The Productivity and Natural Increase of Swamp Buffalo in District Malang

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Abstract

The purpose of this research was to collect the basic information needed to develop a sustainable breeding program, which includes the potential for production and reproduction of buffaloes. This research was conducted on swamp buffalo in Malang Regency East Java. The research method used was survey method. Primary data was obtained from direct observation on 323 tails owned by 98 breeders. Variables observed were population growth and reproductive performance. The data obtained were analyzed descriptively. The result showed that the initial population study of swamp Buffaloes in Malang as many as 1155 with male and female ratio 1: 2. The ratios of male and female swamp Buffalo 20 percent male and 80 percent female. Overall, the buffalo reproduction performance was still low. Service per conception 2.06 ± 0.88 ; Anestrus Postpartum 7.46 ± 3.83 months ;calving interval distance 17.82 ± 4.86 months; 20.43 % birth rate and 4.33% mortality rate of Natural Increase (NI) population was about 16,1%. In conclusion, the value of NI of swamp Buffalo in Malang Regency is still low. To increase buffalo productivity, buffalo breeding program is continuously based on reproduction control.

1. Introduction

One of the fundamental problems of livestock productivity is the tendency of declining quality and quantity of local livestock. The government's efforts in recent years to achieve self-sufficiency in meat face quite serious obstacles such as the continued decline in the population and quality of local livestock, especially large ruminants that have a significant contribution to the provision of meat from livestock. Cattle and buffaloes are two types of large ruminant livestock are very strategic in the fulfillment of the need for meat. However, not only cattle are reported to be degrading in quality and quantity but the buffalo population also continues to experience a large drop of 3% per year [1,2].

To ensure the success of the meat self-sufficiency program, real efforts are needed to improve the population, quality and productivity of cattle and buffalo. The main problem in the current buffalo livestock is the very sharp trend of population decline, estimated at 3% in recent years. The physiological condition of buffaloes requiring specific microclimate conditions, such as the need for water puddles, makes the arena of buffalo maintenance increasingly pressured by rapid population growth, especially in Java. Limited availability of males in small environments also allows for inbreeding of family marriages that may reduce genetic quality. Reported the occurrence of phenotypic deviations of swamp buffalo in East Java, for example on the island of Kangean [3].

In East Java, cows has been known as part of the cultural social life of farmers. Potential production and reproduction of Buffalo have not received special attention by farmers, given its main function is as a working cattle. Other functions as a producer of meat, for example, has not been considered its potential. Efforts to improve genetic quality, feed quality, maintenance management, disease prevention and improvement of reproductive performance are expected to increase the

productivity of buffalo cattle significantly, especially to the contribution in the provision of meat from livestock.

Various ways have been done in the business of preservation and improvement of the quality of large ruminant livestock in the main areas of livestock production in East Java, especially cattle and buffalo. However, there is still considerable attention from researchers and governments on other types of livestock, such as buffalo in some of the main areas of buffalo production with a high population. In certain areas, especially in wet paddy fields or wetlands in various regions of Indonesia, buffaloes still have a large role as cattle, however, the potential for production and reproduction of buffalo associated with other benefits, such as meat, has not received much attention. So far there is not enough data to describe the potential of this type of buffalo. Problems related to the productivity and reproducibility (natural increase) of buffalo are still rarely analyzed from the genetic aspect, but it is important to avoid some defective or defective aberrations or disabilities. The identification of livestock is still based on exterior features of great variability and low accuracy.

Base on the aim of the research is basic information through a comprehensive identification primarily of its reproduction and production potential. The data is very needed in the preparation of livestock breeding program strategies in a region and will enable the recognition of potential buffalo farms that exist today, based on a natural increase

2. Materials and Methods

The material used in this research was 323 swamp Buffalo owned by farmers. Tools used were measuring stick, tape measure, and questionnaire. The research method used surveys. The statistically vital production performance (body length, height body, chest girth) was taken from buffaloes each 10% of the tailed population in the district of Malang. The reproduction performance data (S / C, APP, calving interval) were based on interviews with buffalo breeders in each location. The data in the tabulation and analyzed descriptively.

3. Results and Discussion

From the composition of the population consisting of adult, young, easier in interpreting the condition of the population in the field. However, it will give more meaning if the composition of cattle has been grouped by age. Buffalo is classified as slow breeding, this is due to the long pregnancy period, and the emergence of long after birth (APP), Service per Conception (S / C) is high, impacts long days open (DO). From the variable, it can be said that the distance of birth (birth distance) buffalo long. The natural increase (NI) of buffalo can be calculated if the data of reproduction efficiency and mortality rate are known. Natural increase is the natural population growth calculated within the period of one year of breeding. From the results of the study obtained buffalo population structure in the survey area and reproduction data as shown in Table 1.

Table 1. The Structure of The Buffalo Population in Malang District

Sex		Adults (> 24 months)	Young (< 24 months)	Total
Male	(tail)	38	58	96
	(%)	11.76	17.96	29.72
Female	(tail)	158	69	227
	(%)	48.92	22.37	70.29
Total	(tail)	196	127	323
	(%)	60.68	39.32	100.00

From Table 1 above showed that the percentage of adult females is 48.92% of the population, this percentage is large enough to produce offspring. But of that percentage, the number of an adult female of productive age (24 -48 months) is only 18% of the population or 36% of the number of adult females. This affects the low percentage of births of 20.43% of the population, and the high female buffaloes who have a mutation out of 21%. The buffalo reproduction data and mutation are presented in Table 2.

Table 2. Data reproduction, mutation, NI

Variable	Average ± Stdev
The first age of mating (months)	29.17 ± 13.77
Age at first birth (month)	40.33 ± 12.83
S / C	2.06 ± 0.88
Mating after birth (month)	7.46 ± 3.83
Age weaned (month)	9.78 ± 4.19
Pregnant period (month)	10.94 ± 2.29
Birth distance (month)	17.82 ± 4.86
Output mutation (%)	21.36
Input mutation (%)	19.20
Birth (% of population)	20.43
Death (% of population)	4.33
Natural Increase (%)	16.1

The reproduction capacity of buffalo mud from the results of this study is still not much changed. Buffaloes (swamps and rivers) have a very high birth weight age and long birth intervals due to seasonally-dependent marriages. Male buffaloes will have an adult at the age of 2 years, while young buffaloes begin to experience estrus at the age of 2 - 2.5 years. The main factor causing the low productivity of buffalo mud is the pattern of maintenance of adult female buffalo has not been intensive, no recording, and facts in the field sometimes cycles estrus silent heat buffalo (silent heat). So that reproduction management effort becomes inefficient. Internal factors such as (the first of mating, mating after birth, etc) as shown in Table 2, more dominantly affect the increase in productivity compared with external factors such as quality and quantity of feed. Based on the percentage parameters of productive females; birth rate and mortality rate of swamp buffalo population in Malang regency, the value of natural increase is 16.1%. The direct marriage system with unselected males (quality and pedigree), has a little contribution as a cause of inbreeding.

The body size of swamp buffalo produced from this study as presented in table 3, and when compared to the size of the requirements set in the Indonesian National Standard (SNI 7706.1: 2011) in table 4, then the mud buffalo in Malang Regency for all good body sizes both adult and young buffaloes are still above the quantitative requirements of mud buffalo seeds. Based on data if seen from the performance of swamp buffalo in Malang, has a larger grade, and this is solely the influence of environmental factors is the feed consumed.

Table 3. Data of Vital Statistic Size of Swamp Buffalo Result of Research

	Male		Female	
	Adults	Young	Adults	Young
HB (cm)	122,08 ± 8,37	120,66 ± 8,92	123,22 ± 7,33	120.09 ± 7,45
BL (cm)	130,87 ± 6,90	128,72 ± 7,50	130,20 ± 7,77	127.40 ± 8,98
CG (cm)	188,87 ± 9,04	179,97 ± 12,18	186,08 ± 16,86	178.35 ± 13,87

Note. HB: height body; BL ; body length; CG : chest girth

Table 4. Data of Statistical Vital Size of Swamp Buffalo Standard SNI [4]

	Male		Female	
	Adults	Young	Adults	Young
HB (cm)	120	110	115	105
BL (cm)	125	110	120	105
CG (cm)	190	180	170	160

4. Conclusion

Additional buffalo population of the amount to be born (a natural increase) in the past year is still low, indicating the slow swamp buffalo breeding. The appearance of buffalo reproduction obtained is still below the ideal because the pattern of adult female maintenance is still very simple.

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