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Cattle Inseminators Profile in Bali Province

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ABSTRACT: The main focus of the government to improve the production of the livestock sector is to fulfill the population demand for animal protein. One of the Government's efforts is increasing the local livestock population through a program called Upsus Siwab and Sikomandan, which is a special effort for breeding cows mandatory for pregnant. Artificial Insemination (AI) is the technology used for that purpose. The result of this technology depends on several factors including the semen quality used, the condition of the cows (reproductive activity), and the human (cattle breeder and inseminator). This study's aim was to find out the artificial inseminator profile of those programs in Bali. Knowing the importance of inseminator duty, starting from determining the time to do insemination until locating the semen in the reproductive tract of the cow, this study's aim was to find out inseminator characteristics in Bali Province. 86 inseminators in 9 regions and cities in Bali were interviewed using a questionnaire in this study and the questions it was focused on obtaining characteristics of the inseminators including education, age, work experience as an inseminator, the number of professional courses taken, and the number of cows inseminated per day. The data obtained was descriptive and qualitatively analyzed. It can be concluded that the profile of inseminator livestock artificial inseminator program in Bali is characterized by the following parameters such as age was forty-six (46) years, education of thirteen (13) years, work experience as an inseminator of fourteen (14) years, the number of professional courses taken one (1) and the number of cows inseminated per day was 2 cows.

KEYWORDS: Inseminator, Artificial Insemination, Inseminator profile

INTRODUCTION

Indonesia is a large country with a population that is continuously increasing. This will have an impact on increasing food needs. Moreover, accompanied by an increase in the level of education and welfare of the community, this will certainly impact the increasing demand for animal protein food, especially beef. To fulfill these needs of course must be followed by an increase in the population and cattle productivity in Indonesia. In response to this, the government has launched programs to increase the cattle population, namely UPSUS SIWAB and SIKOMANDAN, one of the technologies that is expected to be able to encourage an increase in population and meat production is through artificial insemination (AI). This program aims to increase the beef cattle population and is expected to achieve beef self-sufficiency (Suharno, 2017). The implementation of AI has grown and spread throughout Indonesia. The success of AI itself is influenced by three (3) factors: the first is the quality of the semen used, the second is the condition of the cows (reproductive activity) being inseminated and the third is humans (breeders and inseminators).

The government has designated the island of Bali as a place to preserve/conserve Bali cattle as native Indonesian livestock germplasm (Decree of the Minister of Agriculture Number 325/kpts/OT.140/1/2010) and as a source area for Bali cattle breed, meaning, of course, Bali must be able to provide superior Bali cattle calves. In addition, Bali province is also the prime source of beef in Indonesia. Until recently, shipments of cattle excluding breeds reached an average of 60,000 heads per year. To maintain balance and increase the population of Bali cattle in Bali, the Regional Government is intensifying existing Government Programs with artificial insemination becoming one of the mandatory programs.

In the first year of implementing the Upsus Siwab program, the target for pregnant mothers was only 27.5% of the target of 3 million new births. In this case, the inseminator plays a very important role in getting satisfactory AI results. Currently, inseminators in Bali are selected by the Animal Husbandry and Animal Health Service, guided by the requirements determined by the Director General of Animal Husbandry. Inseminators can be selected from civil servants (Government officials) who work at the Department of Public Works, heads of cattle breeder groups, or breeders who are interested in and enjoy the work of inseminating cattle. With

this method of recruitment, of course, the characteristics of the selected inseminators vary greatly. From the results of research on dairy livestock, it was found that the characteristics of the inseminator play a very important role in the success of AI, namely in producing pregnancy (Herawati et al, 2012).

The low pregnancy rate of AI results is caused by several errors made by the inseminator, namely errors in determining the right time to carry out insemination, the second error is the inseminator's inability to handle frozen semen so that the quality of the semen decreases. The third error is an error in positioning the semen, namely that it should be in the cervix but is positioned in another part of the female reproductive tract. Mastery of the knowledge regarding the above matters is very important and must be understood by an inseminator to achieve high AI success. This knowledge can of course be obtained from education and work experience as an inseminator. Education is one of the characteristics of a person that can influence his ability to accept new innovations (Nurlina, 2007). Considering the important role of inseminators in the success of AI, this research was carried out to determine the profile/characteristics of AI inseminators in Bali.

MATERIAL AND METHODS

This research was conducted in several districts throughout Bali, namely in eight (8) districts and one (1) city. The material used in this research was a cattle AI inseminator that was actively registered in the BIBD (Regional Artificial Insemination Center). where the number and location were determined using purposive sampling so that they were able to represent the inseminators in Bali. The total sample used was 86 active inseminators out of a total of 255 recorded inseminators.

Primary data was obtained through a survey by distributing questionnaires to inseminators who were still active and who had been designated as samples. Relevant/supporting secondary data (name list of active inseminators) was obtained from the Animal Health and Livestock Service, Bali Province, Bali, and the BIBD at Baturiti subdistrict. Secondary data was reviewed through reports for each AI work area as well as reports on the recapitulation of activities for all districts and cities (Strauss and Juliet Corbin, 1997). The profile parameters observed were education, length of work, age, professional courses attended and number of cows inseminated/day. The data obtained was analyzed descriptive qualitatively.

RESULTS AND DISCUSSIONS

Active cattle inseminators were selected based on instruction from the Director General of Animal Husbandry to each Province. The provincial office then forwards these instructions to the districts and cities to nominate potential participants. The prospective participants were then trained, however, the number of participants trained per year was limited, so the priority was participants from districts/cities that did not have enough inseminators. There were also those who were independent, namely groups or individuals who asked for recommendations from their respective district offices. This period occurred before 2014 when provinces were given the authority to carry out training, but after that, all training was carried out by the center, where provinces were given a quota to send their candidates. Of the trained staff, some of them became honorary staff in the district and then those who met the requirements were eventually appointed as civil servants (Government Official). Meanwhile, those who do not meet the requirements remain independent inseminators. The composition of civil servants and independent inseminators from the samples of this study were presented in Table 3.1. bellow

Table 3.1. Cattle Inseminator Composition in Bali Province

District/City	Civil Servants (%)	Independents (%)
Denpasar	33,33± 0,97	66,67±2,22
Badung	0,00±1,22	100,00±1,88
Gianyar	63,64±0,77	36,36±2,55
Klungkung	36,36±0,95	63,54±2,25
Bangli	50,00±0,86	50,00±2,40
Karangasem	35,29±0,96	64,71±2,24
Buleleng	18,75±1,07	81,25±2,07
Jembrana	66,67±0,75	33,33±2,59
Tabanan	71,43±0,72	28,57±2,64

Table 3.1. showed that the composition of inseminators whose main work was civil servants was the highest in Tabanan district, namely 71.43 ± 0.72%, and the lowest was in Badung district, namely 0%. From the interview results, it was discovered that despite their status as civil servants, their time for artificial insemination was never limited because insemination was a form of service task that they had to carry out. The only thing that differentiates them is the information regarding professional courses held by the Director General that they knew beforehand compared to non-civil servant inseminators. This causes more civil servant inseminators to take part in professional training held by the Director General. Further research needs to be carried out to determine the differences in performance of the two inseminators.

Cattle Inseminators Profile in Bali Province

Achieving success in artificial insemination depends on several factors, namely the quality of the semen used, the breeder's knowledge in detecting heat, timeliness in reporting livestock for mating, and the inseminator's skills in handling semen, depositing semen, timeliness of AI and the reproductive performance of the female livestock itself (Ron *et al*., 1984., Caraviello *et al*., 2006., Herawati *et al*., 2012). The skills of the inseminator were of course greatly influenced by the level of education, age, work experience, and non-formal professional education to support the skills that are followed. The results of this research on skill indicators that show the profile of inseminators in Bali are shown in Table 3.2. following below.

Table 3.2. Cattle Inseminators Profile in Bali Province

District/City	The length of education (year)	Age (year)	Experience (year)	Professional courses attended	The number of cattle inseminated/ day (head)
Denpasar	15 ± 0,75	43 ± 0,98	11 ± 1,12	1 ± 0,16	2 ± 6,01
Badung	13 ± 0,04	52 ± 2,20	23 ± 3,12	1 ± 0,16	1 ± 0,39
Gianyar	14 ± 0,39	42 ± 1,34	12,2 ± 0,70	2 ± 0,20	2 ± 6,01
Klungkung	11 ± 0,67	41 ± 1,69	9,4 ± 1,69	1 ± 0,16	2 ± 6,01
Bangli	13 ± 0,04	47 ± 0,43	13,5 ± 0,24	2 ± 0,20	2 ± 6,01
Karangasem	12 ± 0,31	36 ± 3,46	7,6 ± 2,32	2 ± 0,20	2 ± 6,01
Buleleng	12 ± 0,31	47 ± 0,43	11,88 ± 0,81	1 ± 0,16	4 ± 5,30
Jembrana	12 ± 0,31	49 ± 1,14	17,5 ± 1,18	1 ± 0,16	2 ± 6,01
Tabanan	14 ± 0,39	55 ± 3,62	21,43 ±2,57	2 ± 0,20	2 ± 6,01
Average	**13 ± 0,36**	**45,78 ±1,66**	**14 ± 1,53**	**1 ± 0,17**	**2 ± 5,31**

From table 3.2. above it can be seen that the average education of inseminators in Bali province is 13 ± 0.36 years, with the lowest education being in Klungkung district (11 ± 0.67) years and the highest being in Denpasar city, namely 15 ± 0 .75 years. This shows that the average Inseminator in Bali has an education equivalent to high school. The level of education is important to overcome the problems faced by inseminators in the field (Alma, 2010). Active inseminators in Bali consist of civil servants and community members, including breeders, and livestock group leaders who are committed to becoming inseminators. According to Mahaning (personal interview), the Director General himself provides requirements that those who can become inseminators be citizens with an education of up to 12 years or equivalent to high school (personal interview). In Denpasar, the inseminators who were contract workers had a bachelor's degree or even a master's degree, while in Klungkung the inseminators were mostly high school graduates and there were also junior high school graduates with their main job as livestock farmers who were committed to becoming inseminators. If inseminators have higher education and higher competency, it is hoped that their performance will also be high (Moeheriono, 2009). A minimum of high school education (12 years of education) has been established as the standard for inseminator education because high school graduates were considered capable of communicating well, able to collaborating, being creative, and able to use technology (Nurlina, 2007). Meanwhile, for inseminators whose education was lower than 12 years, of course, there were other considerations such as work experience and age. Information about education was very important to see the capabilities of inseminators in Bali.

The next profile parameter is age. One of the factors that influences on worker inseminator productivity is age (Tanto et al. 2012, Mahendra and Woyanti, 2014). Workers who were in the age of productive period usually had higher productivity levels in comparison with seniors due to weak and limited physical body. All jobs have an age limit for workers, but this was not the case with inseminators. Mahaning said that there was no limit to how old a person could be as an inseminator, as long as they were still able to work, of course, they were committed to their work and the farmer was still willing to ask him to AI his cows, then the inseminator can still be active and continue his work as an inseminator. The results of this research show that the average age of inseminators in Bali was 45.78±1.66 years, with a mean range of 36±3.46 years and 55±3.62 years. This shows that all respondents were included in the productive age category. According to Saragih (2000) and Hastuti *et al*., (2008), the age range up to 55 years was still categorized as productive age, while Soegiharto (2004) does not provide a limit at what age workers can be categorized as productive workers in the agricultural sector because the only working age category mentioned was residents aged 15 years or more. What was meant by work experience in this research is the length of time working as an inseminator. The longer the working period of a worker's skills and abilities doing work is increasing (Nainggolan et,al 2012, Wirawan et,al 2014, dan Pamungkas et,al 2017). From Table 3.2. above it can be seen that the average inseminator work experience in Bali was 14 ± 1.53 years, with a mean range of 7.6 ± 2.32 years in Karangasem district and 23 ± 3.12 years in Badung district. This shows that most of the artificial insemination inseminators in Bali were very experienced, having worked for more than 10 years, while almost all districts except Klungkung and Karangasem districts have worked as inseminators for less than 10 years. If we look at these parameters, we can expect that the success of AI in Bali will be very high (further research is needed to find out the relationship between inseminator profiles and the success of AI in Bali) considering the work experience of most of the inseminators. Work experience as an inseminator will influence

the success rate of artificial insemination carried out. The longer the work experience as an inseminator, the level of insemination skills and knowledge will increase (Herawati *et.al*., 2012) as a result the success of AI can be expected high (Hastuti *et.al.,* 2008). The professional training that inseminators usually take is an Artificial Insemination course. This training is a requirement for an inseminator to obtain a SIMI (Insemination Permit). Apart from these courses, the Animal Husbandry Service also holds several other courses to improve the abilities of inseminators, such as PKB (pregnancy diagnosis), which is a pregnancy examination course, and ATR, which is a reproductive techniques assistant course. The table above also describes the average professional training attended was 1 ± 0.17 times with a range of 1 ± 0.16 and 2 ± 0.20 times. It also showed that all inseminators have at least undergone Artificial Insemination training. There were 4 (four) districts showed the average number of training attended was 2 ± 0.20 times, meaning that inseminators in Gianyar, Bangli, Karangasem, and Tabanan districts all attended the second training, namely PKB (pregnancy examination). In this way, pregnancy checks for AI cows can be carried out directly by the inseminator concerned. In the other 5 districts and 1 city, the average training attended was 1 ± 0.16 times, meaning that in this district not many inseminators took part in the second training, namely PKB.

The average ability of inseminators to inseminate cows per day was 2.11 ± 5.31 cows per day, except in Buleleng district it can be up to 4 ± 5.30 cows, while in Badung district it is only 1 ± 0.39 cows. 60% of inseminators in Badung Regency are located around tourism areas with the cattle population low coincidentally the inseminator also works as a private veterinarian who was busy managing his practice so very few cattle were inseminated, around 10 cattle in a month.

CONCLUSIONS AND RECOMMENDATIONS

From this research, it can be concluded that the average length of study cattle inseminators in Bali have studied for 13 years, with an average age currently of 46 years and working as an inseminator for 14 years, and a minimum of 1 professional course to obtain a SIMI with the ability to inseminate was 2 cows per day.

Further research needs to be carried out to determine the differences in performance of inseminators who work as civil servants (Government officials) and those who do not (Independents) as well as the relationship between the inseminator profile and the success rate of AI in Bali.

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