Production System of Bali Cattle on Smallscale Farms in Muna Regency
Case Study on People's Livestock in Muna Regency

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ABSTRACT

Bali cattle are one of the local germplasm of beef cattle and are spread in almost all parts of Indonesia. Bali cattle are one of the local germplasm of beef cattle and are spread in almost all parts of Indonesia. In Southeast Sulawesi Province, Muna Regency has a population of 56,596 beef cattle and is the area with the largest population and about 95% of the population of beef cattle in this region is Bali cattle. The results of research on community farms in Muna Regency which were taken in 110 sample villages in 22 sub-districts involving 419 respondents showed that Bali cattle farms still rely on the Cow-calf production system. The Bali cattle production system in Muna Regency is an uncontrolled Cow-calf production system (97.85%) and a fastening system (2.15%), which was developed extensively-traditionally 56.32%, semi-intensive 43.68% and still able to produce calves (63.10%) or 21.94% of the total population. The Conclusion is that the Bali cattle production system on people's farms in Muna Regency is still directed to the calf cow program production system by relying on natural mating as an effort to increase the population.

Keywords: Bali cattle, production system, calf cow program, natural mating

1. INTRODUCTION

Bali cattle are one of the local germplasm of Indonesian cattle [1] ; [2], which need to be developed through gradual, directed, and continuous population increase, because it has several advantages compared to other local cattle. In Southeast Sulawesi Province, Muna Regency has a population of 56,596 head of beef cattle and is the area with the largest population and about 95% of the population of beef cattle in this region is Bali cattle, which was developed with a smallholder farming pattern with a directed production system.

The beef cattle production system is the maintenance of beef cattle for a specific purpose. The beef cattle production system grows and develops according to the conditions of the country and area where beef cattle are cultivated both in small numbers and in large populations. [3] Stated that in European countries, beef cattle production systems are grouped into the production of calves (cow-calf program) and young cattle (baby beef production), young bulls that are castrated (steer). This production system is also carried out in several countries in North America, South America, Australia, and New Zealand [4], although generally they are grouped into three beef cattle production systems, namely the cow-calf production system, the young cattle production system, and the fattening system beef cattle.

Beef cattle production systems in African countries, generally become traditional systems by relying on natural pastures and pasture defense simultaneously with agriculture and modern beef cattle production

systems [5], semi-arid systems, and Arid systems in sub-regional countries on the desert Sahara [6], while in Ethiopia the beef cattle production system is part of a confluence system with the traditional fattening system being the largest system for raising beef cattle [7].

In several Asian countries, the beef cattle production system has several different meanings and systems. In Vietnam, for example, the beef cattle production system is generally an extensive and semi-intensive production system [8], and an intensive system for crossbreeding cattle in Thailand [9], while in the Philippines the cattle production system is integrated with crops. agriculture with extensive systems [10].

The beef cattle production system in Indonesia is generally extensive-traditional which has been carried out for a long time and the intensive fattening system began in the 1990s at that time [11].

This aims of this study on the Bali cattle production system for smallholder farms in Muna Regency, Southeast Sulawesi.

2. MATERIALS AND METHODS

The study was conducted for 6 months, from April to October 2019, in 22 sub-districts in Muna Regency. The study used a survey method on 110 sample villages involving 419 respondents. The respondents were farmers who manage Bali cattle farms.

Table 1. Bali Cattle Production and Cattle rearing System in Muna Regency

Location	Resp. (n)	Village (n)	Production System		Cattle rearing system			Source of cattle feed			
			FS	CcP	E	SE	MS	NG	NG + AbP	CG	NG + CG
Batukara	12	3	12	0	12	0	0	9	3	0	0
Pasikolaha	16	4	16	0	16	0	0	14	2	0	0
Wakorsel	16	4	16	0	16	0	0	16	0	0	0
Pasir Putih	17	4	17	0	17	0	0	17	0	0	0
Maligano	16	4	16	0	16	0	0	16	0	0	0
Marobo	8	2	8	0	7	1	0	8	0	0	1
Bone	16	4	16	0	14	2	0	16	0	2	2
Parigi	24	6	24	0	19	5	0	24	0	5	5
Duruka	28	7	28	0	15	13	0	15	0	0	13
Lohia	31	7	31	0	18	13	0	18	0	0	18
Katobu	17	5	16	1	1	16	0	17	0	0	17
Tongkuno Selatan	25	7	25	0	12	13	0	25	0	0	12
Tongkuno	24	7	23	1	4	20	0	24	0	0	20
Batalaiworu	10	4	9	1	2	8	0	10	0	0	8
Lasalepa	20	6	20	0	9	11	0	20	0	0	11
Napabalo	18	5	18	0	10	8	0	18	0	0	8
Towea	11	3	11	0	0	11	0	11	0	0	11
Kabawo	28	6	27	1	4	24	0	28	0	0	24
Kontukowuna	18	4	18	0	13	5	0	18	0	0	5
Kabangka	23	7	18	5	10	13	0	23	0	0	13
Kontunaga	20	5	20	0	12	8	0	20	0	0	8
Watoputeh	21	6	21	0	9	12	0	19	0	0	9
Muna district	419	110	410	9	236	183	0	386	5	7	185
Percentage			97.85	2.15	56.32	43.68	-	92.12	1.19	1.67	44.15

Note. Resp.: respondent, FS: Fattening system, CcP: Calf-cow program, E: extensive, SE: Semi-extensive, MS: Modern system, NG: Natural grass, AbP: Agricultural by-products, CG: cut grass

3. RESULTS AND DISCUSSION

Production system of Bali cattle in Muna Regency

The data from the research on the production system and Cattle rearing system of Bali cattle in Muna Regency are presented in Table 1.

The results showed that on average (97.85%) the production system on smallholder farms in Muna Regency was a calf-cow production system and the remaining 2.15% was a fattening system. The brood-calf production system in Bali cattle farms is generally developed because of the traditional extensive maintenance pattern in which the Bali cattle are left alone with the calves, because the production of calves is not directed to be fattened or directed as a substitute for the mother, but is a natural rearing process. Thus it can be argued that the cow-calf production system is not controlled. This condition is closely related to the Bali cattle rearing system which still relies on nature with very little intervention from livestock owners. The results showed that 56.32% of Bali cattle farmers still rely on nature for their Bali cattle production (traditional extensive). Even so, there are 43.68% of farms operate their livestock with a semi-intensive system.

The traditional extensive rearing system on Bali cattle farms is thought to be caused by many factors, including (1) Bali cattle breeding is only considered a sideline, (2) Land for Bali cattle production is not prepared (3) The marketing/sales system of beef cattle is selling off the cows without weighing (4). The institutional system of Bali cattle farming has not yet grown and (5) the scale of livestock ownership is still small.

With traditional extensive rearing systems, efforts to beef cattle productivity are very low. It can be seen

Table 2. Structure Population of Bali Cattle in Muna Regency

Location	Number of Respondent	Sample Village	Total cattle				
			Bull	Cow	Heifer	Calves	Total
Batukara	12	3	23	32	16	24	95
Pasikolaha	16	4	25	34	18	24	101
Wakorsel	16	4	13	24	14	12	63
Pasir Putih	17	4	11	25	10	9	55
Maligano	16	4	10	31	15	11	67
Marobo	8	2	17	26	20	16	79
Bone	16	4	28	44	24	27	123
Parigi	24	6	37	52	31	34	154
Duruka	28	7	38	58	36	38	170
Lohia	31	7	62	66	55	25	208
Katobu	17	5	22	32	18	22	94
Tongkuno Selatan	25	7	24	36	19	27	106
Tongkuno	24	7	32	50	28	32	142
Batalaiworu	10	4	16	25	14	17	72
Lasalepa	20	6	24	36	19	26	105
Napabalo	18	5	23	33	20	23	99
Towea	11	3	16	25	13	18	72
Kabawo	28	6	39	59	33	41	172
Kontukowuna	18	4	28	43	23	29	123
Kabangka	23	7	46	70	40	47	203
Kontunaga	20	5	27	42	25	28	122
Watoputeh	21	6	30	46	25	31	132
Muna district	419	110	591	889	516	561	2,557
Percentage			23.11	34.77	20.18	21.94	100.00

Processed Research Data, 2019

based on research data, that 92% of respondents rely on natural grass as their Bali cattle feed, and there has been no introduction of forage technology either in the form of forage, including the introduction of legumes for livestock owned by farmers and only 1.67% of farmers provide cut grass to their Bali cattle. One of the obstacles to increasing the dynamics of Bali cattle productivity in Southeast Sulawesi is the quality and quantity of feed [12]. The pattern of raising cattle is closely related to the spread of diseases, especially infectious diseases. Farming communities in Southeast Sulawesi in almost all areas still make animal husbandry a side job with livestock as a form of investment. The culture of raising livestock is passed down from generation to generation where livestock are released to grazing land or plantation land (extensive).

Structure Population of Bali Cattle in Muna Regency

Data on the Structure Population of the Bali Cattle in the Muna Regency are presented in Table 2.

Based on the total population of Bali cattle that were sampled in this study as many as 2,557 population, there was 889 cows (34.77%), bulls 591 (23.11%), heifers 516 (20.18%), capable of producing 561 calves (63.10%) or 21.94% of the total population. This shows that the cow-calf production system developed with traditional extensive rearing systems can increase the population growth which is quite large. It is suspected that with the traditional rearing system, the existing Bali cattle can perform normal mating and the reproductive health condition of Bali cattle in Muna Regency is quite good.

4. CONCLUSION

The Bali cattle production system in Muna Regency is an uncontrolled cow-calf production system (97.85%) and a fastening system (2.15%), which was developed extensively-traditionally 56%, semi-intensive 44% and still able to produce calves (63.10%) or 21.94% of the total population. The Bali cattle production system on people's farms in Muna Regency is still directed to the calf cow program production system by relying on natural mating as an effort to increase the population.

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