

**A BUSINESS MANAGEMENT OF HOME-SCALE CATTLE ON
COASTAL LANDS
(Yogyakarta Special Province - Indonesia)**

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In the concept of farming coastal lands, the existence of cattle is so significant that meet the supply of organic substance especially manure. Business development of cattle is, moreover, a priority of government programs in fulfilling the demand of beef increasing. Related to this, therefore, this research study aimed to find out the management of business cattle on coastal lands.

This research study used a survey method with the research site in Bantul regency, Yogyakarta Special Province. The sampling method was *proportional random sampling; that is, a technique of collecting samples randomly with proportional numbers for every sub-population (the farmers group) in accordance with the measured population* (Sekaran, 2003). The total of research samples was 110 samples. The data analysis technique was by analysis description, cost and income analysis.

The analysis findings concluded that average ownership of cattle was 2 cows per family. The intention of business cattle was as the family saving or to be sold when having urgent needs. Business cattle was run in groups (the home group), however, the maintenance was independent. Animal feed was obtained from the crop and horticulture wastes cultivated on the coastal lands as well as forage deliberately planted on the ricefield ridge.

The highest cost of business cattle was the purchase a calf measuring Rp 4.690.625,-, (360.8 USD) followed by other costs including cowshed depreciation, labors, and feed with total cost measuring Rp 6.412.683,88 (493.28 USD). The income of business cattle was Rp 9.159.154,93 (704.55 USD) obtained from extra weight (enlargement or fattening) and from waste or cow dung. Based on the income and the total cost, thus, the breeders' income for one year (8 - 12 months) was Rp 2.746.471,05 (211.26 USD).

Keywords: Business Cattle, Coastal Lands

I. INTRODUCTION

Programme of beef self-supporting nowadays has been becoming priority of the government. This followed by programme of *RPPK* (Revitalization of Agriculture, Fishery, and Forestry) emphasizing that agricultural development needs integrative and wholly approach with other sub-sectors in the shelter of agricultural sector to succeed programme of beef self-supporting set out in the target of *RPJMN* (Midterm National Development Plans) in 2015-2019.

The government policy in terms of limiting import quota either of aiming to stimulate the society to supply beef independently. The programme underlying beef needs increasing along with the population growth as well as beef import values. The Central Statistics Agency (*BPS*) (2016) once reported that the number of national beef production in 2015 was 416.10 thousands tons and the national beef needs was 653.98 thousands tons. Based on the data, thus, Indonesia lacks of beef as much as 237.88 thousands tons or, equally, 36.4 % of the total needs. The lackness of beef can be met by importing 95.16 thousands tons of beef and 713.7 thousands of alive cattles.

The slow capability of beef self-sufficient either of being caused by the slow population growth of national beef cattle being only 5.33 % per year. The slow growth disproportionate to the cutting rate or needs of beef. Data from Central Statistics Agency (2016) shows that population of cattle in 2013 was 12,329,477 (97.97%) located at 5,078,979 home-scale cattle business so that average ownership or home-scale cattle being only 2 -3 ones.

Yogyakarta Special Province (*DIY*) is one of cattle development centers spread in several regencies i.e Gunungkidul, Bantul, Sleman and Kulonprogo.

Table 1. Cattle Population Development in Yogyakarta Special Province, 2013-2015.

No	Year	Regency					DIY/Total
		Kulon progo	Bantul	Gunung kidul	Sleman	Yogya karta	
1	2013	45,595	50,552	138,134	38,216	297	272,794
2	2014	49,370	52,564	147,195	52,651	231	302,011
3	2015	49,715	54,640	148,586	53,500	250	306,691

Source: *BPS DIY* (Central Statistics Agency of Yogyakarta), 2016.

Central Statistics Agency (2016) confirms that the population number of cattles has increased from 272,794 in 2013 to 306,691 in 2015. The increase was supported by cattle enlargement in several cattle development centers i.e Gunungkidul, Bantul, Sleman and Kulonprogo regencies. Bantul Regency as one of the centers has supporting characteristics of along the south coastlines of Java. Based on the data of Central Statistics Agency of Bantul Regency (2010), coastlines of Bantul along the west to the east with 6,446 hectares covering Srandakan, Sanden, and Kretek Subdistricts. The wide coastal area is

potential for agricultural development including farming crops, horticulture, forestry, fisheries, and cattles.

Coastal lands belong to critical ones needing land conservation treatment. The land conservation aiming coastal lands to function as erosion barrier and to decline negative impacts by the erosion. (Triatmodjo, 1999; UGM Team, 1992, Haryadi, 2009; Suryanto, 1996 in Budiyanto, et.al., 2005; Forestry Dep., 2000; Kurnia, et.al., 1997, Sudiharjo, 2000).

According to Sukresno (1998) the most important thing in conserving sandy coastal lands is by farming horticulture crops cultivated among wind barrier plants. To cultivate horticulture, two main requirements needed i.e the availability of water and organic substance.

The availability of cattles mostly done by coastal lands farmers aiming not only as cattle business enlargement but also as organic fertilizer supplier much needed in farming crops of coastal lands. Chalifah (2006), wind barrier crops multifunctioning for land conservation is evergreen sea-plants and gamal of which the leaves can also be used as animal feed.

The existence of cattles is one of business diversifications adopting concept of mixed farming being able to minimize uncertain influence in terms of unstable farming production on the dry lands (Jodha and Purohit, 1979 cit Herlambang, 1990). Not only functions to minimize the risk, but cattle in farming also functions to use agricultural waste as animal feed (Sudaryanto, 1989). Cattle business of small scale functions only as extra job, so that this business practically determined by labour-family involvement (Mulyadi *et al.*, 1984).

In the concept of coastal land farming, the existence of cattle is so important that meets the supply of organic substance, especially dung/manure. On the other side, cattle business development also becomes the government's priority program as the supplier of beef increasing needs. Associated with this, the objective of this study was to find the cattle business management on coastal lands.

II. RESEARCH METHOD

This research study used survey method with the site in Bantul regency, Yogyakarta Special Province. The samples of villages and subdistricts were determined purposively, they were Sanden subdistrict along Samas coaslines as well as Srigading and Gading Sari villages. They have been areas of conservation and coastal land farming for a long time since 1996 as well as being conservation monitoring area from the Agencies of Forestry, Agriculture, Livestock and Coastal, Marine Affairs and Fisheries of Bantul Regency.

The sampling method of breeder used in this study was *proportional random sampling* i.e a technique of sampling randomly with proportional number for each sub-population (the farmer group) in accordance with the population measurement (Sekaran, 2003). The total samples of this study were 110 ones. The technique of collecting data using three ways; they were

interview, observation, and recording. The technique of data analysis using analysis description, analyses of costs and income.

III. DISCUSSION

A. Conditions of the Area

Geografically, Bantul Regency is located between 110°12'34" and 110°31'08" of east longitude as well as between 7°44'04" and 8°00'27" of south latitude. The northern side bordering Yogyakarta and Sleman, the eastern bordering Gunungkidul, the western bordering Kulonprogo, and the southern bordering Indonesian Ocean. The width of Bantul Regency is 50.685 Hectares divided into 17 subdistricts, redivided into 75 villages and 933 hamlets/sub-villages having the total residents of about 919,440 individuals (*Data Source : Disdukcapil Bantul Regency*).

Bantul Regency, topographically, is partly 40% lowland and more than half of it (60%) is less fertile hill. On the south, bordering Indonesian Ocean with sandy nature and little lagoon, covering the south coastlines from Srandakan, Sanden, and Kretek. The air temperature ranging from 25° to 35°C and the height between 0 and 25 m dpl.

Economic activities in the area depend on agricultural sector as Bantul Regency is mostly fertile area. The people's income surrounding Bantul coasts earned from agriculture and tourism sectors, particularly marine tourism.

Sandy coastal lands handled by the stock-farmers has the status of *SG (Sultan Ground)*. The lands handed over its use voluntarily to the local farmers. One of coastal areas being land development coast sands is Samas located in Bantul Regency. On that area, many commodities cultivated by farmers are horticulture crops (Agricultural Counseling Agency, 2004).

B. Household Characteristics of The Farmer-Respondent

The household characteristics of the farmer-respondent consist of age, education, numbers of family members, productive age, and job types.

1. Age

In the context of working, age frequently becomes someone's limitation said to be incapable, to be capable or incapable anymore in doing the job. Farming is a kind of job requiring strong enough power, so that age becomes an indicator of productivity level of the farmer.

Table 2. Average Age of the Farmers' in research site in Bantul Regency

Age of Respondents				
Age (Year Old)			Average Age	Ranging Age
23-40	41-55	56-70	(Year Old)	
39	60	11	43,9	23-70
35,45%	54,55%	10,00%		

Source: Primary Data processed

Dividing age range of the stock-farmers i.e 23-40, 41-55, and 56-70 years old based on someone's power assumption and emotion. The first stage

is, by 23 – 40 years old, those assumed to have innovation and to be willing to take the risk trying something new. Those with age ranging from 41 to 55 years old are assumed to have power and productivity having started to decline and tend to not willing to try innovation without any real proof having been proven by other people. While those ranging from 56-70 years old are assumed to have many experiences, however, their productivity has much declined also accompanied by inability to accept innovation

2. Education

Education plays important role in developing human resource through improving knowledge, understanding, and skills to solve problems. The educational levels of the farmer-respondent in Bantul Regency were high enough i.e 52,7% *SMA/SMK* (Senior/Vocational High School) graduates as well as 20% *SMP* (Junior High School) graduates. Based on that condition, it can be concluded that the farmers in Bantul Regency have sufficient asset of knowledge to create some agricultural innovations.

Table 3. Educational Levels of Farmer-Respondent in Bantul Regency

Levels of Education					
<i>SD</i> (Elementary Non- graduate)	<i>SD/SR</i> (Elementar y School)	<i>SMP</i> (Junior High School)	<i>SMA/ SMK</i> (Senior High School)	<i>PT (D3 & S1)</i> University (Diploma & Bachelor)	Average Education
1 0,9%	27 24,6%	22 20%	58 52,7%	2 1,8%	Elementary School - Senior High School

Source: Primary Data processed

Table 3 shows that there are 24,6% of the farmers having graduated from Elementary School and 0,9% or 1 ungraduated person. Such condition shows that few farmers being low educated. This should be noticed by the local government to provide non-formal added knowledge such as agricultural counseling to improve the farmers' knowlwdge. Those being high-educated (2 persons) are expected to be able to improve motivation and information difusion and knowledge among the farmers.

The low education does not fully serve as the basis of the farmers' inability in terms of innovation. Non-formal knowledge can enrich the farmers' one. Primary data processed shows the farmers' activeness in searching of information related to technology and innovation in the field of agriculture by mass media.

Table4. Frequency of joining Training, Counseling, and Information Acces by the Farmer-Respondent in the Research Site

Kinds of Event	Training	Counseling	Comparative Study	Radio	TV	News paper
Frequency	1,01	1,57	0,68	2,42	1,79	3,47

Source: Primary Data processed

Primary data processed shows that average frequency of the farmers in joining agricultural training in one cultivating season (four months) is only 1.01, agricultural counseling by 1.57 and comparative study by 0.68. While the farmers' activeness in trying to gain information can be seen at the frequency of listening to the radio broadcasting agricultural materials by 2.42, watching television by 1.79 and reading newspaper by 3.47. Table 4 infers that the farmers' frequency in joining training, counseling, and comparative studying is moderate, while the farmers' frequency in searching of agricultural information from the mass media can be classified as low category.

3. Farming Experiences

The farmers' experience in coastal land farming becomes one of important factors. Experience is frequently reegarded as someone's crystallization of skill and knowledge, thus, the more knowledge of someone, the closer he succeeds.

Table 5. Experience Levels of the Farmers in Bantul Regency

Year	Experience (Year)			
	2-5	6-10	11-20	21-29
Number of Respondents	30	28	36	16
Percentage (%)	27,27%	25,45%	32,73%	14,55%

Source: Primary Data processed

The farmers' experience in coastal lands farming is divided to four categories i.e those experiencing 2 to 5 years, 6 to 10 years, 11 to 20 years, and 21 to 29 years. There are 30 with 2 to 5 experience or 27.27% of the farmers'. This stage is the category for the new farmer after some other farmers having tried and succeeded.

The second category with 6 to 10 years of experience, there are 28 farmers or 25.45%. It is assumed to be the category of the third farmer generation and to be experienced enough in coastal lands farming. The third category with 11-20 years of experience, there are 36 farmers or 32.73%. It is the second generation having been coastal land farmers after learning from the first generation having succeeded. The last category with 21 to 2 years of experience being the first in coastal land cattle business. There are 16 persons or 14.55%.

4. Job Types of the Householder

Job Types of the householder are divided into two i.e the main job and the extra job. The main job is defined as the biggest job earning the most income for the family and or one requiring the most time. It consists of the stock-farmers, civil servants, and fishermen. The farmer being the dominant main job in the research site i.e 97,27% or 107 persons, and only 2 (1,82) as the civil servants, and only 1 (0,91%) as the fisherman.

Table 6. Job Types of the Householder of Stock-Farmer

Main Job			Extra Job				
Stock-Farmer	Village Officers/Civil Servants	Fisherman	On-FarmLab or	Off-FarmLab or	On-Farm Enterpreneur	Off-Farm Enterpreneur	None
107 97,27%	2 1,82%	1 0,91%	32 29,09%	7 6,36%	10 9,09%	8 7,27%	53 48,19%

Source: Primary Data processed

The second job or extra job means the work respondents do whilst leisure time from their main job, one of which, as on-farm labor. Those working in production farming starting from preparing lands to harvesting. There are 32 samples of it or 29.09%. The other one is off-farm labour consisting of private employees, drivers, carpenters or bricklayers. There are 7 people or 6.36% having such jobs. Other kinds of extra job are on-farm entrepreneur i.e job type still related to agricultural sector. It consists of fishermen, stock-farmers (fish/catfish, goats, and cattles) and seed business or *saprodi*. Those having such jobs are not so many, they are only 10 persons or 9.09%.

Off-farm job is the fourth extra job consisting of entrepreneurship, milling, trading, and *emping* business. Those having such kinds of job is not so many i.e only 8 persons or 7.27%. The last category means having no extra job. These farmers perhaps feel that coastal lands farming-work are heavy but promising, so that they are willing to spend their whole time and energy.

5. Numbers of Family Member as Labour-Family.

The role of labour-family in the process of cattle business is so real that decrease production cost and, at a time, as transformation process of technology and knowledge toward other family members.

Table7. Numbers of Family Members as on Labour-Family

Numbers of Family Members (Person)					Average Family Members
0	1	2	3	4	
3 2,73%	53 48,18%	31 28,18%	20 18,18%	3 2,73%	1-3 persons

Source: Primary Data processed

Table 7 shows that each respondent, on average, has 1-3 members playing role as labour-family. It also shows that about 48.18% respondents has 1 labour of the family, and 28.18% respondents has 2 labours of the family. Those having 3 labours of the family are about 18.18% or, in other words, 20 respondents.

C. Business of Cattle

Cattle is a common type of livestock owned by coastal lands farmers. The data analysis shows that average ownership is 2 cattles. For most farmers, cattle business is functioned as the family saving. Cattle will be sold when the family needs urgent money such as hospital cost, wedding cost, etc. The type

of cattle frequently cultivated is the local one (*Ongole Calves*), *limosin* and *simetal*.

1. Feeding Supply

Coastal lands cattle business cultivated alongside coastal lands farming such as food crops and horticulture. Coastal lands farming frequently cultivated including onions, chillies, eggplants, sweet potatoes, corns, etc. Coastal lands farmers will use the crops waste as animal feed either the fresh waste or the fermented-first one. Besides, the availability of animal feed also gained from the green deliberately grown in field-bund. Green plants cultivated as animal feed including bulrush and grass *kelonjono*. The stock-farmers will take grass to be cut using sickle every day, then tied and given to the cattle. Having cut, they will give dung and urea so that grass regrow.

2. Analysis of Cattle Business

Measuring business analysis for once farming assumed by the time length needed by cattle to grow from calves to adult ones ready to sell. Measuring cattle cost in table 8 is average of the total respondents. Calves or "*bakalan*" (javanese) be the first cost variable in cattle business. The calves be the highest cost in cattle business by Rp 4.690.625,00,-. The value of cage depreciation means value depreciation cost on the cattle cages.

Table 8. Analysis of Cattle Business (per 1 cow) of Coastal Lands Farmers.

Costs	Items	Value
Calves (Bakalan) (unit)	1,00	4.690.625,00
Cage Depreciation	1,00	105.267,38
Labors (hok)	47,08	470.824,95
Straw Feed(Kg)	2.898,53	144.926,47
Green Feed (Kg)	2.053,13	365.000,00
Consentrated Feed(Kg)	730	547.500,00
Health Care (Rp)		88.540,07
Total Costs		6.412.683,88
Income		
Fattening		8.859.154,93
Waste/Stools	759	300.000,00
Total Income		9.159.154,93
Income (year)		2.746.471,05

Source: Primary Data analyzed

Field observation shows that cattle business done in groups i.e building cattle cage in groups. Nevertheless, in terms of the cattle feeding and care still done independently. The labours costs in cattle business are ones in the family used in daily care activities such as feeding, cleaning the cages, and bathing the cattle.

Dry straw is only fed on cattle in the morning and night, while in the day and afternoon, the farmers feed forage. The amount of cattle feed either dry/crops waste or forage on the basis of 3% of the average weight of cattle

being 300kg. Concentrate or “*komboran*” (javanese) becomes added feeding once every day or two. It usually contains *bekatul*, peanut skin, forage, and water. Cattles are not sheperd but looked after in cages, thus, feed cost becomes higher. Health care in cattle business means activity of treating cattles either preventative, such as providing vitamin and herb or curative in terms of medication.

Business income is the main objective in the cattle business. The cattle income consists of two kinds, they are cash income gained from cattle trading due to added value (fattening and growing) and non-cash income coming from cattle waste in the form of manure. The manure pricing is based on the prevailing price at the research site in which (\pm 250 kg) costing from Rp 100.000 to Rp 120.000 depending on the distance. Business cattle, annually, can produce \pm 759 kg of manure or 0,7% of the weight valuing Rp 300.000,-. Income earned by the farmers in cattle business is Rp 2.746.471,05.

IV. CONCLUSION

1. The nature of respondent is cattle stock-farmers ranging from 23 to 70 years old and on average by 43.9 years old, educational levels ranging from Elementary School to Senior High School, information technology frequently gained by radio and newspaper, cattle business experience varied from 2 to 29 years, most of whom work as stock-farmers and coastal lands farmers, having family members of about 1 – 3 persons.
2. The average ownership of cattle is 2 cattles per family. The objective of cattle business is for family saving and to be sold when having urgent needs. Cattle cultivated in groups (cage group) yet the maintenance done independently. The animal feed gained from crop waste and horticulture cultivated on coastal lands and the green deliberately grown on field-bund.
3. The highest cost in cattle business is purchasing calves reaching Rp 4.690.625 followed by other costs including cage depreciation, labours, and feeding with total cost Rp 6.412.683,88. Cattle business income is Rp 9.159.154,93 earned from added weight (fattening or growing) and from waste or manure. Based on the income and the total cost, thus, the annual farmers' income is Rp 2.746.471,05.

Suggestion

Cattle business at Coastal lands is so beneficial for not only being able to earn family income but also to utilize crop waste as animal feed and yet to produce cattle waste as organic fertilizer. However, business management needs to be focused more on profit-oriented business, in addition to being savings so that it is expected to give more and better values.

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