THE IMPORTANCE OF MAP OF INSEMINATOR LOCATIONS AND BALI COW POPULATION IN IMPROVING ARTIFICIAL INSEMINATION SERVICES IN BADUNG REGENCY

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ABSTRACT

Artificial insemination services on Bali cattle in Badung Regency have not been optimum up to 2012 since the number and distribution of the inseminators have not been evaluated in relation to the cows population in the villages of this regency. The aims of this study were to create a map of Bali cow population and locations of inseminators in order to improve the artificial insemination services in this regency. Data of Bali cattle population base on the result of census in 2011 were used in this study and interview on the inseminators was carried out to find out the existing problems in the field. Mapping of the location of the inseminators and cow population in the villages of Badung Regency was done using Geographic Positioning System (GPS).

The results of the survey showed that inseminators were not well distributed according to the number of cows available in each village or district of Badung regency, and this regency still needs a total of 22 inseminators to optimize the application of artificial inseminators. This was shown by the map of inseminators and cows population in the villages of Badung Regency. Other factors such as skill of the inseminators were needed to be improved, addition of inseminator facilities particularly motorcycles were needed to be added since 57.69% of the inseminators have not got motorcycles for their duties in the field.

It was concluded that the map of the inseminator locations and population of cows in Badung regency as well as addition of motorcycles and improvement of the inseminator skills to optimize the implication artificial insemination program were needed in this regency.

Keywords: Map, Inseminator location, cow population and artificial insemination

INTRODUCTION

Superior bulls distribution has a great opportunity for genetic improvement of bali cattle production. By using technology of artificial insemination program where semen collected from a bull may fertilized 500,000 cows in his lifetime through the use of his frozen semen (Sorensen, 1979). According to Oka (2009), application of artificial insemination in Bali cattle Breeding and

Development Project (P3B) could increase up to one year old live weight of Bali cattle. Artificial insemination technology is technically applicable, socially acceptable and economically feasible in Bali cattle production system (Toelihere, 2003). However, artificial insemination services on Bali cattle in Badung regency have not been achieved as expected in 2012. This was shown by data of its implementation, where only 6,644 doses were used from the target of 10.000 doses although fund for the operational infrastructure of artificial insemination in this regency is adequate. Province of Bali and the Central government of the Republic of Indonesia also supported this program with the local fund. Badung regency had a total of 19,162 Bali cows as acceptors of artificial insemination with 26 active inseminators. According to the Minister of Agriculture of the Republic of Indonesia, the ideal comparation between inseminator and number of cows as acceptors for an optimal artificial insemination program should be 1:400. Therefore, two main issues might be considered for optimizing the implementation of artificial insemination program in this regency. Firstly, the number of inseminators responsible in implementing this program and secondly, distribution or location of the inseminators related to the number of recipient cows in a particular area or district. To solve those problems, a map of location or house of each inseminator and population of cows to be serve in every villages of Badung regency must be needed as data base in planning a better implementation of artificial insemination program for Bali cows in this regency. Planning of facilities and infrastructure as well as recruitment of inseminators might also be considered since these factors also important for optimizing the implementation of this program.

The aims of this study was to create a map of inseminator locations and cows population in the villages of Badung regency to improve the implementation of artificial insemination program for Bali cows in this regency.

MATERIALS AND METHODS

A study on location of inseminators for Bali cows in Badung regency was carried out by census method, where data were taken from all inseminators in this regency. Data of Bali cow population in the villages of this regency were taken from the report of *Balai Pusat Statistik (BPS)*, Province of Bali 2011.

Geographic Positioning System (GPSMAP 60CSx type) was used to determine the coordinate of the inseminator's houses or locations. All inseminators were visited and interviewed to get further information about their activities in inseminating the cows and any problems they were facing during their duties. Data of inseminator locations and distribution of cows in Badung regency were analyzed using an excel program and converted by Quantum Geographic Information System (GIS) program into a map. The map will provide an overview of inseminator home locations, population and distribution of cows in the villages of Badung regency.

RESULTS AND DISCUSSION

According to the 2011 cencus of cattle in Badung regency, it was reported that the total mature cows in this regency were 19,162 from the total of 31,121 female Bali cattle (Table 1). This condition meant that the total potential cows as acceptors for application of artificial insemination program in this regency were 19,162 cows. Department of Agriculture, the Republic of Indonesia (2012) suggested that for optimizing the application of artificial insemination in cow population, one inseminator might be effective in doing his job if he has inseminated 400 cows per year. Theoritically, Badung regency needs at least 48 inseminators for inseminating all cows available in this regency, besides topography of some villages where the cows were kept by the farmers are mountaineus and no road available. Therefore, addition of at least 22 inseminators is required to optimize the application of artificial insemination program in this regency since only 26 active inseminators available at the moment and their distribution did not proportional to the population of cows in each village or location in every district. Map of cow population and location of inseminators is shown in Figure 1.

Table1. Population of female Bali cattle and Inseminators in Badung regency in the year 2011

Districts	Total female cattle	Young female cattle	Mature cows	Inseminators suggested	Inseminators available in 2011	Additional Inseminators needed
Petang	7,463	2,947	4,516	11	4	7
Abiansemal	6,453	2,777	3,676	9	9	-
Mengwi	4,495	2,238	2,257	6	7	-
North Kuta	2,044	655	1,389	3	2	1
Kuta	551	165	386	1	1	-
South Kuta	10,115	3,177	6,938	18	3	14
Total	31,121	11,959	19,162	48	26	22

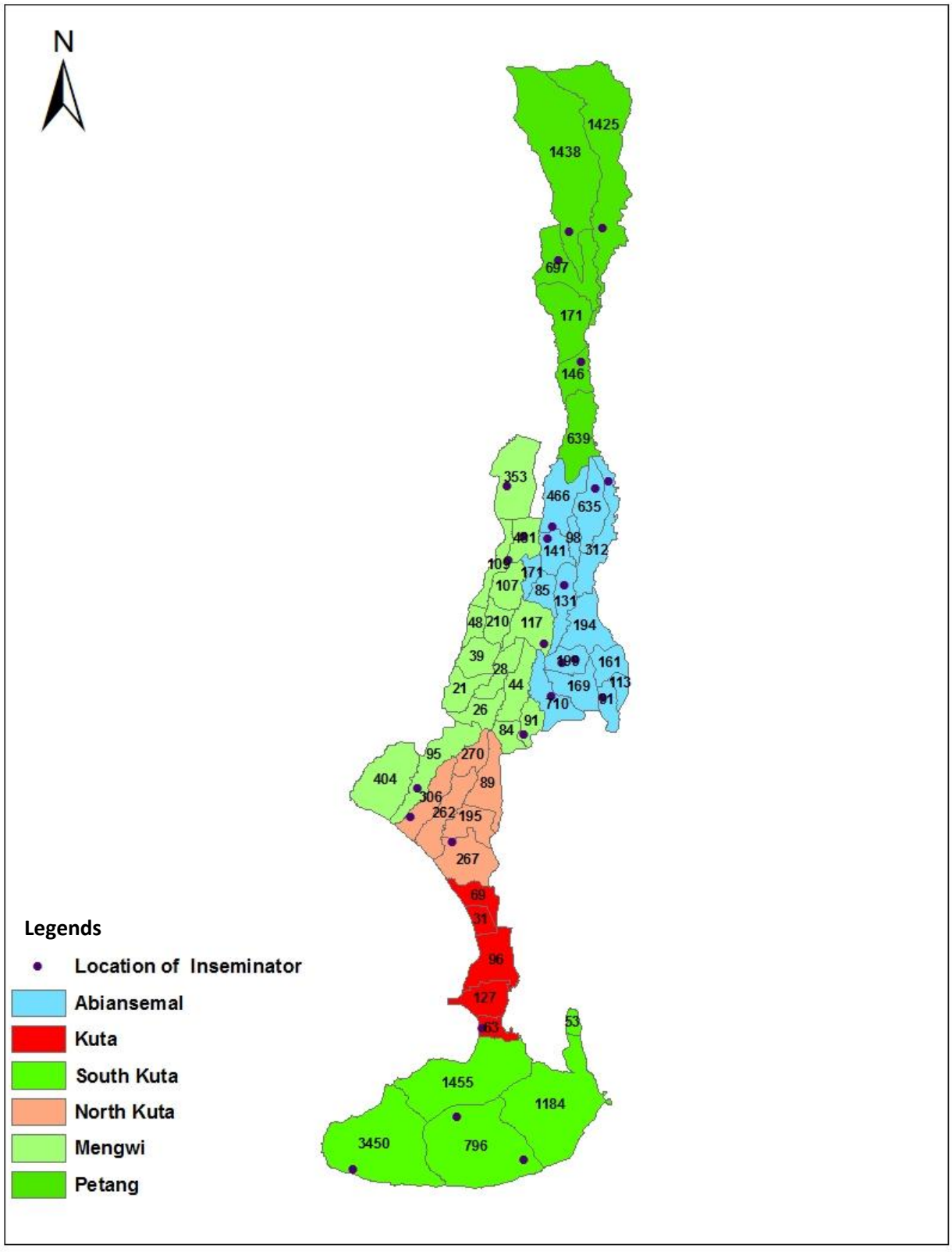

Figure1. Map of Inseminator Locations and Bali cow population in Badung Regency.

Data in Table 1 and Figure 1 showed that the inseminators were not distributed well since only three districts such as Abiansemal, Mengwi and Kuta had been handled by enough inseminators, while the other four districts such as North Kuta, Petang and South Kuta needed additional inseminators. The last two districts besides had more cows as acceptors, their topography were hard to be reached by the inseminators.

CONCLUSION

It might be concluded that the map of inseminator locations and cow population was important in planning and realization of artificial insemination program in Bali cattle breeding, particularly in Badung regency, and in Bali in general, besides improvement of the inseminator's skill and facilities and socialization of the advantages of artificial breeding to the farmers in the villages.

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