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WHAT'S A SIN OF BUFFALO?

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ABSTRACT

It is realized that buffalo has long been raised by farmers in rural area of all over the countries of Asian including Indonesia. We do believe that for a long time buffalo has served human being with invaluable functions and roles. But this animal, of course, overlooked by both Indonesian government and animal scientists in term of its development compared to other ruminants such as cattle. This paper reviews the developments of buffalo livestock in Indonesia both practical husbandry and recent research progress and opportunities. First, some evidences relating to constrains of buffalo husbandry progress are elucidated. Second, recent research progresses with special references to Sumbawa buffalo are presented. Lastly, some research opportunities and developments programs are also formulated to protect the buffalo as one of Indonesian genetic diversity (animal germplasm) from danger of extinction.

Key words: Buffalo, Genetic Diversity, Ruminant Livestock, Sumbawa Buffalo, Tropical Agriculture.

INTRODUCTION

Scientific data on the productivity and related aspects of Indonesian buffalo is relatively scarce even though this livestock has long been raised by farmers over the country. Its population rate is not as fast as that of cattle. What's a sin of buffalo?

The lack of buffalo developments may be related to many factors and problems ranging from practical husbandry, genetic and its environment to the limited attention of the government and animal scientists. If it is running for a long time, it would be a risk to breeding of buffaloes. In line to this facing problem, the Directorate General of Livestock Services, Department of Agriculture, is now trying to set out some programs that can be optimizing other ruminants such as buffalo to be an alternative livestock for substituting the role of cattle as a main producer of red-meat (Litbangnak, 2006). This program believes to be benefit for protecting the buffalo as one of Indonesian genetic diversities (animal germ plasma) from danger of extinction.

This paper reviews the developments of practical husbandry, recent research progress, and future development program of buffalo livestock. First, some evidences relating to constrains of buffalo husbandry progress are described. Second, recent

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research progresses with special references to Sumbawa buffalo are presented. Lastly, some research opportunity and development programs are formulated.

Table 1. Population of buffalo compared to other herbivores in Indonesia - 2001-2005 (x 1000 head)

Livestock breed	Year				
	2001	**2002**	**2003**	**2004**	**2005**
Beef cattle	11,137	11,298	10,504	10,533	10,680
Buffalo	*2,333*	*2,403*	*2,459*	*2,403*	*2,428*
Dairy cattle	347	358	374	364	374
Goats	12,464	12,549	12,722	12,781	13,182
Horse	422	419	413	397	406
Sheep	7,401	7,641	7,811	8,075	8,307
Total	**34,104**	**34,668**	**34,283**	**34,553**	**35,323**

Source: Dirjen Peternakan (2005)

Indonesian buffalo development: present status and problems

Table 1 presents the population of buffalo during the last five years. It can be seen that the number of buffalo population from year to year is steady and it is very much lower compared to that of cattle (22.7 % of cattle population calculated based on 2005 figure) or to other small ruminants.

Suhubdy (2005) described certain factors causing buffalo population progress is slower in Indonesia. Those are due to the following (1) the central governmental policy-maker tends to put a rice paddy as the main priority in the nationally agricultural development, (2) in addition, the program of *"sapinisasi"* all over the country resulted in diminishing attention to buffalo or other livestock, (3) society's believes to buffalo and its products are sound negative, (4) relatively low reproduction rate, (5) technical and practically of animal husbandry do not support buffalo development, (6) inadequate number of facilities and scientists who interested in doing research and developments, as well as no acknowledgments and reward compared to researchers of cattle, and (7) local believes, religion and cultural obligation. These encounter problems believe in the nation worldwide.

Although buffalo is not so popular to people all over the country, but for certain region or tribes like *Tana Toraja* (South Sulawesi) and *Samawa* (NTB), buffalo has economically and culturally significances. As a consequence, in these regions, the rate of buffalo population tends to decrease because of fulfilling the increasing local and national beef market demands. While, there is no such intensive effort has regularly been taken to stabilize the population growth.

Intensive study conducted by this centre in Sumbawa Regency (SUHUBDY *el al.*, 2004, 2005) has identified at least 15 additional serious problems facing the progress of population of Sumbawa buffalo. Those are related to (1) the farmers were lack of knowledge and awareness in relation to the importance and efficiency of husbandry management, (2) the life of their buffalo depends upon the kindness of the nature, (3) the source of feedstuffs were steaming from rangeland in which those growth and production rate were fluctuated as affected by the variation of climate and rainfall, (4) low level of milk production (1.6 L/day) during the period of lactation and this

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amount was not enough to support the calf requirements, (5) the mortality of calves were high (30-40%) due to feeble condition in the time of birth as a result of low status of nutrition during the period of pregnancy, (6) in the dry season, decreasing live weight and were susceptible to illness, (7) there was no farmer intervention in the process of buffalo mating (artificial insemination), (8) there was no grassland area belong to farmers, and also no effort has been given to the improvement of communal grazing land, (9) limited number of family member was taking a role as a raising labor raising, (10) decreasing desires of young family member for buffalo husbandry and they tend to live in the city for education and other jobs purposes, (11) the local governments policy targeting an amount of revenue from buffalo trading (3,402 head/year) causes a drastic population decreases, (11) many productive female buffaloes giving a birth in onset of the dry season (April-July) causing lack of calf's survival ability, (12) high rate of slaughtering of productive female, (13) limited number of top bull that available for breeding due to increasingly market demand of the certified bull, (14) determination of Sumbawa Island as a place for national breeding program of Bali cattle (*Sapinisasi* P. Sumbawa), and (15) increasing number of farmers using *hand tractor* (mechanization of agriculture) for ploughing and harrowing the paddy field.

Some of those findings are in line with that reported by Chantalakhana (1991) else where. If those constrains occurred also in the whole region of Indonesia where the population of buffalo are concentrated, it is an urgently warning and some strategic efforts must be taken into consideration to save the buffalo from becoming danger extinct.

Research progress: a lesson learned from Sumbawa buffalo

Until recently, limited research has been done aiming at improving the husbandry and performance of Indonesian buffaloes. An on-farm trial was conducted aimed at improving performance of Sumbawa buffalo during the period of dry season (July-October) in harsh environment at eastern region of Sumbawa Regency. Twenty-five (25) buffalo steers (average BW of 265 kg at the beginning of trial) divided into five group of five. The buffalo were kept freely in a fenced area of a hectare of arable land over a period of 8 weeks. All buffaloes have freely access to basal diet of rice straw serving with *Pakansia* (Suhubdy, 2005b, 2006). To the four groups were given four kinds (A, B, C, D) of *Ronaksia* (Roti ternak ruminansia) made of rice bran, rice powder, urea, and kitchen salt in which was mixed proportionally as described else where (Suhubdy, *et al.*, 2004, 2005). For drinking and wallowing, the buffaloes drove the herd toward the river located near to the place where trial conducted twice daily at 08.00 and 17.00 respectively. Body weight was recorded weekly. The result of this trial is presented in Table 2.

From the ADG figures in Table 2 gave an indication that buffalo could be maintained of being lost of body condition during the scarce source of feedstuff by providing supplement of protein feedstuff as locally available resources. This evidence support the explanation that buffalo is a unique ruminant that could be survive even though fed with low quality roughages and/or feedstuff refusing by cattle or other animals (Wanapat, 1989 and SUHUBDY, 2002, 2003, 2006).

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It was reported that in free ranging conditions, lactating Sumbawa buffalo produced a limited amount of milk, averaging 600 mL/day/head (SUHUBDY *et al.*, 2004). This may be the main cause of high mortality rate of buffalo-calf (SUHUBDY *et al.*, 2004, 2005; SUHUBDY, 2005a). Due to this problem, other trial has been conducted to test the efficacy of the forth treatment (Table 1, Trial I) on milk production of 15 lactating buffalo cows. The cows were grouped into three group of five based on the three types of raising management. Those (A) raised freely on rangeland for 24 hours with no supplement, (B) treatment A + Ronaksia D, and (C) all buffalo cows penned for 24 hours and consuming a basal diet of rice straw provided *ad libitum* + Ronaksia D. Drinking water was provided from a well located adjacent to the animal pen. Milking activity was done daily before morning feeding by hand of two experienced persons. The result of this trial is figured out in Figure 1.

Tabel 2. Average daily gain (ADG) of Sumbawa buffalo fed of basal diet of rice straw supplemented with Ronaksia (n = 5 head/group).

Group of treatments	Average daily gain (g)
I. = - Ronaksia (Control)	- 312.92 ± 149.14[a]
II. = + Ronaksia A	167.36 ± 56.65[b]
III. = + Ronaksia B	265.00 ± 99.59[b]
IV = + Ronaksia C	313.26 ± 129.63[b]
V = + Ronaksia D	318.20 ± 63.17[b]

Figure with different superscripts on the same column a set statistically different (P<0.05).

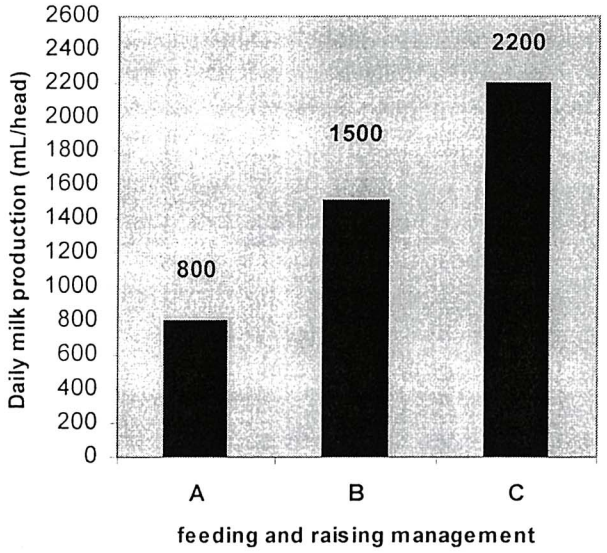

Figure 1. Response of lactating Sumbawa buffaloes (15) to improvments of feeding management: (A) free ranging, (B) free ranging + Ronaksia D, and (C) penned 24 hours + Ronaksia D (SUHUBDY et al., 2005).

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Figure 1 shows that a group of buffalo that grazed freely during 24 hours on natural grassland produced milk by less then one liter a day. While the buffaloes in group B produced milk two fold and the C group nearly three fold of that of group A. This finding explains clearly that Sumbawa buffalo could be improved milk production by enhancing their feeding and husbandry managements. This evidence also proved many efforts reported else where that supplemental feeding strategy with both protein and energy sources enhances the nutritional status of livestock consuming low quality roughages like rice straw (IAEA, 1999,; SUHUBDY, 2002, 2003, 2004). Feeding straw to ruminant livestock is useful effort for optimizing the huge potentiality of agricultural byproducts due to intensification program of rice paddy.

CONCLUSION AND RESEARCH OPPORTUNITIES

Event though a huge number of buffalo population in Asian countries, Indonesian buffalo is part from attention of both government and animal scientists. Evidence and explanation in this paper proved that buffalo could be maximizing its role not only for the red-meat producer but also as potential milk producing livestock. By farming them properly, it is believed that buffaloes could improve the nutritional and economical status of many poor farmers who living in the rural area of Indonesia.

Observing on *Cybrary* (Google.com) was identified about 70.40 and 14.40 millions websites for cattle and buffalo, respectively. These figures, explicitly implies that more room for buffalo to be tidied-up in relation to research and development. For the future, many work need to be done in term of feeding strategy and regulation, feeding standard based on Indonesian condition, genetic improvement, redefining the traditional buffalo husbandry practices, post harvest processing, farmers organization and institutional, research and developments agendas, marketing, and financial support from both government and business agencies. Lastly, from now on, we believe that no more sin would be obtained by someone who develops buffalo in Indonesia.

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