

THE COMPETITIVENESS OF DAIRY FARMERS BASED FRESH MILK MARKETING ON AGRO-TOURISM

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ABSTRACT: *The development of the fresh milk marketing becomes an important point in capturing the unreached domestic market by using creative economy approach through agro-tourism. This study aimed to analyze the competitiveness of dairy farmers on fresh milk marketing to agro-tourism based milk processing companies; and analyze the impact of agro-tourism based fresh milk marketing and the impact of government policies on the competitiveness of the dairy farmers that market fresh milk to agro-tourism based milk processing companies. The analysis method was the Policy Analysis Matrix. The research results showed that dairy farmers have been profitable and have competitive and comparative advantages. The policies impact to input-output still could not maximize profits at the farmer level. The sensitivity analysis showed that agro-tourism effects increase both competitive and comparative advantages despite of raising the feed prices up to 30% at the same time. The agro-tourism based dairy agribusiness needs to be developed.*

KEYWORDS: Competitiveness, Dairy farmers, Fresh Milk Marketing, Agro-Tourism, PAM

INTRODUCTION

Dairy farmers profile is described by the condition that in Indonesia, it is still dominated by the small scale business with possession of less than four cattles by 80%, a medium-scale business with ownership of four to seven cattles as much as 17%, and large-scale business ownership with more than seven cattles only 3% (Erwidodo 1998 and Swastika 2005). This condition indicates that approximately 64% of national milk production comes from small-scale dairy farmers, the remaining 28% is produced by the medium scale dairy farmers, and 8% of large scale dairy farmers. This business profile describes that the condition of the existing farm dairy farmers in Indonesia is still managed as a sideline business and the management is still far from the principles of good farming practices (GAP). The data census results of breed cattle, dairy cattle, buffalo (PSKP) in 2011 also showed that the total business unit of dairy cattle in Indonesia reaches 188 098. Of these, 187 563 are domestic dairy farmers, and the remaining are dairy farmers for commercial purposes. This condition indicates that the populations of dairy cattles are mostly in farming households, which generally have only 2-5 cows. Bessant (2005) mentioned that the ideal standard of business feasibility is if the farmers could reach the scale of business with ownership of more than 10 cattles. It can be said dairy farm business activities of the people is still not efficient and has not able to produce good milk quality standards to be processed into dairy products. It can be said dairy farm business activities is still the small scale business and not efficient who have not been able to produce good milk quality standards to be processed into dairy products. Another existing condition of the dairy farmers in Indonesia could be seen from the main consumers of fresh milk products produced by farmers is large scale Milk Processing Industry (IPS). Around 80-90% of milk production is supplied to the IPS Indonesian farmers and end consumers that have higher preference for

consumption of local dairy products produced by the IPS. Milk consumption data in Indonesia showed that for more than 90% milk powder and condensed form are still consumed and not more than 10% of the fresh milk is consumed. Profile of milk consumption in Indonesia also shows that white fresh liquid milk contributes only about 18% of the total consumption of white milk while the other 82% is the consumption of white milk powder (Daryanto 2009).

The low consumption of fresh milk in the community and the IPS still being the main market of fresh dairy products consumer indicates that the fresh milk market is still relatively small compared to the powdered milk market. This made the local farmers dependent towards IPS in the marketing of fresh milk so that IPS is able to suppress the price to the dairy cattle farmers. The dependence of milk trade channel to IPS has made the bargaining position of cooperatives as representation of dairy cattle farmers to be weak in the domestic milk pricing. So far the dairy farmers in the center area have a good competitive advantages and comparative advantages, but the competitive advantage generated by dairy farmers has decreased over time (Feryanto 2010). Decreased levels of financial efficiency and competitive advantage are due to the price received by farmers although increased by the nominal, but decreased in real terms. At 2001, the comparative advantage of livestock enterprises was 0.57 (Ilham and Swastika, 2001) and this has decreased in 2009 to 0.75 for farmers in Pangalengan (Feryanto 2010). This is presumably due to the low number of lactating cows, where 66.70-90% of farmers have only 1-4 lactating cows, and the selling price of milk was very low as 30-40% of the international price. Another cause is the low bargaining position of farmers due to the absence of another alternative marketing channel besides selling to the IPS. The amount of milk sold to IPS through cooperative is up to 90% of the total milk produced. Nugroho et al. (2011) mentioned that the low competitiveness of fresh milk produced by farmers caused by internal factors farmers themselves, they are not able to increase the scale of business that affects productivity, quantity and quality of milk. In addition, practically there are no government policies regarding dairy farmers input, either for subsidizing feed and medicines for farmers. In addition, with the marketing pattern of fresh milk produced relies on multinational IPS, it gives effect to the input provision where dairy farmers are harmed because farmers must buy tradable inputs (feed concentrate and medicine) at a price that is more expensive than the supposed price (Khairunnisa 2011 and Feryanto, 2010).

The development of fresh milk marketing channels becomes an important point in capturing the domestic market which is still not affordable. To develop the fresh milk marketing, a broader economic activity could be done by using the approach of the creative economy through the development of agrotourism. Fresh milk business activities with agrotourism-based has started to be applied, including dairy agro tourism. Dairy agrotourism with a broad concept consisting of agrotourism tour, culinary and shopping are developed by private companies. The pattern of agro-tourism development by the private sector plays a greater role in the implementation of agro-tourism activities, especially marketing, service, and operational activities. The agro tourism-based marketing could promote the fresh milk produced so the marketing efforts would become more efficient. With tourist arrivals, the production sustainability could be maintained as it provides the products to meet the needs of tourists which in turn will increase the income of farmers. Thus, research is needed on the competitiveness of dairy farming with agro-based marketing of fresh milk that is marketed to milk processing company and assessing the extent of the impact of agrotourism-based marketing of fresh milk as well as the impact of government policies on the competitiveness of the dairy farmers that markets the fresh milk to milk processing companies which are agrotourism-based.

LITERATURE

Definition and Concept of Competitiveness

Some experts argued that the concept of competitiveness is based on the concept of comparative advantage of Ricardo which is an economic concept (Krugman 1994). However, some other experts argue that the concept of competitiveness or competitive advantage is not an economic concept, but a concept of politics and business which are used as the basis for many strategic analyzes to improve corporate performance (Lall 2001 in Gonarsyah 2007 , Saptana 2010). The next development from the economists (Barkema, Drabenstotti, Tweeten, and Sharples) defines competitive advantage as a result of a combination of market distortion and comparative advantage. According Simatupang (1991) and Sudaryanto and Simatupang (1993) concept of comparative advantage is a measure of competitiveness (excellence) potential in terms of competitiveness that will be achieved if the economy is not distorted at all. Commodities that have comparative advantage also said to have an economic efficiency. Competitive advantage or revealed competitive advantage (RCA) is a measure of the competitiveness of an activity on the actual economic conditions. Related to the concept of comparative advantage is economic viability, and competitive advantage is related to the financial feasibility of an activity.

Analysis of competitive advantage is a tool to measure the benefit of private profitability or feasibility of an activity which is calculated based on market prices and official exchange rate. In this case, a country will be able to compete in international markets if the country has a competitive advantage in producing a commodity assuming the existence of marketing system of government intervention. These conditions resulted in a country that does not have a comparative advantage was found to have a competitive advantage because the government provides protection to the commodity produced in the economic activity, for example through price guarantees, ease of licensing and other convenience facilities (Sudaryanto and Simatupang 1993). Nevertheless, the concept of competitive advantage is not interchangeable towards comparative advantage, but the concepts are mutually complementary.

So far the dairy farmers in the center area have a good competitive advantages and comparative advantages, but the competitive advantage generated by dairy farmers has decreased over time (Feryanto 2010). Decreased levels of financial efficiency and competitive advantage are due to the price received by farmers although increased by the nominal, but decreased in real terms. At 2001, the comparative advantage of livestock enterprises was 0.57 (Ilham and Swastika, 2001) and this has decreased in 2009 to 0.75 for farmers in Pangalengan (Feryanto 2010). This is presumably due to the low number of lactating cows, where 66.70-90% of farmers have only 1-4 lactating cows, and the selling price of milk was very low as 30-40% of the international price. Another cause is the low bargaining position of farmers due to the absence of another alternative marketing channel besides selling to the IPS. The amount of milk sold to IPS through cooperative is up to 90% of the total milk produced. Nugroho et al. (2011) mentioned that the low competitiveness of fresh milk produced by farmers caused by internal factors farmers themselves, they are not able to increase the scale of business that affects productivity, quantity and quality of milk. In addition, practically there are no government policies regarding dairy farmers input, either for subsidizing feed and medicines for farmers. In addition, with the marketing pattern of fresh milk produced relies on multinational IPS, it gives effect to the input provision where dairy farmers are harmed because farmers must buy tradable inputs (feed concentrate and medicine) at a price that is more expensive than the supposed price (Khairunnisa 2011 and Feryanto, 2010).

In this case the competitiveness approach used is the level of profit generated and the efficiency of the operation of the commodities described by the comparative advantage and competitive advantage. The concept of comparative advantage is used to describe a country's specialization in producing goods and services, while competitive advantage is a tool to measure the competitiveness of an activity based on actual economic conditions (Salvator, 1994).

Dairy Farmers

Sutardi (1981) stated that the dairy farm business in Indonesia lies in the two extreme regions, namely: (1) areas with low natural physical condition but have high socio-economic conditions and (2) areas with high natural conditions but have low socio-economic conditions. Basically, the type (1) is located in the lowlands around the major cities with hot temperature while the type (2) describes the rural highlands with cool temperatures. Some disadvantages arising from these characteristics is the low supply of forage and low production performance on the region type (1) and the lack of supply of concentrates and milk marketing chain in region type (2). Areas suitable for the development of dairy farm business in Indonesia are mountainous land with a minimum height of 800 meters above sea level. The study of the relationship of milk production of dairy cattle with the area topography showed that the difference in height of 100 meters is closely related to differences in yield average about 4%.

The next characteristic that reflects the dairy farmers in Indonesia is the relatively small scale of business. Dairy farm business is divided into two forms based on the Minister of Agriculture No. 751 / Kpts / Um / 10/1982 on Development and Business Development of Domestic Milk Production Enhancement, namely dairy farmers by individual and corporate dairy farm. Individual dairy farmers is organized as a side business that has fewer than 10 dairy lactation cows (adult) or has a total number of less than 20 dairy cows. The company is a dairy farmers for commercial purposes with the main production of cattle's milk, which has 10 lactation cows (adult) or more or have a total number of 20 dairy cows or more (Sudono 2002).

Mubyarto (1989) describes that farms based on the cattle based farming patterns in Indonesia are classified into three groups, namely: individual farm, semi-commercial farm and commercial farms.

1. Individual farm with traditional practices. Maintenance are performed using the traditional way every day by members of the family farmer with simple skills and using local breeding stock in limited quantity and quality. The primary goal of breeding the cattle is having cattle resource for farm cultivation.
2. Semi-commercial farms with enough farming skills. The use of quality seeds, medicines, and food tends to increase. The main purpose of maintenance is to increase family income and personal consumption.
3. Commercial farm run by farmers who have the capacity in terms of capital, means of production, with a fairly modern technology. The entire labor are paid and fodder purchased from outside in large numbers.

Definition and Concept of Agrotourism

Based on the joint Decree (SK) between the Minister of Tourism, Post and Telecommunications and the Minister of Agriculture No. KM.47 / PW.DOW / MPPT-89 and No. 204 / KPTS- / HK / 050/4/1989, agro-tourism as part of the tourism object is defined as a

form of activity that utilizes agro business as an attraction to expanding the knowledge, leisure experience and business relations in agriculture. Agro-tourism is defined as tourist objects that utilize agricultural (Tirtawinata and Fachruddin 1996). Formally Budiasa Wolfe and Bullen (2011) defines agro-tourism as an activity, or business venture that combines elements and main features of agriculture and tourism and provides an experience to the visitors and encourage economic activity and the impact on farm incomes. Agro-tourism also can provide more economic activity to farmers and rural communities, and that includes the provision of services and agro-touristic products to the visitor

Various agro-tourism activities that are often encountered by Wolfe and Bullen in Budiasa (2011) is a fee-based hunting and fishing, festivals and exhibits farm (agriculture related festivals and fairs), a farm tour, tourist picking vegetables and fruits (U-pick vegetables and fruit), horseback riding, farmers / on-farm retail markets, on farm vacations, on-farm bed and breakfasts, wineries, on-farm petting zoos / bird watching, on-farm picnic areas, biking / hiking trails, on-farm educational programs. If Agro-tourism is developed correctly, the farmer's hope to increase their welfare could be realized. Sutjipta (2001) detailing the expectations of farmers with agro-tourism development are as follows:

1. Marketing of agricultural products: it is expected with the later development of agricultural tourism can be absorbed in this sector.
2. Dynamic technology: the development of tourism would also developing agricultural technologies because of the demands of tourism.
3. The availability of the means of production.
4. Agricultural production Incentives, with the development of tourism prices of agricultural products is expected to be valued quite feasible that farmers' passion for working would increase.
5. Transport, infrastructure built for tourism can also be utilized by the agricultural sector.

Prior Research Studies

Earlier research that has been the reference and comparison in this study are as follows: Khairunnisa (2011) presented a study on competitiveness analysis and the impact of government policies on the dairy farmers (case study: the farmer members of the milk cattle cooperative in Kunak Bogor, West Java) "with the methods used were PAM (Policy Analysis Matrix) and sensitivity analysis. Samples from this study were members of farmer in the farm business (Kunak) KPS Bogor Pamijahan District and Cibungbulang District Bogor. PAM results indicate that dairy farmers in Kunak, KPS Bogor were efficient and profitable both financially and economically viable and prospective to be developed. Dairy farmers in Kunak also has a competitive advantage and comparative advantage. PCR for breeders residing in Cibungbulang District and Pamijahan District Bogor, ranged about 0.77-0.98. Feryanto (2010) conducted a study related to the analysis of the competitiveness and the impact of government policy on local dairy cattle commodities in West Java by using analytical tools PAM (Policy Analysis Matrix) and a sensitivity analysis of changes in output and input prices on the competitiveness of the dairy farm. Research sites that were selected in this study is the Lembang District, Pangalengan District, and Cikajang District. The results showed that the operation of dairy cattles to produce fresh dairy products in the province of West Java in general is profitable and financially efficient and economic.

The utilization of dairy cattle to produce fresh dairy products in the province of West Java also has a comparative advantage and competitive advantage with PCR values ranging from 0.79-0.94. Farmers that was examined in this study had the aim of fresh milk marketing to be supplied to the IPS. Previous research also mentions the tendency of rising prices of production inputs (feed, medicine) and also the helpless farmers / cooperatives due to the weak bargaining position of the input providers and buyers of milk (IPS). These conditions will have implications for the declining competitive advantage possessed by agribusiness dairy cattles, whereas in the short-term and long-term milk commodity and exploitation of fresh milk has a great comparative advantage. Fresh milk marketing purposes in previous studies is that the fresh milk produced by farmers could be supplied to IPS. Meanwhile, this study examines the competitiveness of farmers with the purpose of direct marketing of fresh milk to agro-tourism based milk processing companies.

METHODOLOGY

Types and Sources of Data

The data used in this study are primary data and secondary data. The primary data obtained through interviews, questionnaires and direct observation in the field. Interviews were conducted to farmers as the study object and several respondents associated with this field. Secondary data were collected from relevant literature that can support and help to the availability of data. Location research is purposive in the Village Cibeureum, District Cisarua, Bogor.

Respondents Retrieval Techniques

Respondents used in this study were breeders who are members of Giri Farmers cooperatives who sell fresh milk to IPS PT. Cisarua Mountain Dairy (Cimory) as agro-tourism based dairy company. Cimory as local fresh milk-based company is not only limited to dairy products and the derivatives, but also in the form of agro-tourism. In this case, the company developed Cimory Dairy Tour which is a joint program between education and entertainment, or often known as 'edutainment' as well as culinary tourism by developing restaurant that serves food made from milk located in the region of farm and milk processing plant. Sampling was done using the simple random sampling of the members who have been previously selected in the group of farmers. The numbers of farmers who sell their fresh milk to a agro-tourism based dairy company required to be sampled in this study were 59 breeders. It is based on the population size or the number of farmer members of KUD Tani Giri as much as 149 farmers and consists of:

Farmers in this study were divided into three scales based on their scale of business, which are the small-scale, medium-scale, and large-scale. Referring to Mandaka (2005), the division of business scale is based on the number of lactating dairy cattle ownership, where small-scale farmers have less than four cows, medium-scale farmers have four to seven cows and large scale farmers have more than seven cows. Sampling was done using the simple random sampling of the members who have been previously selected in the group of farmers. The numbers of farmers who sell their fresh milk to a agro-tourism based dairy company required to be sampled in this study were 59 breeders. It is based on the population size or the number of farmer members of KUD Tani Giri as much as 149 farmers and consists of:

1. Baru tegal dairy farmers group : 46 farmers
2. Bina warga dairy farmers group: 22 farmers
3. Baru sireum dairy farmers group : 14 farmers
4. Tirta jaya dairy farmers group : 25 farmers
5. Mekar jaya dairy farmers group : 42 farmers

Determination of the number of samples with a finite population can be obtained as follows (Suharjo and Siswandi 1999):

$$n_0 = \frac{z^2 \times p(1-p)}{e^2}$$

Finite population correction factor becomes:

$$n = \frac{n_0}{1 + (n_0 - 1)/N}$$

where:

- z = normal z scores based on the level of trust allegations
- p = the proportion of the target population
- e = error alleged (sampling error)
- N = number of population
- n₀ = number of initial samples
- n = number of samples using a finite population correction factor

In this study, the level of confidence that is used by 95%:

- z = 1.96 (95% confidence level)
- p = 50% (proportion of samples proportional 50%)
- e = 0.1 (10% sampling error)
- N = population number of breeders

Distribution of sampling based on farmer group members KUD Giri Tani can be seen in Table 1.

Table 1. Distribution of sampling based on farmer group members KUD Giri Tani

Farmer group members KUD Giri Tani	Number of population	Proportion of population	Sampel	Rounding of Sampel
Baru tegal dairy farmers group	46	30.87%	18.215	18
Bina warga dairy farmers group	22	14.77%	8.711	9
Baru sireum dairy farmers group	14	9.40%	5.544	5
Tirta jaya dairy farmers group	25	16.78%	9.899	10

Mekar jaya dairy farmers group	42	28.19%	16.631	17
Total	149	100.00%	59.000	59

METHODS OF DATA ANALYSIS

Methods of Policy Analysis Matrix (PAM)

This study used analytical Policy Analysis Matrix (PAM) to be able to analyze the competitiveness of the dairy farmers and data processing is done with the help of Microsoft Excel software. Analyzes generated in the PAM include (1) a comparative analysis and competitive dairy farmers which includes the calculation of the value of private profit (PP), social benefits (SP), the domestic resources cost ratio (DRC), and the private cost ratio (PCR) and (2) analysis of the impact of fresh milk marketing directly to consumers on the input transfer (IT), nominal input protection coefficient (NPCI), the transfer factor (TF), output transfer (TO), the nominal output protection coefficient (NPCO), and input output effective protection coefficient (EPC), net transfers (NT), profit coefficient (PC), the ratio of subsidies to producers (SRP).

It takes a few steps in the approach to the analysis of competitiveness. The steps being taken in the preparation of PAM include (1) the determination of the physical components of both input factors and output factors of the business activities of dairy cattle production per cow lactation cycle. Data on the number of physical components for input and output factor is the average of the number of samples obtained. (2) Classify all the costs to the domestic component of the input generated in the domestic market and not traded internationally and foreign components, which are inputs that can be traded in the international market, either exported or imported. (3) Determination of the private and the interpretation of shadow prices (social) on the input-output, and (4) tabulation and analysis of the resulting indicators PAM table. The PAM can be seen in Table 2. Some of the assumptions underlying the preparation of PAM in this study include:

1. Calculation based on the production of fresh milk production per cow lactation cycle in 2014.
2. Price in the dairy farm with fresh milk marketing directly to consumers is the price received by farmers who sell fresh milk to consumers.
3. The official exchange rate is the average exchange rate prevailing in 2014, which amounted to Rp 10 487 / US Dollar.

Table 2. Policy analysis matrix (PAM)

	Revenues	Profits		Profits
		Tradable Inputs	Domestic Factors	
Private Prices	A	B	C	D
Social Prices	E	F	G	H
Divergences and efficient policy	I	J	K	L

Source: Monke and Pearson (1989) and Pearson and Gotsch (2004)

Note: Private Profitability (PP): $D = A - (B + C)$; Social Profitability (SP): $H = E - (F + G)$; Transfer Output (TO): $I = A - E$; Private cost ratio (PCR) = $C / (A - B)$; Domestic Resource Cost Ratio (DRC) = $G / (E - F)$; Input Transfer (IT): $A = BF$; factor Transfer (FT): $K = CG$; Output transfer (OT) = $A - E$; Output Nominal Protection Coefficient (NPCO) = A / E ; Input Nominal Protection Coefficient (NPCDI) = B / F ; Net transfer (NT) / Net Policy Transfers: $L = DH$ or IJK ; Effective Protection Coefficient (EPC) = $(A - B) / (E - F)$; Profits Coefficient (PC) = D / H Subsidy Ratio to Producer; $SRP = L / E$

Social Pricing Method (Shadow Price)

According to Gittinger (1986), the use of market prices in economic analysis often does not describe its opportunity cost. Therefore, every input and output that is used in the economic analysis must be adjusted in advance with social prices. Shadow pricing is based on the assumptions used in this research. According Saptana (1999) basic assumptions that can be used in the analysis of PAM on the livestock sector are as follows:

1. Calculation based on private prices, the price is actually the price faced by entrepreneurs or received after the existing government policy.
2. Calculation based on social price or shadow price, which is the price in a perfectly competitive market that represents the true social opportunity costs for economic analysis.
3. Output are tradable and inputs can be separated into foreign component (tradable) and domestic components (non-tradable).
4. Positive and negative externalities are considered mutually exclusive, so that externalities are considered zero.

Shadow Price of Exchange Rate

The determination of the shadow price of the exchange rate using a formula that has been formulated by Squire and Van der Tak (1982) in Gittinger (1986), that the determination of the shadow price of the currency exchange rate is determined by using the following formula:

$$SER_t = \frac{OER_t}{SCF_t}$$

Specification:

SER_t : Shadow Exchange Rate (USD/US \$)

OER_t : Official Exchange Rate (USD/US \$)

SCF_t : Standard conversion factor

Value of the standard conversion factor is the ratio of the value of imports and exports plus taxes can be determined as follows:

$$SCF_t = \frac{X_t + M_t}{(X_t - T_{xt}) + (M_t + T_{mt})}$$

Keterangan :

SCF_t : standard conversion factor for year t

X_t : Indonesia's export value for the year t (Rp)

M_t : Indonesian import value for year t (Rp)

T_{xt} : Government revenues from export taxes for year t (Rp)

T_{mt} : Government revenue from import tax for the year t (Rp)

By using the average exchange rate of the rupiah against the dollar (OER) in 2014 valued at USD 10,487 / Euro 2014 SER value is Rp 10 702 and SCF value is equal to 98%.

The Shadow Price of Output

The calculation of the shadow price of output in this study is the price cif (cost insurance freight) or shadow prices for imported products. Shadow prices using the price cif (cost insurance freight) was first converted using the exchange rate shadow prices SER (Shadow Exchange Rate) at that time with the marketing costs for the imported product. Calculation formula can be written as follows [(cif x SER) + cost trade system]. The calculation of the world milk price equivalent with local milk price was using a formulation that refers to Erwidodo and Sayaka in Atien et al (2009).

This formulation uses the approach where the world milk price is calculated on the basis of the price of a kilogram of Full Cream Milk Powder (FCMP) is equivalent to eight kilograms of fresh milk. Approximately 80% of the cost of a kilogram of fresh milk FCMP is the cost, plus the cost of trade procedures (cost of transportation and handling / loading and unloading) from the port up to the breeder that is equal to 2.5%. FCMP milk price calculation is based on data on the average milk price in January-March 2014 (Global Dairy Trade 2014). Average price per liter of milk FCMP after converted is Rp 6983, where the price includes shipping and administrative costs. Shadow price of milk used is USD 7 157.57 / liter of milk, the value is derived from the price of imported milk multiplied by the SER and 2.5% additional business administration fee.

The Shadow Price of Input

Shadow price of feed consisting of forage, tofu and tempe residues are determined based on the prices prevailing in the market. This is because since 2000 the subsidy for feed has been revoked by the government. However, the shadow price is determined based on the concentrations of the international market price of cattle feed cif price plus the costs of other trade expenditures. Shadow prices for medicines and vitamins despite being produced locally, but most of their raw materials come from imports so that the shadow prices for medicines and vitamins are determined based on the CIF price. After that, adjustment was done by adding or reducing the cost of transportation or marketing.

The Shadow Price of Labor

Labors which are used to help farmers are not permanent and generally not well educated so that the shadow price of labor is performed using the calculation approach by Yusdja (2001) and Suryana (1980) in Emilya (2001) that is equal to 80% of the wage rate in the study area.

The Shadow Price of Land, Working Capital, Tax

Shadow price of land in the location of this study is the use of the land rental value, because it is difficult to measure the value of a farm / other businesses in a certain land. Shadow price of capital interest is earned from the total cost of production of breeder multiplied by the applicable deposit rates at commercial banks namely about 7% in 2013, which the bank reference used is BRI (Bank Rakyat Indonesia). Shadow price of tax for this study excluded in the calculation of the social price. Therefore, the financial price for the land and building tax (PBB) in the calculation of the fee is calculated as a private or financial calculation.

Determination of Trade Administration Cost

Trade administration costs incurred in this study is the cost of transporting food from producers to the breeder. Shadow price of the trade system to feed and milk transport costs used is the market price plus the cost of the subsidy from fuel (BBM) by 33%.

Sensitivity Analysis

After analysis of PAM it is necessary to conduct sensitivity analysis of output price changes due to agro-tourism and elimination of import tariff policies and changes in input prices due to the policy of the feed prices raised up to 30% in 2008. In seeing the impact of agro-tourism on the competitiveness of the dairy farmers were used the number of visitors increased proxy by 25% that are based on the last five years of visitor growth data in Cimory, an agro-tourism based milk processing company. Increasing the number of visitors will increase demand for fresh milk at the farm level that will increase the price received by farmers. Import tariff of 0% is government policy that is expected to be implemented at the time of free trade was introduced to examine the extent of the impact of the import tariff policy on the competitiveness of the dairy farmers who sells the fresh milk to agro-tourism based milk processing company.

Feed as an indicator of changes in the sensitivity analysis is considered because feed is the largest cost component incurred breeders. The increase of fuel prices in 2008 had an immediate impact on the operation of dairy cattle. It is evident that the increase in fuel price has increased the cost of transportation causing feed prices rose an average of 30% for 2008. The purpose of

this analysis was to see how the results of an analysis of the economic activity when there is a change in the calculation of costs or benefits. This research line of thought can be seen in Figure 1

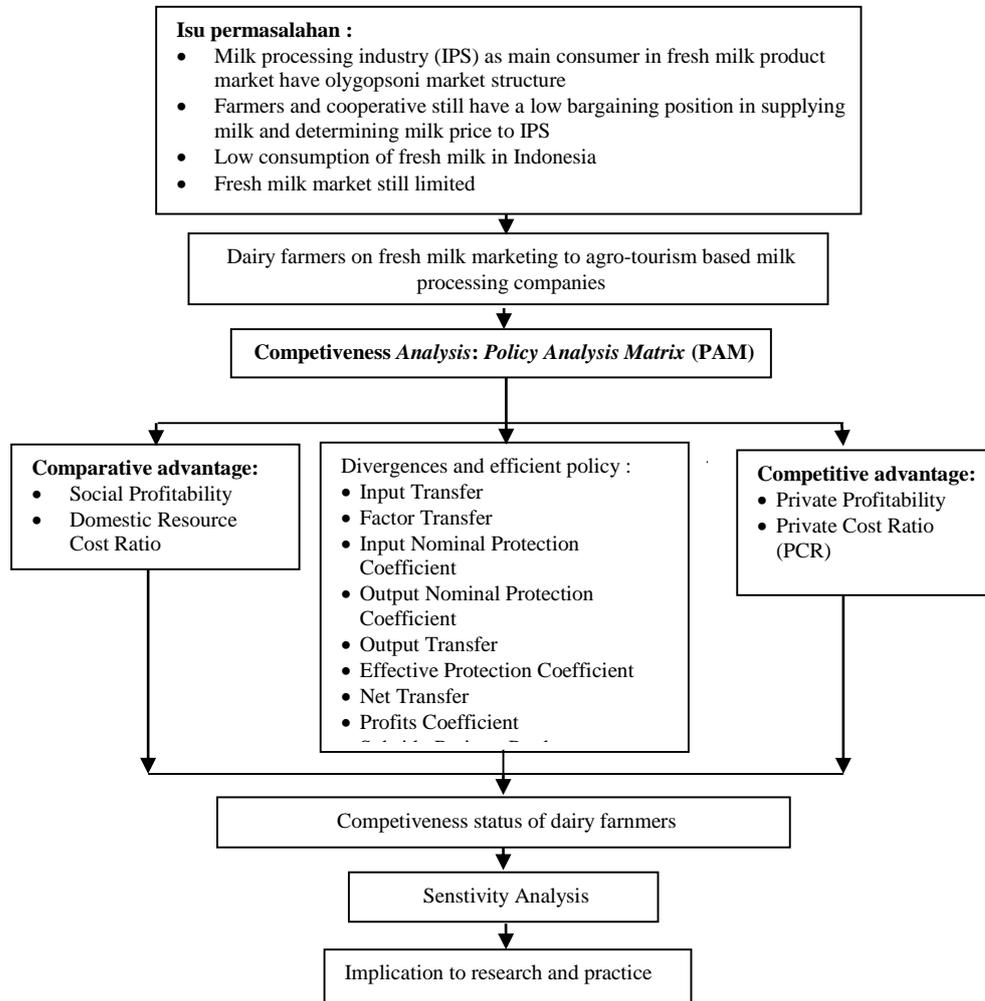


Figure 1. Framework Research

RESULTS AND DISCUSSION

Competitiveness of Dairy Cattle Milk Marketing Cooperative Members to Agro-tourism Based Fresh Milk Processing Company

Research competitiveness of the dairy farmers that supplies fresh milk to milk processing companies, namely agro-tourism based dairy farmers Giri Tani KUD members who supplies fresh milk to Cimory were analyzed using PAM. Indicators of competitiveness of dairy farmers marketing cooperative members with agro-tourism based fresh milk processing company as a whole can be seen in Table 2. Overall, private and economic analysis showed that the dairy farmers KUD members Giri Tani on the three business scale, small-scale businesses, medium and large fresh milk market to Cimory is profitable. It is caused by the positive private and social acceptance.

Table 2 Indicators of PAM analysis of dairy farming with agro-tourism based marketing of fresh milk

Indicators	Value		
	Small scale businesses	medium scale businesses	large scale businesses
Private profitability (PP)	198.83	797.15	919.93
Private cost ratio (PCR)	0.95	0.79	0.76
Social profitability (SP)	2 940.93	3 241.51	3 315.53
Domestic resource cost ratio (DRC)	0.57	0.53	0.51
Input transfer (TI)	(60.98)	(97.59)	(107.39)
Nominal protection coefficient on tradable input (NPCI)	0.78	0.69	0.67
factor transfer (TF)	(354.48)	(615.53)	(654.05)
Output transfer (TO)	(3 157.57)	(3 157.57)	(3 157.57)
Nominal protection coefficient on tradable input (NPCO)	0.56	0.56	0.56
Effective protection coefficient (EPC)	0.55	0.55	0.55
Net transfer (NT)	(2 742.11)	(2 444.35)	(2 395.60)
Profitability coefficient (PC)	0.07	0.25	0.28
Subsidy ratio to product (SRP)	(0.38)	(0.34)	(0.33)

Competitive Advantage of Dairy Cattle Cooperative Members with Fresh Milk Marketing to Agro-tourism based Milk Processing Company

Analysis of competitive advantage consists of private profitability analysis (PP) and the private cost ratio (PCR). Value of private profitability (PP) is positive, it means the farmer who operates a dairy cattle farmer, member of Giri KUD who supply fresh milk to Cimory milk processing company at the three scale agro-tourism based businesses earn profits above the normal. Large PP values indicate the amount of revenue received by farmers after paying the entire cost of production inputs. In small-scale farming, a large value is Rp 198.83 PP / liter of milk, on medium-scale with value of Rp 797.15 PP / liter of milk and the large-scale obtained a value of Rp 919.93 PP / liter of milk. Greater private profits received on large scale farming which in this study were the large business scale farmers. This is because the cost of production to utilization of dairy cattle on a large scale is lower than the farmers in small and medium scale enterprises in the research area.

With the price received by farmers from the fresh milk supply to Cimory were valued the same at any scale operations amounted to Rp 4000 per liter of milk, the price received is able to provide high profits for farmers compared to large-scale enterprises where small-scale farmers on average only has a number of two productive cows and medium-scale enterprises with an average ownership of six productive cows. Although in this study, small-scale farmers dominate as much as 49%, while 31% of small-scale and large-scale enterprises is only about 20%. This indicates that in order to maximize the benefit of the farmers who sell fresh milk to Cimory then the breeder should be able to increase the scale of dairy farmers.

Determination of the price received by the farmer is the same at every scale of business due to the marketing of fresh milk to Cimory through cooperatives Giri Tani going through the whole process of mixing fresh milk at KUD. This is done by cooperatives in order to meet the minimum amount set by Cimory. KUD also provide flexibility to the breeder to send directly to Cimory if it has sufficient requirements set by Cimory. However, the farmer members of KUD Giri Tani are generally small scale farmers so it is not allowed for direct delivery of fresh milk to supply because it doesn't met the requirements set by Cimory. Although there are farmers who have medium and large scale businesses, they do not met the quota of Cimory so that both of the farmers join the cooperative to supply fresh milk to Cimory. PCR values on the three business scale have a value smaller than one. PCR value on small-scale farming is 0.95, medium-scale farming is 0.79, and large-scale farming is 0.76. These values indicate that the dairy farmers Giri Tani KUD members who supply fresh milk to Cimory milk processing company is considered as privately efficient agro-tourism based milk processing company and have a competitive advantage.

Comparative Advantage of Dairy Cattle Cooperative Members with Fresh Milk Marketing to Agro-tourism based Milk Processing Company

Analysis of the comparative advantages of a commodity is determined by the value of the social benefits (SP) and domestic resource cost ratio (DRC). SP value on small-scale farming, medium and large respectively is 2 940.93 USD, USD 3 241.51, and USD 3 315.53/ liter of milk. SP value is positive, greater than zero (> 0), on the three business scales indicate that the business of dairy cattle in producing fresh milk may generate economic benefits to the state without the intervention of a policy. Value of social benefits (SP) in the dairy farmers Giri Tani KUD members who supply fresh milk to Cimory has greater value than the value of the private benefit (PP) on the three business scale. This is because the social price of fresh milk has higher value of USD 7 157.57 compared with the corresponding private price of Rp 4000 per liter of milk. In this study, the social price of milk is calculated based on the price of imported milk that is higher than the local milk. It means that the fresh milk produced by farmer members of KUD Tani Giri Cimory could only valued at Rp 4000.

The DRC value that is less than one; 0.57 for small-scale business, 0.53 for medium-scale, and 0.51 for the large scale showed that fresh milk supply from Giri Tani KUD members to Cimory socially have a comparative advantage. This condition indicates that the domestic needs of both commodities would be better produced locally rather than having to import milk from other countries. This is because the cost to produce fresh milk is relatively inexpensive when compared to import milk powder so it will be able to save government income. Although based on PAM Analysis, DRC indicator shows that it would be more efficient to produce local fresh milk, but in fact the national farmers is only able to meet 30% of the total national demand. Thus the government and relevant parties need to pay serious attention in order to increase the national production of fresh milk to fulfill the domestic milk demand. Increased production through the improvement of the upstream and downstream system of dairy agribusiness becomes a necessity, and thus required responsibilities from related parties, especially the government to issue policies that support this program.

Impact on Input of Dairy Cattle Cooperative Members with Fresh Milk Marketing to Agro-tourism based Milk Processing Company

Transfer value input on all of the three business scale is negative. The negative TI value means that the dairy farmers cooperative members who supply fresh milk to Cimory as agro-tourism

based milk processing company gain tradable inputs of Rp 60.98 / liter of milk (small-scale farmers), USD 97.66 / liter of milk (medium-sized scale farmers), and Rp 107.39 / liter of milk (large business scale farmers). This is due to the efforts of the cooperative to subsidize the price of feed / concentrate, and medicines with lower prices which is shared by farmers through cooperatives based on fees and profits earned by cooperative. Negative TI also shows that there is a decrease in income transfer from farmers to producers of tradable inputs of Rp 60.98 / liter of milk (small scale farming), USD 97.66/ liter of milk (medium-scale farming), and Rp 107.39/ liter of milk (large scale farming).

NPCI values on all of the three business scale is negative (NPCI <1), respectively 0.78 (small-scale farming), 0.69 (medium-scale farming), and 0.67 (large business scale). The negative NPCI value on all three scale indicate that there is a protection policy to the input consumer (farmers) in the form of financial aid that cause input prices lower than its shadow price. Although the government's policy has been revoked the feed and medicine subsidies since 2000, but the existence of KUD Tani Giri has been able to provide the means of production with a lower price. Therefore, farmers cooperative who sell fresh milk to Cimory could overcome the fodder producers that tend to be oligopoly who could determine that the private feed price is higher than the social price. The negative transfer value of factors on all of the three business scale means that the acquisition of domestic inputs farmers benefited by Rp 354.48 / liter of milk, medium-scale farmers benefit of Rp 615.53 and large-scale farmers benefit of Rp 654.05 / liter of milk.

Impact on Output of Dairy Cattle Cooperative Members with Fresh Milk Marketing to Agro-tourism based Milk Processing Company

TO has negative value on al of the three business scale farmers, amounting to Rp 3 157.57 means that there is a divergence in which the private market price of fresh milk output produced by dairy cattle farmers who supply to agro-tourism based milk processing company is lower than the social price. The same TO value on any scale of business due to the price received by farmers from the fresh milk market to Cimory ie Rp 4000 per liter of milk. Negative TO values on all of the three business scale showed a divergence in which the private market price of output produced fresh milk dairy farmers that supply fresh milk to agro-tourism based milk processing company is lower than their social price. The social price of milk is calculated based on the higher price of imported milk price than the price of local milk. NPCO value of 0.56 indicates that the price farmers received is 44% lower than its social price. NPCO value less than one indicates that farmers who sell fresh milk to Cimory still valued at a price lower than its social prices. Cimory policies that provide price incentives have not been effective to increase the revenue of farmers, same as the government policy to raise import tariffs of 5% has not been effective so there is still a reduction in revenues of farmers.

Impact on Input Output of Dairy Cooperative Members with Fresh Milk Marketing to Agro-tourism based Milk Processing Company

EPC values obtained in this study are less than one at 0.55 that the input-output policies have not been able to provide protection to the local farmers in fresh milk production. This is because fresh milk produced by farmers is still valued at a price lower than the social price. Negative NT value in all three scale farmers; USD 2 742.11/ liter of milk (small scale), USD 2 444.35/ liter of milk (medium scale) and Rp 2 395.60/ liter of milk (large scale) means a reduction in the amount of NT breeder surplus on each of the business scale.

PC value of 0.07 for small-scale farmers and 0.25 for medium-scale farmers, while the large-scale have PC value of 0.28 means that the profit of small-scale farmers on private prices is 93% lower than the profits in social price, medium scale profit at private prices is 75% lower than the profit in social price, and large-scale gain 72% on private prices lower than the gains in social price. SRP value is negative; 0.38 small scale, 0.34 medium scale, and 0.33 large scale means that Giri Tani KUD farmer members who supply milk to Cimory lower the gross income of 38% for small-scale farmer, 34% for medium-scale farmer, and 33% for large scale farmer.

PAM results of the impact on output input showed that fresh milk supply to Cimory as a whole has not been able to optimize the benefit of farmers. It can be seen from the fresh milk price received by farmers is lower than the social price. Therefore, the partnership between farmer members of Giri Tani KUD with Cimory should be limited to price of output incentives which must be accompanied by technical assistance of dairy cattle breeding to improve the quality of fresh milk. Moreover, most of the farmers have mindset that does not consider improving the quality of fresh milk in long-term, the most important for farmers is to gain benefit by selling milk with the existing quality. It's hard for farmers to think of carrying on business of dairy cattle towards the business that add quality or value added so generally farmers are difficult to replace a better quality feed. Most of the farmers are satisfied with the current quality, while in the other hand the farmers continue to expect getting better prices. Therefore, more comprehensive partnerships are necessary so that the vertical integration of upstream to downstream and vice versa provide benefits to the entire farming subsystem.

When compared with the condition where farmers still supply fresh milk to the IPS market other than agro-tourism milk processing company, IPS is a large-scale so the farmers' benefit is still far below the standard price of milk. Based on research of Bessant (2005), before the agro-tourism based milk processing company has not been established, farmers still supply fresh milk into a large-scale IPS, while the cost of production of fresh milk in small scale Rp 1 900.41 per liter of milk, medium scale Rp 1 779.68 per liter of milk, and large-scale Rp 1 614.19 per liter of milk, while the milk price received by farmers only Rp 1 526.89 per liter for small-scale enterprises, Rp 1 593.94 for medium-scale and Rp 1 594.44 per liter milk for large-scale. These conditions show that the current price cannot provide benefits to the farmers because the price of milk is far below feasible. The research of Bessant (2005) showed that the average milk price received by farmers can not cover the cost of production. It can be concluded that the price received by farmers is one of the obstacles for dairy farm sustainability in Bogor area.

Impact of Agro-tourism Based Fresh Milk Marketing and Impact of Government Policies on the Competitiveness of Dairy Cooperative Members with Fresh Milk Marketing to Agro-tourism based Milk Processing Company Based on Sensitivity Analysis

The results of the sensitivity analysis, the visitors increase from the presence of agrotourism provide the biggest benefit to farmers on the three scales, both on the value of private profits and social benefits. If there is an increase of 25% visitors then small-scale farmers gain private profits of Rp 1 940.06 and social benefits of Rp 3 757.66; medium-scale farmers gain private profits of Rp 2 418.72 and social benefits of Rp 3 997.79; and large-scale farmers gain private profit of Rp 2 549.72 and social benefits of Rp 4 090.43. If the feed prices increase 30% and visitor increase of 25%, small-scale farmers are still able to gain private profit of Rp 1 257.93 and Rp 3 364.99 social benefits; medium-scale farmers gain private profit of Rp 1 781.64 and Rp 3 649.09 social benefits and large-scale gain private profit of Rp 1 952.34 and social benefits Rp 3 780.96.

Even if import tariffs at 0% with the condition of the dairy farmers supplying fresh milk to agro-tourism based milk processing company, farmers still get private profits Rp 1 690.06 and Rp 3 400.37 of social benefits for small-scale farmers; medium-scale farmers gain private profit of Rp 2 168.72 and Rp 3 640.24 social benefits and large-scale gain private profit of Rp 2 299.72 and Rp 3 732.74 of social benefit. Changes in the value of benefits in detail can be seen in Table 3. Therefore, the impact of the agro-tourism with an increase in the number of visitors proxy provide great encouragement for farmers to increase the number of dairy cattle that have an impact on the increase of price received by farmers. It can be explained that government support for the development of dairy farm agro-tourism is very necessary, especially in facing free trade in 2015, which is to increase the consumption of fresh milk in the community through dairy agro-tourism that has a comprehensive concept to value-added increase and further business expansion.

Agro-tourism based milk processing company built by Cimory has provide concrete examples to improve the profits of farmers, especially small-scale farmers. Surely Cimory as agro-tourism based milk processing company is still not able to optimize the utilization of dairy cattle that produces quality fresh milk. However, the government should be able to copy right the efforts made by Cimory to rebuild motivation dairy farmers that produces fresh milk. In fact, the government could take a lesson from the business that has not been done so far by Cimory to optimize advantage at the level of farmers, especially small-scale farmers.

Table 3 Value of dairy farmer profit of cooperative members with the fresh milk supply to agro-tourism based milk processing company

Changes Scenario	Profitability Indicators (Rp/liter)					
	Privat			Social		
	A	B	C	A	B	C
Normal condition	198.83	797.15	919.93	2,940.9	3,241.5	3,315.5
Increase of 25% agro-tourism visitors	1 940.06	2 418.72	2 549.72	3 757.66	1 997.79	3 090.43
Feed prices increase 30%	(653.83)	0.80	173.20	2 450.10	2 805.22	2 929.03
Increase of 25% agro-tourism visitors and feed prices increase 30%	1 257.93	1 781.64	1 952.34	3 364.99	3 649.09	3 780.96
Increase of 25% agro-tourism visitors and import tariffs at 0%	1 690.06	2 168.72	2 299.72	3 400.37	3 640.24	3 732.74
Increase of 25% agro-tourism visitors, feed prices increase 30% and import tariffs at 0%	1,007.9 3	1,531.64	1,702.3 4	3,007.7 0	3,291.5 4	3,423.2 7

Note :

- A : Small scale businesses
 B : medium scale businesses
 C : large scale businesses

The impact of agro-tourism also showed an increased competitive and comparative advantage, although along with the increase of feed prices up to 30%; for small scale 0.74 (PCR) and 0.51 (DRC); medium-scale 0.63 (PCR) and 0.467 (DRC); large-scale 0.59 (PCR) and 0.45 (DRC). If import tariff is 0%, fresh milk supply to the agro-tourism based company has still a good competitive and comparative advantage; small-scale 0.63 (PCR) and 0.48 (DRC); medium-scale 0.53 (PCR) and 0.44 (DRC); large-scale 0.50 (PCR) and 0.43 (DRC). This showed that the impact of the agro-tourism can provide competitive and comparative advantage of a dairy farming. Changes in the value of the indicator of competitiveness due to the sensitivity analysis can be seen in Table 4.

Table 4 Indicators of competitiveness of dairy farmer profit of cooperative members with the fresh milk supply to agro-tourism based milk processing company

Changes Scenario	Competitiveness Indicators					
	PCR			DRC		
	A	B	C	A	B	C
Normal condition	0.95	0.79	0.76	0.57	0.53	0.51
Increase of 25% agro-tourism visitors	0.60	0.50	0.47	0.46	0.42	0.41
Feed prices increase 30%	1.18	1.00	0.95	0.64	0.59	0.57
Increase of 25% agro-tourism visitors and feed prices increase 30%	0.74	0.63	0.59	0.51	0.47	0.45
Increase of 25% agro-tourism visitors and import tariffs at 0%	0.63	0.53	0.50	0.48	0.44	0.43
Increase of 25% agro-tourism visitors, feed prices increase 30% and import tariffs at 0%	0.78	0.66	0.62	0.54	0.50	0.48

Note :

- A : Small scale businesses
 B : medium scale businesses
 C : large scale businesses

IMPLICATION TO RESEARCH AND PRACTICE

Competitiveness Policy Strategies of Dairy Farmers with Fresh Milk Marketing to Milk-Based Agro Processing Company

Based on the analysis of PAM that the dairy farmers in the area of research has a comparative advantage to the DRC value less than one. This indicates that the government should produce domestic milk without importing from abroad. However, in reality the national milk production now is only able to meet 30% of the total national demand. Therefore, it is necessary to correct existing policies and establish policies that are in favor of dairy farmers to improve the system of dairy farm. Policies can be done in the form of technical and non-technical, or with tariff and non-tariff to create a profitable and sustainable dairy farm. Based on the sensitivity analysis, agro-tourism is able to increase competitive and comparative advantage of dairy farm so this agro-tourism based business needs to be developed. This is also supported by the partnerships of farmers with agro-tourism based milk processing company which is able to improve the continuity of fresh milk marketing and certainty to farmers as well as assisting postharvest handling of fresh milk. In addition, the partnership has also been able to provide favorable input transfer for farmers because the price of tradable inputs received by farmers on private prices will be lower than its social prices.

Although based on the analysis of PAM, the fresh milk supply to agro-tourism based milk processing companies have not been able to maximize the benefit of farmers. Agro-based milk processing company should seek to maximize profits with the farmers by directly involve farmers in the development of dairy agro-tourism. Therefore, partnership should be improved by not only in the form of price incentives to farmers that can increase the quantity of fresh milk produced by farmers, but also the direction of incentives in terms of technical operation by the provision of inputs and medicines for farmers, provision of superior cows with AI technology (Artificial Insemination), mentoring programs, and farming extensions. In addition, the current government policy and input and medicines subsidies for farmers have not shown concrete steps. Thus, based on this study government could copy right the success that has been done by the agro-tourism based milk processing company to improve the competitiveness of local dairy farmers and the government can also take lessons from the shortcomings that have not been done by the agro-tourism based dairy processing companies in optimizing the competitiveness of the dairy farm. Development of this dairy agro-tourism requires substantial investment, not only sufficient land but also the technology and professionals human resources. Therefore, efforts are needed to attract investors towards the development of dairy agro-tourism based company.

CONCLUSION

Conclusion

The conclusion obtained in this study is the dairy farm that supply fresh milk to agro-tourism based milk processing company is profitable also private and socially efficient. In addition, this dairy farmers is also competitive with a competitive advantage shown by PRC values <1 and the comparative advantage of the DRC value <1 . The transfer input value of dairy farm that supply fresh milk to agro-tourism milk processing company is negative, where the price of tradable inputs received by farmers on private prices will be lower than its social prices. TO,

NPCO, EPC, NT, PC and SRP of dairy farmers shows it has not been able to maximize the gross income increase. Based on sensitivity analysis, the impact of agro-tourism which is measured through visitor proxy increase provide the greatest advantage and competitiveness of farmers had increased. In fact, even with an increase in feed prices up to 30%, the competitive and comparative advantage still shows good value.

Suggestion

The farmers who supply fresh milk to agro-tourism based company should increase the livestock in terms of quality and quantity to increase the income of farmers. Farmers are also expected to accept and implicate a variety of new technologies for dairy farming as well as improve the management of maintenance so that the cattle can produce milk with good quality in order to increase the selling price. While the agro-tourism based milk processing company should do a partnership with the farmers not only limited to the price incentive received by farmers, but also to the management of dairy farms in order to produce a quality fresh milk and accompanied by farm extensions and assistance to the farmers to produce fresh milk with good quality. The Government supports dairy farming by issue policies in terms of inputs and outputs that can improve the efficiency and competitiveness of the dairy farms. In addition, the government should support and develop dairy agro-tourism through a large investment.

FUTURE RESEARCH

Future research could analyse investment of dairy agro-tourism development by benchmarking the agro-tourism based milk processing companies (Cimory) as reference for the government. Other than that, future research could also analyse preference of Cimory visitor on consuming fresh milk or milk products.

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