

Case Study: Assessment for Successfulness of Artificial Insemination Program Located in Kecamatan Selebar Kota Bengkulu

Yossie Yumiati¹⁾, Ahmad Zueni¹⁾, Rika Dwi Yulihartika¹⁾, Heri Dwi Putranto²⁾

¹⁾ Faculty of Agriculture, Universitas Dehasen Bengkulu, Jalan Raya Meranti, Sawah Lebar, Bengkulu 38227, Indonesia

²⁾ Department of Animal Science, Faculty of Agriculture, Universitas Bengkulu, Jl. W.R. Supratman, Kandang Limun, Bengkulu 38371A, Indonesia
E-mail: alia_yoriko@yahoo.co.id (authors: Yossie Yumiati, M.Si)

ABSTRACT

The purpose of this research was to determine the success rate of AI programs in cattle based on the Conception Rate (CR) and the number of Service per Conception (S/C) in Kecamatan Selebar Kota Bengkulu by using some collected data in the year of 2011-2014. This study was conducted in May – July 2015 and intentionally be conducted in Kecamatan Selebar, Kota Bengkulu, Bengkulu Province. Samples taken as many as 70 respondents, randomly selected (simple random sampling). The purposive selected respondents were identified as cow farmers and have joined with AI program. Determination of number of respondents drawn from the number of breeders who follow the AI program based on official data from the government of Kota Bengkulu. Data were grouped into primary data and secondary data. The variables were measured based on the parameters of conception (CR and S/C). The results showed that value of CR in Kecamatan Selebar was increased every year ie 90.50% in 2011, 95.50% in 2012, 96.50% in 2013 and the highest CR value in year of 2014 was 98%. As for the value of the S/C in Kecamatan Selebar recorded from year of 2011 through 2014, respectively were 1.08 ± 0.11 , 1.02 ± 0.05 , 1.02 ± 0.05 and 1.01 ± 0.00 . Those data shown a category of a successful AI program. As an addition, that majority of farmers were conducting their farm management by a traditional method.

Key words: Artificial insemination, assessment, Kecamatan Selebar.

INTRODUCTION

The maintenance of Indonesia's cattle is still traditional and the farms are still small scale in average, causing productivity of cattle is low. Therefore, to support self-sufficiency in meat that has been declared, the government of Bengkulu province, one of the province located in the island of Sumatra, has implemented the Artificial Insemination Program (AI) to increase the cattle population in the country. The program is fully supported by the local government since 2012 and budgeted for each year up to the present.

According to Susilawati (2011) by applying AI in cattle can improve the performance of reproductive and genetic quality because of the cement used in AI derived from genetic bulls are good. Artificial Insemination (AI) is the inclusion of semen into the female reproductive tract using the method and the aid of man-made (Toelihere, 1985).

In 2011 the AI program in Bengkulu City has been implemented in 8 districts of them in Selebar, Kampung Melayu District, Gading Cempaka District, Ratu Samban District, Teluk Segara District, Sungai Serut District, and Muara Bangkahulu District and until now the program AI is still running (Personal communication with Inseminator, 2014).

Bengkulu city is chosen as the research site because of Bengkulu city is one of the producers of cattle in the province of Bengkulu. Total population of cattle increased in the year 2013 as many as 5,940 head of cattle (Anonymous, 2013). The increase in population is due Animal Husbandry Department Government of Bengkulu optimize AI program which annually along with evaluation activities that the cattle population in the Bengkulu city annually increased. To see the level of success of the AI program in cattle needs assessment and prediction methods based on the parameters of conception. Assessment of this success can be calculated through observation using Figures Conception (Conception Rate) and number of inseminations per gestation (Service per Conceptions) (Hastuti, 2008).

This research aims to determine the success rate of artificial insemination program (AI) in cattle based on conception rates or Conception Rate (CR) and the number of inseminations per pregnancy or Services per Conception (S/C) in the district of the Bengkulu city width in 2011-2014.

MATERIAL AND METHOD

Material

Research conducted at the Kecamatan Selebar Bengkulu City which began in May until July 2014. Samples taken as many as 70 respondents, randomly selected (simple random sampling). Respondents were selected purposively identified as a cattle farmer and has joined the AI Program.

Method

The basic method used is descriptive method and quantitative analytical method (Koibur, 2005). Data obtained by interviewing assisted with a list of questions (questionnaire) to obtain primary and secondary data. The data collected is the data began in 2011-2014. Variables observed for the success of AI evaluators used Conception Rate (CR) and Services per Conception (S/C) calculated by the formula (Feradis, 2010) as follows:

$$\text{CR (\%)} = \frac{\text{Number of cows that were pregnant} \times 100 \%}{\text{The total number of females in the AI}} \times 100 \%$$
$$\text{S/C} = \frac{\text{Number of straw used}}{\text{Number of cows that were pregnant}}$$

The data were then grouped by the value parameter conception CR and S/C per year. Then, the data was processed and displayed in table tabulation. Subsequent processing of the data used is descriptive analysis by calculating the mean (average score) and standard deviation. The data processing will be used to look at the success rate AI in Kecamatan Selebar Bengkulu City from 2011-2014.

RESULTS AND DISCUSSION

Conception Rate (CR)

According Feradis (2010) signs cattle that were pregnant after the AI is no longer showing symptoms of estrus, increased appetite and the behavior turn to be quiet. The determination of conception is pregnancy examination after insemination. The pregnancy of cattle can be determined by checking cows which has been in the AI carefully conforming to the opinion of Udin (2005) suggested the CR value is determined by the clinical pregnancy diagnosis by rectal palpation, which deliver real results about 50 days after breeding. This is also confirmed by Toelihere (1985) states that the safest pregnancy examinations carried out starting 60 days after conception. Based on the survey results revealed that the value of CR in the Kecamatan Selebar each year has increased from the 90.50 % in 2011, 95.50 % in 2012, 96.50 % in 2013 and highest in 2014, reaching 98 %. Results of this research are higher than the results Prasetya *et al.*, (2013) in District Geger Bangkalan with CR value by 71 % and 52 %, Febrianto (2013) in Sawahlunto with CR value by 50 % and research Hastuti (2008), in District Petanahan, Puring and father Kebumen of 59.16 % - 68.89 %.

This indicates that the success of the AI in the Kecamatan Selebar Bengkulu City has been very good. The value of CR in the Kecamatan Selebar because of the fertility of female cattle were good, good inseminator skills and skills of farmers in detecting estrus. This was confirmed by Hastuti (2008), the value of CR is influenced by female fertility, inseminator, skills in detecting oestrus cattle ranchers, the handling of frozen cement in the post AI and ease of communication facilities and road infrastructure and equipment AI complete. According to Hunter (1980) that the value of CR in cattle ranges from 60-73% with an average of 71%. Toelihere (1985) states that the CR in developed countries can range between 60-70%, but for the conditions in Indonesia CR of 50% is included normal. If below 50% means that suggest that the region has a cattle are less fertile. Umar and Maharani (2005) argue that the probability of conception (pregnancy) when inseminated at the time the beginning of lust: 44%, mid-lust: 82%, end of estrus: 75%. This is related to the level of knowledge of

farmers in detecting oestrus cow inseminator and skills in the handling process. Most inseminator would still perform insemination despite the condition of livestock is still showing symptoms of beginning lust to consider of time efficiency in service.

Services per Conception (S/C)

S/C or mating per pregnancy is the number of mating the parent becomes pregnant. S/C in the Kecamatan Selebar from 2011 to 2014 respectively were $1:08 \pm 0:11$, $1:02 \pm 0:05$, $1:02 \pm 0:05$ and $1:01 \pm 0:00$ and obviously shows the value of the S/C is very good because of the number of mating after the AI parent becomes pregnant after mating injection 1 time does not need to be repeated. S/C shows that the less services provider and fewer expenditures given to the inseminator, so that farmers can get higher economic value. S / C also shows the level of fertility of livestock. The greater the value of S/C the lower the fertility rate (Feradis, 2010). According Toelihere (1985), Jainudeen and Hafez (2000) that the S/C normal range between 1.6 to 2.0 times.

Results of this research is better than research Prasetya et al., (2013) in Geger District Bangkalan with S/C of 1.41 and 1.71, Febrianto (2013) in Sawahlunto with CR values of 1.8 and research Hastuti (2008) in Petanahan, Puring and Dad Kebumen district amounting to 2.2 to 2.4. Results of research conducted by Hartatik et al., (2009) reported that the number S/C cows cruciferous Madrasin is 1.72 and S/C cow Madura is 1.48. According to Ihsan and Wahjuningsih (2011) reported the number S/C 1.3 in cattle in Bojonegoro in 2011.

Value of the S / C is influenced by the precision farmers and AI officers in detecting estrus. AI delays caused pregnancy failure. In addition to the human factor fertility factor is also very influential livestock, exotic female tend to has lower fertility when in AI but will be better when mated nature (using stud pemacek) (Hastuti, 2008). According Jainudeen and Hafez (200) the higher the value of the S/C, the more inefficient the cow reproduction.

CONCLUSION

It can be concluded that in general the situation of farmers and cattle in the Kecamatan Selebar strongly supports the development of cattle AI program in the Bengkulu city. It is based on the average value parameter of conception increased every year which can be categorized very well with the value of Conception Rate (CR) and Services per Conception (S/C) respectively by 98 % and $1:01 \pm 0:00$ in 2014.

REFERENCES

- Anonimous, 2013. Rekapitulasi Jumlah Sapi Potong dan Kerbau Hasil Sensus Pertanian. Dinas Peternakan Kota Bengkulu.
- Febrianto, J. 2013. Evaluasi Keberhasilan Pelaksanaan Program Inseminasi Buatan (IB) Pada Sapi Potong Di Kota Sawahlunto. Skripsi. Fakultas Kedokteran Hewan Institut Pertanian Bogor. Bogor.
- Feradis, 2010. Bioteknologi Reproduksi Pada Ternak. Bandung: Alfabeta.
- Hartatik, Mahardika, Widi, dan Baliarti. 2009. Karakteristik dan Kinerja Induk Sapi Silangan Limousin-Madura dan Madura di Kabupaten Sumenep dan Pamekasan. Buletin Peternakan Vol. 33(3): 143-147.
- Hastuti, D. 2008. Tingkat Keberhasilan Inseminasi Buatan Sapi Potong Di Tinjau Dari Angka Konsepsi Dan Service Per Conception. Jurnal Ilmu Pertanian. Mediagro 4(1) : 12-20.
- Hunter, R.H.F., 1980. Physiology and Technology Reproduction in Female Domestic Animals. Academic Press. London.
- Jainudeen, M. R. and Hafez, E. S. E. 2000. Cattle And Buffalo dalam Reproduction In Farm Animals. 7th Edition. Edited by Hafez E. S. E. Lippincott Williams & Wilkins. Maryland. USA
- Koibur, F. J. 2005. Evaluasi Tingkat Keberhasilan Pelaksanaan Program Inseminasi Buatan Pada Sapi Bali Di Kabupaten Jayapura, Buletin Peternakan Volume 29(3).
- Prasetya, A.D., Nuryadi, dan Nugroho, H. 2013. Perbandingan Tingkat Keberhasilan Inseminasi Buatan pada Sapi Madura dan Sapi Madrasin (Madura-Limousin) di Kecamatan Geger

Kabupaten Bangkalan. [http://fapet.ub.ac.id/.../Perbandingan-Tingkat-Keberhasilan-Inseminasi-Buatan-..\(25 September 2014\).](http://fapet.ub.ac.id/.../Perbandingan-Tingkat-Keberhasilan-Inseminasi-Buatan-..(25%20September%202014).)

- Susilawati, T. 2011. Tingkat Keberhasilan Inseminasi Buatan dengan Kualitas dan Deposisi Semen yang Berbeda pada Sapi Peranakan Ongole. *Jurnal Ternak Tropika* 12(2): 15-24.
- Toelihere, M. R. 1985. *Inseminasi Buatan Pada Ternak*. Penerbit Angkasa. Bandung.
- Udin, Z. 2005. Pengaruh Kawin Pertama Pacapartum Sapi Potong terhadap Angka Kebuntingan di Kodya Padang. *Buletin Peternakan*. 29 (4).
- Umar, S. dan M. Maharani. 2005. Pengaruh Berbagai Waktu Ekuilibrasi terhadap Daya Tahan Sperma Sapi Limousin dan Uji Kebuntingan. *Jurnal Agribisnis Peternakan*. 1 (1): 17-21.