between all authors. Sukma Aditya Sitepu  
125 designed the study, performed the statistical analysis, wrote the protocol and wrote the first  
126 draft of the manuscript. Julia Marisa and Media Agus Kurniawan managed the analyses of  
127 the study. Rahmad Hidayat managed the literature searches. All authors read and approved  
128 the final manuscript

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