

PROFILE OF ARTIFICIAL INSEMINATION RECEPTOR CATTLE BREEDERS IN BALI PROVINCE

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ABSTRACT

Farmer profiles or characteristics are factors which determine the success of farmers in managing their livestock businesses. The purpose of this study was to determine the profile of Artificial Insemination (AI) receptor cattle breeders in Bali Province and see the correlation of those demographic factors. The materials used on this study were 98

farmers from 8 regencies in the Bali Province, using the interview method. The data obtained was analyzed descriptively qualitatively. The results showed that the age of breeders in Bali Province ranged from 21-80 years, with the most between 41-45 years (18.37%), education level of cattle breeders was quite low, as many as 52.04% did not go to school and only graduated from elementary school, with the most family members of 4 people was 31.63%. The ability of the cattle breeder in Bali to raise livestock was 1-2 cattle (55,10%). Most of those breeders (76.53%) had more than 10 years of farming experience. Farmer age had no correlation with the number of animals raised and Calving Interval (CI) of the cattle ($r < 0.05$). Similarly to experienced, it was also had no correlation with the number of livestock raised ($r < 0.05$). However, education had a positive correlation with the number of livestock kept ($r > 0.05$), whereas, it had a negative correlation with CI ($r > 0.05$). It can be concluded that AI receptor cattle breeders in Bali Province were still classified as traditional breeders who raised livestock as savings rather than business.

KEYWORDS: *AI, Bali cattle breeder, Bali cattle breeder profile.*

INTRODUCTION

Indonesia is a large country with an ever-increasing population. By 2022 Indonesia's population have reached 275.8 million (BPS, 2022). Increasing population, education and welfare levels lead to increase demand for animal protein, especially beef. The most popular source of beef in Indonesia was Bali cattle. Therefore, the government continue striving to increase the population and productivity of bali cattle by creating programs such as Upsus Siwab (Special effort for breeding cows to be pregnant) aimed to increase the population and productivity of beef cattle in Indonesia through artificial insemination (AI) technology. AI is one of the technologies to increase the spread of superior cattle breeds at low cost, easily and quickly. The benefits and advantages of AI were well known among farmers, so now the implementation of AI has spread throughout Indonesia.

The government's program was also in response to the issue of food security, which was important for all countries in the world. In addition, Indonesia as a developing country has problems in the level of food production and distribution that only rely on the local resources. The Upsus Siwab program was a national program for food security with the target of accelerating the increase of cattle and buffalo population. However, looking at the fact that the Upsus Siwab program, which was a strategic step of the Agriculture Ministry since 2017, has not been able to fulfill the target, as reported by the Directorate General of Animal Husbandry and Animal Health in Semarang in 2019. Nevertheless, the Head of Agriculture and Food Security Office Bali Province, Ida Bagus Wisnu Wardhana, remains optimistic that by 2025 the target population of 1 million Bali cattle in Bali will be achieved from a population of 575,218 in 2022 (BPS, 2022).

Increase population was highly depended on the success of the insemination program. The success of AI itself was not only influenced by the quality of frozen semen used but also by several factors including the skills of AI inseminators both in handling frozen semen and in positioning the semen in the female reproductive tract, the ability of AI acceptor breeders to recognize signs of heat from their cows and also the appearance and reproductive activities of the AI acceptor cows themselves.

The ability of cattle farmers to develop their cattle business was strongly influenced by their characteristics. Farmer characteristics were characteristics inherent in the farmer such as age,

education level, farming experience and the number of livestock kept in the shed. Farmer characteristics were very important factor in the communication process so that the information, technological innovations can be accepted and implemented properly so that the implementation objectives can be achieved according to the target (Yusriadi, 2012).

Livestock productivity will be greatly influenced by the ability of farmers to manage their livestock business. Having practical knowledge related to their livestock business will be able to change the farmer's way of thinking towards a more advanced direction so that they able to develop their livestock business. Practical knowledge can be obtained from non-formal education, obtaining various information from various sources, utilizing various media, expanding their experience, being creative, innovative and daring to make decisions from normal rules. The key success of a livestock business was determined by the farmer ability to absorb available information. Information was an important factor in enriching the knowledge of farmers (Tomatala, 2004). From this description, it can be seen the importance of farmer characteristics in the developing livestock business in order for Bali to reach 1 million cattle population by 2045. The purpose of this study was to determine the profile/characteristics of bali cattle breeders in Bali Province.

METHODOLOGY

Research location

This study was carried out on eight (8) districts in Bali, namely Badung, Tabanan, Jembrana, Buleleng, Karangasem, Klungkung, Bangli and Gianyar. The research sites were determined purposively with consideration of the cattle population in the village/sub-district designated.

Research Materials

98 AI acceptor cattle breeders were involved in this study from 8 districts in Bali Province.

Data collection

Primary and secondary data were used in this study. Secondary data consists of population data and a list of cattle breeders (farmers) names obtained from the relevant offices in each district and sub-district. Meanwhile, primary data was obtained directly from farmers. Data collection was conducted using the in-depth interview method with questionnaire tools and direct observation to the shed. Primary data collected was parameters observed for this study including age, education level, the number of family members (family size), the number of

cattle owned, the length of farming experience and farmer knowledge on breeding management.

Data Analysis

The data obtained will be analyzed descriptive qualitatively. Correlation between some demographic factors such as farmer age, education, the length of farming experience and knowledge with the number of cattle raised by the farmer.

RESULTS AND DISCUSSIONS

The Age of Cattle Breeders in Bali Province

The age of cattle farmers in Bali Province was in the productive age category. The age distribution data of cattle farmers in Bali province was presented in Table 1. Based on Table 1, it can be seen that the age distribution of cattle farmers in Bali Province was from 21-25 years to the age range of 76-80 years. The distribution as follows, most cattle breeders was in the age range of 41-45 years as much as 18.37%, followed by breeders with an age range of 46-50 years was 16.33%. This study showed, in all District cattle breeders were operated by productive age group at the age of 36-60. Based on the statement of Indey *et al.* (2022) productive age is age 20-65 years. This is also supported by Muatip *et al.* (2019) said that the productive age of beef cattle farmers in Jatibarang was 20-55 years old. In addition, Murwanto (2008) found that beef cattle farmers in Manokwari have a productive age ranging from 39-47 years. This indicated that farmers in the productive age range had the willingness to learn and the physical ability to manage their cattle. Although there are exceptions as reported by Sharma (2016) that farmers aged 30-40 years have low interest in receiving knowledge. This may also be influenced by local customs and culture, given that the study was conducted in Punyab, India.

However, it was still quite a number of farmers who classified at less productive age able to manage their cattle (9,18% of age range 61-65 years ; 8,16% of age range 66-70 years; 3.06% of age range 71-75 years and 1.02% of age range 76-80 years) (Table.1). Pateda and Rokhyati (2022) and also BPS (2020) state that ages above 64 years are classified into less productive ages, this is likely due to a person or group of people at this age stage whose relationships had started to diminish, some abilities have begun to decline and it was expected that they had passed on their knowledge, abilities and experiences to the next generation. From the results of this study it can also be seen that the interest of young people is very low in cattle breeding, it can be seen from the very few breeders under 30 years of age

(2, 04%) (Table. 1) and that only exists in 2 districts namely Jembrana and Buleleng, the same results were reported by Perttu et al. (2020). Milone and Ventura (2019) stated that this may be due to rural life that discourages youth from farming and livestock business.

Table 1: The Age distribution of cattle farmers in Bali Province.

The Education Level of Cattle Breeders in Bali Province

The level of education was closely related to the development and acceptance of innovations in the beef cattle business, so it was greatly affected the motivation of farmers to raise cattle (Halim, 2017). In general, the education level of cattle farmers in Bali Province is relatively low. It can be seen that more than 50% of farmers' education level is still quite low, consisting of farmers who do not go to school and only finish elementary school (52.04%). A total of 31.63% farmers were junior high school graduates, 12.24% were high school graduates, and 4.08% were university graduates.

Table 2. Distribution of education level of cattle farmers in Bali Province

In general, throughout Indonesia, most cattle farmers only graduate elementary school, as found in Manokwari Regency (Murwanto, 2008), Kulon Progo Regency (Ajeng and Budi, 2019), and Sorong (Indey et al., 2021). The level of education determines a person's ability/skill in working, as reported by Ken Suratiah and Rizki Annisa (2006) that a person's skill determines a person's performance, someone was said to be more capable, of course, his performance will be higher when compared to those who was less capable. Proficiency was determined by a person's education, knowledge and experience.

The Number of Family Member of the Cattle Breeders in Bali Province

Data on the distribution of the number of families owned by cattle farmers in Bali province was presented in Table 3. The number of farmer family members was family members who live under one roof (Pamungkasih and Febrianto, 2021). In Table 3, it can be seen that the number of family members of cattle farmers in Bali Province who live under one roof is dominated by the number of family members of 4 people (31.63%), then the number of family members of 5 people (22.45%). In contrast, Pamungkasih and Febrianto (2021) reported that the number of families of dairy farmers in the lowlands of the Regency was dominated by 3 families. The larger number of families has positive and negative values. The positive value was that the number of productive individuals will be able to help in

maintaining livestock, on the other hand, the negative value will be the burden on households to meet daily needs.

Table 3. Distribution of the number of family member of the cattle farmers in Bali Province

The number of cattle kept by cattle breeders in Bali Province was still low. The distribution of cattle ownership in the province of Bali was presented in table 4. On table 4, it can be seen that the dominance of cattle breeders raised 1-2 females (55.10%). This is because raising cows was a side job, where famers kept their cattle for savings then they will be sold whenever in times of urgency. Most of the cattle breeders in Indonesia were small scale breeders raise 1-3 cows. This result was supported by Indey *et al.* (2021) which found that the average beef cattle breeder in Sorong Regency also raised less than 6 cattle. This result was also in line with the report by Pamungkasih and Febrianto (2021), that breeders in the lowlands of Malang Regency also raised in the range of 1-10 cattle.

Table 4. The distribution of cattle ownership in the province of Bali.

The length of Farming Experience

The duration of cattle breeders running their breeding business was an indicator of the experience of farmers in running cattle breeding business in the Province of Bali was presented on Table 5. Table 5 showed that that the farmer has quite a long experience on raising cattle. Most of the breeders (83.75%) have had more than 10 years of farming experience (Table 5). Forty percent (40%) of farmers have had farming experience between 10-20 years. This finding indicated that farmers were quite experienced in raising cattle. Long-term farming experience specified that farmers' knowledge and skills in raising and managing cattle were getting better. According to Tulle *et al.* (2005) that experience determined the level of maturity and ability to use skill in carrying out their duties. Knowledge in managing livestock will increased in line with increasing farming experience. Working experience would provide knowledge and skills manage their farms. Proficiency was determined by education, knowledge and experience (Suratiyah, 2006).

Table 5: The length of farming experience of cattle breeders in Bali Province.

The Cattle Breeder Knowledge in The Bali Province

Breeder knowledge has a very crucial role in every sector of livestock development. The knowledge of farmers was also a benchmark for farmers in terms of increasing personal

perceptions in the field to be carried out, so to see the condition of farmers in general, it was necessary to assess the level of previous knowledge which was used as a reference for farmers to manage their livestock. The main focus of the farmer's knowledge in this research was the farmer's knowledge regarding good farming practices, especially the ability of the breeder to detect heat, and the right time to inseminate their livestock. Without knowledge, it was difficult for farmer to decide and taking any action to solve the problems on hand. The average knowledge of cattle breeders in Bali Province was presented on table 6. The breeder's knowledge was obtained from the number of questions that can be answered by the farmer from a number of questions given. The farmer knowledge in this study was regarding of the breeding's knowledge such as the signs and the time of heat and the right time to mate them as well as some questions regarding good farming practices. It can be seen that the average knowledge of breeders in Bali Province who were good was breeders in 5 regencies, namely Buleleng, Karangasem, Badung, Gianyar and Bangli. On average, breeders in the district were able to answer questions above 7 out of 14 questions. For Buleleng, Karangasem and Bangli Regencies, perhaps this was not surprising because these three regencies have high cattle populations in the Province of Bali, so most of the breeders there had good farming knowledge. Unlike Badung and Gianyar Regencies, both of which were regencies with high tourism activities. This could be because in the two districts communication was very smooth, so that information was easier and faster to obtain. As mention by Soekidjo (2023) most of human knowledge was obtained through the eyes and ears as the organs that were most directly related to certain information.

Table 6: The average knowledge of cattle breeders in Bali Province.

Correlation of Several Demographic Factors with the Number of Cattle Raised

Correlation analysis was used to find out whether there was a relationship between the two variables/datasets, and how strong was the relationship. In this study, age, education, the number of family member, farming experienced and farmer's knowledge were analyzed for a correlation or relationship with the number of cattle raised. The results of the analysis were presented in Table 7.

Table 7: Correlation between demographic factors and the number of cattle Raised.

From the results of the analysis it can be seen that all demographic factors had a positive correlation with the number of cattle raised by breeders (Table 7). However, age, education,

the number of family member and farming experience have a very weak correlation, namely 0.010, 0.167, 0.162 and 0.079 respectively. In the case of age, education, the number of family member and farming experience do not significantly affect the number of cattle owned/reared in Bali Province. Even though most of the age of the breeders were in the productive range, in Bali the cattle business was still a part-time business so that the attention was put more on the main business. This was confirmed by Makatita (2013) who stated that the age of the breeder had no effect on the scale of the business because productive age breeders pay more attention to their farming business than their livestock business. Likewise with the educational factor, this was differ to the Murwanto (2008) report that the level of education had an impact on improving the performance and management capabilities of the farmer cattle business. Similarly to the number of family member, most of the farmer's family member have their own activity. All farming routine was done by the farmers themselves. Farming experience also had a very weak positive correlation to the number of livestock kept. This result on the contrary to Idris *et al.* 2009, they found that the correlation between education and the scale of the buffalo farming business in Subang village was strongly positive so that the longer the buffalo farming experience, the higher the farmer's interest in developing their livestock business. Animal husbandry knowledge, on the other hand, had a sufficient correlation to the number of livestock kept. This means that the knowledge possessed by breeders was enough to influence breeders in developing their business scale.

CONCLUSION

Cattle farmers in the province of Bali were categorized as being of productive age with an average level of education that was still low. The number of members of the farmer's family was 4 people with the number of livestock kept was only around 1-2 cows. Cattle farmers in the Province of Bali have quite a long experience in farming (more than 10 years). Age, education and farming experience have a weak positive correlation to the number of livestock kept, while knowledge has a moderate relationship.

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