

Forage Business at Kebumen District Central Java Province

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Abstract. Kebumen district is one of the centers of beef cattle development in Central Java, Therefore, in the area is big enough to require forage of animal feed . Farmers do not have a total land forage so almost every day require additional forage by buying. The purpose of this research is to know the need of forage in the seed source area of Kebumen Regency, to know the marketing channel of forage, to know the income, profit margin, R/C ratio, and to know government support in the form of facilities and infrastructure or policy related to forage business. Sampling was done by purposive sampling and Respondent determination consisted of 50 grass sellers, 30 collecting merchants, and 30 farmers of forage buyers (farmers) in Quota sampling. Forage business in Kebumen District has good prospects in terms of revenue, profit margin and favorable R/C ratio. However, government support is still lacking.

Key words: forage business, beef cattle, income, margin profit, R/C ratio

Abstrak. Kabupaten Kebumen merupakan salah satu sentra pengembangan sapi potong di Jawa Tengah, Oleh karena itu, di daerah tersebut cukup besar membutuhkan Hijauan Pakan Ternak (HPT). Peternak belum seluruhnya memiliki lahan hijauan sehingga hampir setiap hari membutuhkan tambahan hijauan dengan cara membeli. Tujuan penelitian ini adalah mengetahui kebutuhan HPT di daerah sumber bibit Kabupaten Kebumen, mengetahui saluran pemasaran HPT, mengetahui pendapatan, *profit margin*, *R/C ratio*, dan mengetahui dukungan pemerintah dalam bentuk sarana dan prasarana atau kebijakan yang berkaitan dengan bisnis HPT. Pengambilan sampel wilayah dilakukan secara purposive sampling dan penentuan Responden terdiri atas penjual rumput sebanyak 50 orang, pedagang pengumpul sebanyak 30 orang, dan 30 peternak pembeli hijauan (peternak) secara Quota sampling. Bisnis hijauan pakan di Kabupaten Kebumen memiliki prospek yang bagus ditinjau dari pendapatan, profit margin dan R/C ratio yang menguntungkan. Namun, dukungan pemerintah masih sangat kurang.

Kata kunci: Bisnis hijauan pakan, sapi potong, pendapatan, profit margin, R/C ratio

Introduction

Ruminant breeding practice in Indonesia is predominantly small-scale business with 2-3 cows or 4-6 goats/sheep. The improvement of cattle breeding, which is integrated with agriculture, seems to get little attention because farmers tend to focus on agriculture business development and land availability. Consequently, farmers meet with obstacles to fulfill forage demand for cattle.

Most of farmers' time, approximately 3 hours, is spent on forage provision (Muatip, 2015) because farmers search for foraging area in the forest or neighborhood instead of growing their own. Forage yield is plenty during the rainy season, but insufficient during the dry season. According to Rouf et al, (2014), feed availability is one of the obstacles in developing

beef cattle business in Java island, to be specific. Another inhibiting factor is a high feed cost (Sarma, 2015) that takes up 70-75% production cost (Hartanto, 2008) and 86.52% variable cost (Yilmaz, H, et al, 2016) of cattle breeding.

Forage is the main feed source for ruminants, consisted mostly of grass (*Gramineae*), legume (*Leguminosae*), tree leaves (*Browse*) and agriculture waste. Some high-yielding grass types include King grass, Elephant grass, Benggala grass, Brachiaria grass and Setaria grass (Jarmani and Haryanto, 2015). The average forage feed for large ruminants is 10% of body weight.

Kebumen district is one of ruminant breed source in Central Java. A high cattle population in the area leads to an increasing forage

demand. Farmers' inability to provide a sustainable forage supply is considered as an opportunity to establish forage business. A thriving forage business in Kebumen district is supported by the abundant forage supply in the district, either agricultural waste or natural grass.

Forage trading activity in Kebumen district can help secure the year-round supply of forage. Furthermore, forage business is a prospective venture or side-job for the farmers although to what extent the business potential can grow is still uncertain. Therefore, this research were examine the need for forage sources of cow's breeding area in Kebumen district, forage marketing channels, revenue, profit margins, R / C ratio, and government policy related to the forage business.

Materials and Methods

Sampling technique

This research used purposive sampling based on the region where forage sellers live in Kebumen. Respondents in an area were taken through Quota sampling, consisted of 50 sellers, 30 retailers and 30 buyers (farmers). In-depth interview was conducted with two civil-servant policymakers who had been intentionally chosen from Animal Husbandry Department, assuming they had an adequate comprehension on forage business.

Research variable

The observed variables in the research were forage demand in Kebumen district, marketing channel of forage, revenue, profit margin, R/C ratio of marketing agent, and government support in forage buying and selling.

Descriptive analysis

Descriptive analysis was used to provide information on the performance of forage marketing in Kebumen district, focusing on the problems and prospect of selling forage.

Agriculture waste production was calculated using formula by (1974) as follows:

$$\begin{aligned} \text{Rice bran} &= (2,5 \times \text{harvested area} \times 0,70)/\text{DM} \\ \text{Corn straw} &= (6,0 \times \text{harvested area} \times 0,75)/\text{DM} \\ \text{Soy straw} &= (2,5 \times \text{harvested area} \times 0,60)/\text{DM} \\ \text{Mung bean straw} &= (2,5 \times \text{harvested area} \times 0,60)/\text{DM} \end{aligned}$$

Santoso (1997) calculates Grass yield in an area based on the type of land use according to formula as follows:

$$\begin{aligned} \text{Rice field} &= (0,77591 \times \text{land area} \times 0,06 \times 0,683)/\text{DM} \\ \text{Dry land} &= (1,602 \times \text{land area} \times 0,09875 \times 6,083)/\text{DM} \\ \text{Forest land} &= (2,038 \times \text{land area} \times 0,09875 \times 6,083)/\text{DM} \end{aligned}$$

Income of forage business is calculated using formula by Riyanto (1995), as follows:

$$\begin{aligned} I &= TR - TC \\ I &= \text{Income} \\ TR &= \text{Total Revenue} \\ TC &= \text{Total Cost} \end{aligned}$$

Harahap (2007) stated that calculating *profit margin* is based on the following formula:

$$\text{Profit margin} = \frac{\text{Net Operating Income}}{\text{Net Sales}} \times 100 \%$$

$$\text{Net Operating Income} = \text{Total Income} - (\text{fixed price} + \text{marketing cost})$$

$$\text{Net Sales} = \text{Total Sale}$$

Results and Discussions

Forage potential

Land use for the agricultural sector in Kebumen district included 39.748,00 ha (31,03%) rice field and 45.564,00 ha (48,44%) dry land (non-rice field) to grow paddy, corn, soybean and palawija. In 2014, rice production reached 448.270,25 ton with 5,38 ha harvested area and corn production was 23.414,93 ton with 4.221,00 ha harvested area. Palawija yield also increased, in which soybean production was 8.464,00 ton with 6.817,00 ha harvested area and mung bean was 9.469,90 ton with 9.73,00 ha harvested area (Statistics Bureau, Kebumen District 2015). Agricultural enterprise always produces waste that can be harnessed as feed. From the aforementioned data, rice straw is the major contributor to ruminant feed. Based on Table 1, agricultural waste particularly rice straw in Kebumen is abundant to be utilized as feed. Besides agricultural waste, feed

Table 1. Agricultural waste production in Kebumen district

Waste source	Harvested area (Ha)	Total waste (ton)
Rice plant	80.248	615.668,56
Corn plant	4.221	67.213,37
Soybean plant	8.464	25.275,73
Mung bean plant	9.469	52.392,10
TOTAL	102.402	760.549,76

Source: The processed primary data (2016)

Table 2. Grass Yield in Kebumen

Land type	Land area (Ha)	Grass yield (ton)
Rice field	39.748,00	5.419,15
Dryland/marginal land	45.564,00	190.887,84
Forest land	16.861,00	89.863,10
Total		286.170,09

Source: The processed primary data (2016)

derived from grass and tree leaves are suitable for small ruminants.

Beef cattle and bull population in Kebumen district was comparatively high, up to 64.942, accompanied by 25 dairy cows, 135.139 sheep and 419.995 goats (Statistics Bureau of Kebumen District, 2015). The high population leads to the high demand of forage as the primary feed for ruminants. Moreover, forage demand is correlated with cattle body weight (Wijaya et al. 2016).

Kebumen district has plenty of marginal lands that grows natural grass. This condition significantly supports forage availability in the area.

Forage demand

The farming condition in a particular area is correlated with forage availability. The higher ruminant population in a region, the higher feed demand particularly forage as the main feed (Sari et al. 2016).

According to Forage Feed Subdivision of Directorate General of Livestock and Animal Health, Ministry of Agriculture (2013), the standard forage need based on Animal Unit is: a) Mature livestock (1 AU) need 30 kg/head/day; b) heifer (0.50 AU) need 15-17.5 kg/head/day; and c) young livestock (0.25 AU)

need 7,5-9 kg/head/day. Based on the population of large ruminants and small ruminants in Kebumen around 64.967 and 555.134, respectively, fresh forage demand for all ruminants reached 4.725.380 kg/d.

The average ownership of large ruminants and small ruminants in Kebumen was 1-3 and 1-5, respectively. Large ruminant farmers had to buy forage but the small ruminant ones could meet the demand from field grass and tree leaves from the surrounding area.

All farmer respondents in current study bought 1-3 sacks of forage (approximately 30-60kg/sack) on a daily basis, consisted of natural grass and agricultural waste (straw, groundnut waste and sugarcane leaves and tops). When having enough money, farmers would buy grass; otherwise, straw or agricultural waste would be preferred. Low quality of rice straw and sugarcane leaves and tops is due to high cellulose and lignin but low nutritional content, mineral and vitamin. Physical treatment (cutting) could be performed to improve the quality of agricultural and plantation wastes by extending feed dimension and softening the texture. Around 78.58% of the farmers fed livestock with the chopped forage (5-10 cm long) while the rest 21.42% gave whole forage.

The result of field observation indicated that livestock was constantly inside the cage under an intensive maintenance. Feeding method, frequency and quantity was uniform across types and physiological conditions of the livestock. Some farmers were only concerned about feed quantity, not quality (Krishna and Umiyasih, 2014); consequently, livestock productivity was under optimum level (Lamy et al., 2012). Besides, local forage contains anti-nutrition (Ali et al., 2014) that could lower feed quality. Iyai (2016) added that low-nutrient forage required feed technology such as ammoniation and fermentation to improve the quality.

Government support

Local government has recognized forage business in Kebumen district but has not conducted any effort in regards to the business. An in-depth interview with the officials from Agricultural and Farming Department in Kebumen District revealed that the government has not collected any data on forage business in the area nor provided any programs related to forage business.

Non-existent intervention from the government might prevent the business from flourishing. Agribusiness development is inseparable from government intervention as the supportive component (Wahyuningsih, 2007) to create a conducive climate by restructuring and improving infrastructure for agribusiness. Dimiyati (2007) states that the recurring problem in extensive agribusiness players is lacking knowledge of management, production and marketing channel. Moreover, business players still focused on production activity (on-farm) instead of the distribution process.

The government can actually support by giving the training to make silage so that forage business players may avoid loss due to unsold forage. To date, the unsold forage is freely given to other farmers. Another way

government can support is managing the forage stalls located by the road in order to avoid traffic distraction.

Marketing channel

Marketing is the last process of product manufacture. A weak marketing management was partly due to government's inability to help control market price. The contributing factors to marketing cost of the farming sector are farming commodity types, farming location, types and roles of marketing agency and marketing effectiveness.

Forage buying and selling in Kebumen district is located in several sub-districts with different frequency. Kebumen and Gombong subdistricts run forage business two times a week, but on a daily basis in Ambal, Kutowinangun and Petanahan subdistricts. The forage business in Kebumen districts has two marketing channels. The first channel starts from a seller who searches for forage then sell the forage to the consumer (farmers). Farmers as the seller/producer obtain a relatively high profit from this practice despite transportation cost. However, the drawbacks are more time and energy allocation, the risk of transportation cost and the potential accident, forage damage and risk of unsold forage.

The second marketing channel starts from the forage finder selling the commodity to the retailer or intermediaries who will then sell to the consumers (farmers). The benefit of this practice is multiple. For the seller, it saves their time because they only sell forage to the retailers. For the retailers, it saves energy because they do not have to search for the forage themselves. They only need money to buy forage from the farmers. The drawback of this practice is that farmers cannot determine market price since they act as the price taker. It is the retailers who fix the price. Moreover, transportation cost applies to farmers with motor vehicle shipping. For the retailers, they must have capital in form of cash to buy forage

from farmers and cannot save the unsold forage for the next day but give it freely to other farmers who are willing.

Marketing channel of forage business is considerably simple. People who are involved in the business generally have close emotional relationship. Either the seller or the buyer has each own loyal customer, so it takes short time to deal with the price. The longer marketing chain, the more cost to pay and the less profit obtained by the marketing agents.

Income

The average total production cost incurred by the respondent seller (farmer) amounted to Rp 150.000 / bulan and collector merchant Rp 9.667.500 / month. The total costs consist of fixed costs and variable costs. Respondents sellers (farmers) and collecting traders do not pay a fixed fee. Variable costs to sellers (farmers) are spent on buying used sacks, ropes, gasoline and feeding. Variable costs incurred by collecting traders are to buy HPT, gasoline and food. Both farmers and collecting traders have not set aside the cost of depreciation of

transportation equipment. Most sellers (forage seekers) get forage from other people's land or on marginal land.

Average total production cost paid by the seller (farmers) and the retailers on a monthly basis is Rp 150.000 and Rp 9.667.500, respectively, consisted of fixed cost and variable cost. The sellers paid Rp. 8000/month fixed price for tools depreciated cost (machete and sickle), while variable cost includes the expense to buy used sack, rope, petrol and food. Both farmers and retailers have not spared depreciated cost for transportation. Most sellers obtain forage from field belongs to other people or in marginal land.

A monthly income of forage business players in Kebumen is the deviation between total revenue and total cost during production. According to Pangemanan et al., (2010), the technical term of cost is the difference between income and expense in certain production period.

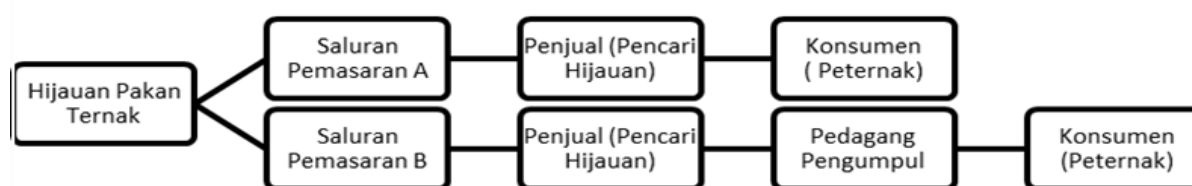


Figure 1. Marketing channel scheme

Table 3. Average cost of Forage Business in Kebumen District

Business player	Fixed cost (Rp/month)	Variable Cost (Rp/month)		Total Cost (Rp/month)
	(Depreciation)	Transportation and food	Forage purchase	
Seller		150.000	-	150.000
Retailer	-	192.400	9.475.100	9.667.500

Source: The processed primary data (2016)

Table 4. Average income of forage business players in Kebumen District

No	Business players	Total income (Rp/ month)	Total Cost (Rp/ month)	Total income (Rp/ month)
1.	Seller	798.609,40	150.000,00	648.609,40
2.	Retailer	11.952.750,00	9.669.500,00	2.283.250,00

Source: The processed primary data (2016)

Analysis of profit and loss 30 times sales in a month. Table 4 illustrates that average monthly income of sellers is Rp. 648.609,00 from 89.87 bundles of forage, while retailers earn Rp 2.283.250,00 from 416.25 bundles. The more selling volume, the higher the income.

Return Cost Ratio (R/C Ratio)

R/C ratio is the ratio between revenue and cost that shows income per one Rupiah. R/C value determines business efficiency, in which a business is deemed efficient and fit to proceed when the R/C value is above one. Based on the revenue and cost figure, forage business has a relatively high-efficiency value around 5,32 due to low production cost. However, R/C ratio of the retailer is lower, around 1.2 because of higher production cost to buy forage from the first-hand seller. R/C ratio of both players shows that forage business is an efficient and prospective venture.

Calculation:

Seller R/C : Rp 798.609,40/Rp 150.000,00
: 5,32.
Retailer R/C : Rp. 11.952.750/ Rp. 9.669.500
:1.2

Profit Margin

Working capital is the capital used by an entrepreneur to run the business in less than a year circulation. Working capital, as the central aspect of an enterprise, must be effective in order to reach an optimum result and maintain the venture, otherwise, the business owner will suffer loss even bankruptcy. Ineffective working capital management will likely lower profitability. Profitability of business owner is reflected from the magnitude of profit calculated from selling and investment activity

(Fahmi, 2013). The average profit margin of the retailers is 19,35%, indicating that each Rupiah from forage selling has Rp. 0,1935 profit. Total income of retailer is affected by selling price and volume of the forage. In order to gain higher profit, forage retailer must increase production amount and suppress purchase price.

Profit margin value shows the ability of a business to gain profit. High-profit margin value indicates a profit that exceeds the cost of goods sold (Darmadji and Fakhruddin, 2006). The contributing factors to profit margin value are net sales and profit in selling transaction (Riyanto, 2001). Net operating income depends on sales income and operating expense. It shows that fair share among the supply chains, transparent price and integration of supply chain are non-existent because supply chain management is not effective. It is in accordance with Kadigi et al. (2013) that the traditional chain supply of beef cattle is run under inefficient operation where farmers obtain lower price than profit margin. As a result, fair profit share is non-existent in beef farming and marketing (Sirajuddin et al., 2015)

Higher profit margin can be maximized by increasing operating expense to obtains maximum additional sales and reducing sales income to decrease maximum operating expenses. These factors will affect the effectiveness and efficiency of a business. Sigarlaki et al., (2014) stated that efficiency in marketing strategy is conducted under exact calculation and consideration to prevent unnecessary cost. Effectiveness can be achieved through an effective strategy according to the target market that has been defined.

Table 5. Average *Profit Margin* of forage business owner in Kebumen District

No	Business Analysis	Retailer
1	Total Revenue (Rp/month)	11.952.750,00
2	Total Cost (Rp/month)	2.283.250,00
3	<i>Profit Margin</i> (%)	19.35

Conclusions

Based on research result could be concluded that fresh forage demand for cattle feed in Kebumen District reached 4.725.380 kg/day. There were two marketing channels of forage business in Kebumen districts. The first channel starts from a seller who searches for forage then sells the forage to the consumer (farmers). The second marketing channel starts from the forage finder selling the commodity to the retailer or intermediaries who will then sell to the consumers (farmers). The average income of seller is Rp. 1.006.080/month and the average income of retailer is Rp 2.283.250/month. Average *profit margin* value of retailer is 19.35%. R/C of forage seller is 5.32 and of the retailer is R/C ratio 1.2. Both R/C ratios show that forage business is an efficient and prospective venture. Although forage business has lasted for a long time, the government has not provided significant support for business development.

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