Economic Analysis and the Impact of AI Technology on Buffalo to the Farmers' Income

Rusdiana S. and L. Praharani

Livestock Research Institute Ciawi-Bogor
Bogor, PO.Box.221
s.rusdiana20@gmail.com

ABSTRACT: The purpose of this study was to analyze the economic impact of technology Artificial Insemination (AI) buffaloes on the income of farmers, research survey done in 2014, in West Lombok West Nusa Tenggara province Indonesia. Research is done in 4 (four) Sub district namely: district of Kediri, Uripan, Gerung and Kuripan, in one district, against 48 farmers who income AI and 32 farmers who have not received AI. The primary data obtained directly interview results either individually or in groups, refers to a questionnaire that had been prepared, secondary data obtained from the relevant authorities, research data were analyzed using descriptive, economic analysis and statistics t test (t-test). The profits of farmers who got the AI about IDR.13,43 million, the average ownership of buffaloes around 1.15 heads/farmers, the value of B/C 1.4, benefit farmers who have not gotten around IDR.12.94 million AI/farmers, the average ownership of buffaloes around 1.18 heads/farmers, the value of B/C 1.3 of the t test showed significantly different hypotheses, the value of t-test known at 13.43 and 12.94, it indicates $P<0.05$ means business ownership buffalo 1.15 to 1.18 heads/farmers have a positive impact on farmers who received AI compared with farmers who have not received AI buffaloes, buffaloes sale value AI is the highest result.

Keywords: economic analysis, the impact of AI buffaloes, farmers' income

INTRODUCTION

AI technology in buffaloes aim to increase the productivity of livestock buffalo better, AI activities buffaloes estrus detection and facilitate the implementation of both natural mating, can be expected to quickly pregnant, the value of higher productivity of livestock that are not getting AI. Buffalo cattle population is expected to grow to in the foreseeable future, it appears that the AI buffaloes is a technique that is regarded as a model of a very practical method, have been carried out in institutions of farms, in addition to raising the quality of buffaloes which profitable for farmers. However, this condition has not spurred farmers to raise cattle more intensive buffalo Widarhayati *et al*., (2006).

Target application AI buffaloes in several locations in West Lombok regency, because farmers still traditional maintenance so performance, production is still very low and produce children who are less optimal. The value selling to be low, it is expected with the implementation of this AI can boost their offspring to be better and livestock sale value becomes higher. Besides, it also can increase income better farmer, based on the above problems, the purpose of this paper is to analyze the economic impact of technology AI buffalo on the income of farmers, is expected to be one of the bases as an introduction to specific guidelines in determining the impact of the policy on the buffalo for the next AI for the common good.

MATERIAL AND METHODS

Research location

Research carried out in West Lombok West Nusa Tenggara Indonesia, using field survey. The experiment was conducted in 2014, at 4 (for) Sub district namely: Sub district, Kediri, Uripan,

Gerung and Kuripan, in the West Lombok district against 48 farmers who income AI and 32 farmers who have not received AI buffaloes, to be interviewed groups and individuals.

Each group of farmers was taken as a sample and as research date, groups of farmers have some indicators that can be used to assess the economic analysis of the impact of AI technology to farmers who have got AI and AI farmers who have not received buffalo.

The method of feasibility analysis buffalo

The data used are primary data and secondary data, primary data obtained directly from the respondents on interviews, secondary data obtained from agency NTB Agriculture and Animal Health, (2014). Furthermore, the data collected, and then tabulated and processed statistically descriptive One Sample t-test and paired sample t-test (Steel *et al.*, 2000), using two sample t test is the total of buffaloes are maintained by farmers who have been in the AI and which have not AI buffalo. Meanwhile to measure the economic analysis of the structure parameter B/C ratio, Krismawati *et al.*, (2006), Ashari *et al.*, (2013), and Herman (2012).

RESULTS AND DISCUSSION

Suistainability buffalo AI impact on farmers

Based on the results of field survey concluded that, West Lombok Regency Indonesia, can be said to be a bag of buffalo livestock population, the number of buffalo in groups of farmers around 205 heads, buffaloes which received approximately AI (60%), livestock buffalo who have not received AI around (40 %), which got AI buffaloes, generating an average child born weight around 20-25 kg / head, the sale value of about IDR.4-5 million/head, the average age of about 2-4 months.

While buffalo are not the result of AI produces an average child born weight around 18-20 kg/head, the sale value of about 2 to 3.5 million/head with an average age of about 2-4 months remains low under AI results. Total the average of parent buffalo in AI and AI have not been seen in Table.1.

Table.1. Average of ownership and success of AI buffaloes at the study site

No	Commentary	Farmer	Holding/ head	AI head	result*	%	still*	(%)
1	R1	11	13	11	7	22.51	4	23.53
2	R2	12	14	12	9	29.03	3	17.65
3	R3	12	13	12	8	25.81	4	23.53
4	R4	13	15	13	7	22.51	6	35.29
Total		48	55	48	31	100	17	100
No	Commentary	Farmer	Holding/head	not AI	result*	%	still*	%
1	R1	8	9	9	5	23.81	4	22.22
2	R2	7	8	8	4	19.05	4	22.22
3	R3	8	10	10	5	23.81	5	27.78
4	R4	9	11	11	6	28.57	5	27.78
Total		32	38	38	21	100	18	100

If the data source in 2014: Description: result *) states already give birth, still *) state is still in the process of impregnation

Table.1, the show that success of the parent AI fast buffaloes pregnant or quickly produce a child in the R2-R3 around (29.03 to 25.81%) and R1-R4 still low, in this case is still in the process

of impregnation While cattle that have not got faster AI pregnant or quickly produce children at R4, R1 and R3 value bunting same average, whereas R2, the lower the success pregnant.

Feasibility analysis buffaloes

Buffalo that gets, AI, and who have not received AI, can be said to be socio-economically feasible, if the sale value of buffalo in accordance with the current price, the reception input is greater than the output, then the business can be declared eligible buffalo cattle, seen in Table 2.

Table 2. Analysis buffalo livestock business which gets AI and AI in the farmer has not got

Pregnant	value -n	The mean/head	standard deviation	Standard error
Getting AI buffalo	48	55	-	-
-value of buffalo calves	-	10,00	-	-
-sale value buggalo	-	12,5	-	-
-the average ownership buffalo	-	1,15	-	
-gross income	-	15.24	3.37	0.45
-output /value input		1.81	4.32	0.44
-the production/output value	-	13.43	1.63	0.54
the value of B/C		1.4	-	-
Gross revenue versus net income				
(DF = 48), the value of the t test	-	15.24 vs 13.43	-	-
Not to get AI buffalo	32	38	-	-
-value livestock breeds buffalo	-	10.00	-	-
-value selling buffalo	-	12.5	-	-
-the average ownership buffalo	-	1.18	-	
-gross income	-	14.75	3,11	0.42
-output /value input	-	1.81	4.32	0.44
-the production/output value	-	12.94	1.47	0.46
the value of B/C	-	1.3	-	-
Gross revenue versus net income				
(DF = 32), the value of the t test	-	14.75 vs 12,94	-	-

Table.3. indicates that, the results of t test analysis was obtained benefit farmers who receive approximately AI IDR.13,43 million, the average ownership of buffalo around 1.15 heads/farmers, the value of B/C 1.4, benefit farmers who have not gotten around AI IDR.12,94 million/farmers, the average ownership of buffaloes around 1.18 heads/farmers, the value of B/C 1.3 t test results showed significantly different hypotheses, the value of t-test known at 13.43 and 12, 94. It indicates $P<0.05$ was significant efforts buffalo ownership of 1.15 to 1.18 heads/farmers have a positive impact on farmers that receive AI, in comparison with farmers who have not received AI buffalo, cattle sale value AI results of the sale value more highs.

CONCLUSION

The results showed that, benefit farmers who receive approximately AI IDR.13,43 million, the average value of B/C 1.4, benefit farmers who have not gotten around IDR.12,94 million AI farmer, the value of B/C 1 , 3 of the t test showed significantly different hypotheses, the value of t-test known at 13.43 and 12.94. It indicates P <0.05 1.15 to 1.18 buffalo ownership head/ farmer positive impact on farmers who received AI, compared to farmers who have not received AI buffalo, cattle selling value over the highest AI results

REFERENCES

Ashari, Ening Ariningsih, Yana Supriyatna, Cut Rabiatul Adawiyah and Sri Suharyono. 2013. Study of the effectiveness of the warehouse receipt system in stabilizing farmers' income

Research Activity Report Issues Current Agricultural Development Policy 2013. Social Center for Economic and Agricultural Policy, p, 1-115

Department of Agriculture and Animal Health West Lombok West Nusa Tenggara Province, in 2013 the Agricultural Statistics data

Herman S. 2012. Impact of integrated crop management field school to technology adoption, productivity and income of rice farming, Journal of Technology Assessment and Development Pertanian Bogor, Vol.16, No. 2, July 2012, hlm.140-148

Krismawati A. and M, A. Firmansyah. 2006. Assessment dilahan corn dry farming technology in South Kalimantan. Centre for Research and Socio-Economic Development of Agriculture, Agricultural Research Agency. Journal of Agricultural Technology Assessment and Development, Vol. (8) 44-51, 1 March 2006

Steel Robert. G.D and Torrie J.H. 2000. Principles and Procedure of Statistics Approach Mac Graw Hill Book Company USA dan Program SPSS 2009

Widarhayati and Abullah M. Bamualim. 2006. Fropil cattle and buffalo in the province of North Sumatra. Proceedings of the National Seminar Ranch. Center for Technology Assessment and Development of Agriculture, Padang 11 to 12 September 2006, p, 71-76