

Output Estimation of Ongole Crossbred Cattle Breeding in Klirong, Kebumen, Central Java

Sumadi¹, N. Ngadiyono², D.T. Widayati³, C. T. Noviandi⁴

1 Faculty of Animal Science, Gadjah Mada University
corresponding email: profsumadi@yahoo.co.id

ABSTRACT : This research aims to identify the location of the source of beef cattle, calculate the Natural Increase (NI) and determine the output of Ongole cross breed cattle in Klirong, Kebumen, Central Java. The village used in the study Jeruk Agung, Pandan Lor and Kedung Sari. The material used in this study is a questionnaire for local government and farmer. Respondents used in the study of 230 people is composed of Jeruk Agung village as many as 50 people, the village of Kedung Sari 77 people and the villages of Pandan Lor 103 people. Natural Increase (NI) PO cattle in Klirong district of Kebumen 2015 was 51.95%, respectively with males and females of 27,93% and 24,02%. The result of output estimation for PO cattle in district of Klirong for male culled cattle was 20,41% and female culled cattle was 23,79% of the population while the magnitude of the output estimation of male replacement cattle was 66,86% and female replacement cattle was 48,4% of the population.

Keywords: Output, Natural Increase, Peranakan Ongole (PO), Kebumen

INTRODUCTION

One of national assets animal husbandry from Klirong Subdistrict Kebumen Region that has big potential can be developed is Ongole crossbred cattle. Ongole crossbred cattle breeding is crucial matter to support cattle beef industry, however until now animal breeding necessary not only quantity but also quality is not yet enough were provided by local production. Availability of information about reproduction performance is needed to know the potential area for breeding cattle resource. Potential or output Ongole crossbred cattle is the amount of cattle that can be taken out to other area or slaughtered in certain area without disturbing cattle population balance.

MATERIALS AND METHODS

This research was conducted on January 2015 in Klirong Subdistrict, Kebumen Region, Central Java. The Villages used in this research as follows Jeruk Agung, Pandan Lor, and Kedung Sari.

MATERIALS

Materials that was used in this research as follows questionnaires for government and farmers. Respondent used in this research was 230 persons consist of Jeruk Agung Village 50 persons, Kedung Sari Village 77 persons, and Pandan Lor Village 103 persons.

METHODS

Implementation of Subdistrict animal breeding potential was did by using census method with used appropriate methods on the field, and used appropriate sampel which related to the research methode. It was choose 3 representative villages by sampling quota on Klirong Subdistrict, Kebumen Region. Furthermore each farmer in the choosen village acted as response then censused by questionaries and variable observed include farmer identity, the aim of rearing, the motivation of rearing, cattle ownership, production organize, mutation, rearing system. Secondary data was collected from related instance on the research place, included animal statistic. According to breeding theory approach, that was analyzed cattle output from an area furthermore determined availability of cattle breed and cattle to be fattened.

RESEARCH DESIGN

Collected data was tabulated corresponding with needs and then analyzed

1. farmer identity was analyzed with counting average prcentage deviation standard and then shows in table.
2. Cattle identity was analyzed by calculate average percentage and deviation standard then made it in table and resulted technical coefficient which used to calculate NI, NRR, and potential (output) in an area.
3. Natural Increase (NI) is calving rate to population in one year minus death percentage of cattle to population in one year.
4. Net Replacement Rate (NRR) is female calf total which is born and be expected to live in certain age, divided with necessity total of dam replacement annually, multiplied 100%; or is male calf total which is born and be expected to live in certain age, divided with necessity total of sire replacement annually, multiplied 100%.
5. Potential (output) of beef cattle from an area is the amount of beef cattle which can be drop out for send to other area without disturbing population balance of cattle. Output consist of young male and female animal which the amount is same with NI residual that have been minus total replacement necessity .
6. Population development of beef cattle in five years ago was needed for estimated population -average increase every year.
7. Source breeding area is an area that fostered as breeding provider for other area namely by criteria as follow.
 - a. Beef cattle population pretty much.
 - b. Number of cattle slaughtered is increase, or at least not decrease.
 - c. NRR more than 100%
 - d. Body size of cattle in certain age fulfill certain body size standard (for male cattleis about 10% from cattle availability and for female cattle is about 90% fromavailability).

RESULT AND DISCUSSION

Natural Increase (NI)

Average of Natural Increase (NI) of Ongole crossbred cattle in Klirong Subdistrict on 2015 according to Table 6 can bee seen 51.95% with Male and female NI respectively 27.93% and 24.02%. the value of NI in this research was higher than previous research by Tonbesi *et al.*

(2009) and Sumadi *et al.* (2007) respectively 21.72% and 46.68±9.16. The height of NI value was caused by the height of birth rate compared with death rate. Many factors were affected such as birth percentage to population, comparison between mature male and female cattle and death rate (Sumadi *et al.*, 2004).

Net Replacement Rate (NRR)

NRR value of male Ongole crossbred cattle was 637.77% and female 355.85%, its mean the stock of replacement male cattle as many as 6.37 times of necessity, replacement female cattle as many as 3.55 times of necessity, in other words the stock of male and female cattle in Klirong Subdistrict was sufficient. This research indicated that surveyed area can provide the candidate male and female replacement cattle without importing cattle replacement from other area. The animal population was declared surplus if NRR value more than 100% and population drained if NRR value less than 100% (Hardjosubroto, 1994).

Output

Table1. Potential or Output of Ongole Crossbred cattle in Klirong Subdistrict Kebumen Region on 2015

No.	Variable	Pandan Lor		Jeruk Agung		Kedung Sari		Kecamatan	
		(%)	(heads)	(%)	(heads)	(%)	(heads)	(%)	(heads)
1.	Culled cattle								
	a. Sire	23.53	16.00	12.82	5.00	1.52	1.00	12.72	22.00
	b. Dam	11.76	8.00	20.51	8.00	10.61	7.00	23.79	23.00
	Total	35.29	24.00	33.33	13.00	12.12	8.00	26.01	45.00
	Residual								
2.	Replacement								
	a. Sire	32.35	22.00	46.15	18.00	46.97	31.00	41.04	71.00
	b. Dam	32.35	22.00	20.51	8.00	40.91	27.00	32.95	57.00
	Total	64.71	44.00	66.67	26.00	87.88	58.00	73.99	128.00
	Total	100.00	68.00	100.00	39.00	100.00	66.00	100.00	173.00

According to the table 8 total output of Ongole crossbred cattle for culled male 12.72% and female 23.79% totally 26.01% of population. Male replacement cattle was 41.04% and female 32.95% of population. The highest output of male culled Ongole crossbred cattle was in Pandan Lor Village as many as 23.53% whereas the lowest output was happened in Kedung Sari Village 1.52%. The highest output of female culled Ongole crossbred cattle was in Jeruk Agung Village 20.51% and the lowest output was happened in Kedung Sari Village as many as 10.61%. The highest output of replacement male Ongole crossbred cattle was in Pandan Lor Village as many as 46.97% and the lowest output was happened in Pandan Lor Village as many as 20.51%. Total percentage of the highest whole output was in Pandan Lor Village as many as 64.71% and the lowest output was happenend in Jeruk Agung Village as many as 39.00%. Generally the number of estimation replacement cattle output percentage was higher than percentage of culled cattle. This case related to the huge number of necessity and replacement cattle stock. Total stock of replacement cattle was higher than necessity of replacement cattle so that why remainder of replacement cattle can be exported (Sumadi, 1999).

Population Dynamics

Based on equation of line regression $Y=213.5(X)+5434$ resulted of time series analysis data from 2010 until 2014, it can be estimated that cattle population on 2015 until 2019 as follows on table 2, with technical coefficient estimation is constant.

Table 2. Population Development Estimation of Ongole crossbred cattle in Klirong Subdistrict Kebumen Region on 2015 until 2019

Year	Population	Increase (%)
2015	6075	19,61
2016	6288	3,50
2017	6502	3,40
2018	6715	3,28
2019	6929	3,19

It will happen if technical coefficient is constant. Based on data which was shown in Table 2 and 3 can be estimated the output of Ongole crossbred cattle from 2014 until 2019 as follows.

Table 3. Potential estimation or Output of Ongole crossbred cattle in Klirong Subdistrict Kebumen Region on 2014 until 2019

No.	Variable	2014	2015	2016	2017	2018	2019	
		(%)	(heads)	(heads)	(heads)	(heads)	(heads)	
1.	Culled cattle							
	a. Sire	20,41	68	1240	1283	1327	1371	1414
	b. Dam	23,79	79	1445	1496	1547	1597	1648
2.	Replacement Residual							
	a. Sire	66,86	223	4062	4204	4347	4490	4633
	b. Dam	48,40	161	2940	3043	3147	3250	3354
	Total	115,26	384	7002	7248	7494	7740	7986

The result calculation of output estimation Ongole crossbred cattle in Kebumen Region (Table 3) indicated output estimation of culled sire Ongole crossbred cattle on 2015 until 2019 respectively 1240, 1283, 1327, 1371 and 1414 cattle. Output estimation of culled dam Ongole crossbred cattle respectively 1445,1496,1547,1597 and 1648. The result of output estimation from residual replacement was higher from young male cattle respectively 4062, 4204, 4347, 4490 and 4633 cattle. The output estimation dam replacement respectively 2940, 3043, 3147, 3250 and 3354 cattle. The amount of estimation value output from residual replacement compared with culled cattle related to the amount of total necessity and replacement stock. The availability replacement stock was higher than replacement stock necessity so that residual of replacement stock can be release in huge number. The residual of replacemnet stock can be released to other area for replacement stock in that area (Sumadi, 1999).

CONCLUSION AND SUGGESTION

Conclusion

The result of output estimation of Ongole crossbred cattle on Klirong Subdistrict for culled male cattle was 20.41% and culled female cattle was 23.79% from population whereas output estimation of sire replacement was 66.86% and dam replacement was 48.4% to population. The factors that affected the amount of output such as necessity and availability replacement stock. Klirong Subdistrict Kebumen Region was resource area of Ongole crossbred cattle (Kebumen) breed.

Suggestion

It is needed to do further research about potential estimation of Ongole crossbred cattle in Kebumen Region with larger area and covers all area in Kebumen Region.

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