Farmer satisfaction to dairy cattle cooperative business in Banyumas District, Central Java

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Abstract. This study aims to examine the farmers' satisfaction to the cooperative services, and the effects of cooperative businesses on cooperative dairy farmer member. The study was conducted in six groups of dairy farmers, in total 30 farmers were selected as respondents. Farmers were selected using two stages cluster method. Primary and secondary data from cooperative dairy business unit and the farmers were analysed using descriptive analysis. Result showed that unsatisfied were occurred to the cooperative because milk price reason, then reduces farmer motivation. However, the member dependency on cooperative services is generally quite high. The ownership of cattle in each farmer was relatively small made the dependency of cooperative service in accordance to develop their business. Moreover, results also revealing the fact that dairy farming business owned by cooperative members did not significant develop over last five years, especially from the point of view the number of cattle owned.

1. Introduction
Cooperative is one of the economic institutions in Indonesia. Cooperatives which engaged in agriculture business have a very strategic position in rural economic development. The previous study [1] presents a comparative modeling narrative on the potential impact of cooperative organizational forms for more equitable rural development. Cooperatives have the potential to generate higher and fair rates of growth, even in the competitive economic environments. The type of cooperative that become a focused in this research is the one which link to small farms. With good cooperative governance, people will expect a higher level of efficiency. A traditional cooperative can generate relatively high income for cooperative members. Very important factor for the success of cooperatives is a set of regulations that place them at the same level as private-owned agriculture business. In addition, the practice of cooperative should follow cooperative principles as the key to the success of agricultural cooperatives. Previous report [2] show that whether agricultural cooperatives by small farmers can replace individual agriculture. The case of Bangladesh shows the mechanization and institutionalized agriculture support by cooperatives can reverse the situation and indirectly contribute to food security. The applied scenario shows the potential benefits of cooperative farming, starting from the increasing of rice production by 12.6% due to reduced post-production losses and a 41.5% increasing due to intensive planting toward 92% cost savings through labor replacement.
Nowadays, many cooperatives fail to provide benefits to their members. Problems in Dairy Farmers Cooperative attach to the nature of milk commodities, i.e. specific characteristics. Therefore, it requires an advance technology, trained-skills, and big investment on capital. The nature of milk commodities thus brings high dependence of farmers to other parties, especially market and those who support the raising of their cattle up to the handling of milk. In Dairy Farmer Cooperative, this condition means that farmers of cooperative members depend on cooperatives both in marketing milk and in raising their cattle. On the other hands, cooperatives also have dependency on farmers member in obtaining fresh milk. Currently, the milk production of cooperative members has only reached around 2,500 liters per day, while the demand for milk is more than 5,000 liters. The development of dairy livestock populations in Banyumas District is urgently need of support from natural resources, i.e. land fertility to produce forage feed and availability of fresh air throughout the year. The condition of road and transportation infrastructure is rural areas quite good for milk storage in each group. There is no limit in the provision of production facilities for farmers, as well as milk delivery from farmers to cooperatives.

Cooperative defined as the criteria of identity in a business organization whose members are the main owners and customers of the company as well [3]. Identity criteria are arguments or principles of identity that differentiate cooperative business units from other business units. Based on these definitions, cooperative business activities economically must refer to the economic interests of members, as owners as well as customers [4]. Cooperatives must have a competitive advantage compared to other business organizations in order to win competition in the current era of globalization and free trade [5]. Competitive advantage is defined as an organizational power that clearly places a company in the leading position of competition [4]. According to him, one of the things that cooperative must do to win the competition is to create cost efficiency. This research tries to uncover the effect of cooperatives in perceiving efficiency for members at the dairy farming cooperative. Cooperative service helps members to increase income and develop their business.

2. Methods

The research was carried out at the dairy farmer cooperative. We used six groups of farmers as respondents that located from west side to east side of the northern part Banyumas District. We use cluster sampling method with clusters in the form of groups of farmers. The procedure used as follows: first, take six groups of farmers from seventeen existing groups. These groups were determined based on group age. Second, thirty members of cooperative members were taken from sample groups. Data collected in the form of primary data and secondary data. Primary data is taken from cooperative member farmers, which includes cattle ownership data, livestock business income, milk production, milk selling prices, satisfaction of cooperative services, and the level of dependence on cooperative services. Meanwhile, secondary data was obtained from cooperatives which included the development of cattle ownership by members for four years, the price of selling milk to the industry, and the price of buying milk to farmers.

The data analysis method used was descriptive analysis, to provide an overview of the problems studied through the tendency of data and the relationship between phenomena.

3. Results and discussion

3.1. Dairy cattle ownership

The development of the dairy business carried out by cooperatives is largely determined by the production of milk produced by its members. If the dairy farming business owned by cooperative members can grow well, there will be more milk deposits to cooperatives. One indicator of the development of cooperative member farms is the increasing of dairy cattle owned by them. Table 1 presents data ownership of dairy cows by members according to the group of farmers.
The ownership of dairy cow ownership does not related to the existence of farmers group. Only few farmers who have large quantities of dairy cattle and most them are in young group existence. Ownership of dairy cow in a small number (1-4 cow) dominates both in groups of farmers aged less than 10 years and over the age of 15 years. Many farmers keep cattle in bigger amounts than other farmer to earn more income. However, it is also common for farmers to keep one until two dairy cows. The small income from the milk business makes farmers could not invest and increase number of cows. Another factor that contributes to the minimum ownership of dairy cow by farmer is the lack of labor in rural areas to help in taking care of dairy cows. Farmers generally work with a small number of family labor, while dairy farming requires sufficient involvement of workers. This situation led to the undeveloped dairy cow population among cooperative members. They tend to keep small quantities of cow. They are not willing to add more cow even though there is an ability to do so. Many farmers sell their old cow and buy the younger one. Farmers often expect livestock assistance from the government, either in the form of grants or soft loans. Previous study concluded that in Brazil, the failure and success of cooperatives was closely related to government intervention [6]. A new design is needed for the milk cooperative model and business strategy. Also measures to improve their market competitiveness to promote self-sufficiency.

The ownership of dairy cow in Table 1 only considering the lactation cow. In general, farmers in raising lactation cow are also raising dairy cow that are not producing milk, i.e. calf. Ownership of dairy cow that is not beneficial if done individually. The number of dairy cows that have not been productive must be limited to minimize cost and to optimize profit. The optimum comparison between lactation dairy cow and non-productive dairy cow is 1: 0.40. This means that only one lactation dairy cow will be able to bear the maintenance costs of 0.40 units of non-productive dairy cow.

### Table 1. Ownership of dairy cattle by cooperative member farmers

| Number of dairy cattle | Proportion of ownership of dairy cattle by each group (%) |
|------------------------|----------------------------------------------------------|
|                        | (1)   | (2)   | (3)   |
| 1-4                    | 45    | 50    | 70    |
| 5-10                   | 40    | 40    | 20    |
| >10                    | 15    | 10    | 10    |

(1) : Group Existence > 15 years  
(2) : Group Existence 10-15 years  
(3) : Group Existence <10 years

3.2. Dependence of members on cooperatives

The dairy cooperative has the main function to market milk produced by its member. Milk production of cooperative member reaches 2,500 liters per day. The price of purchasing milk by cooperatives is determined based on the quality of milk deposit by farmers. The price of purchasing milk by cooperative is considered too cheap. The milk farmer tempted to sell milk outside cooperatives that are willing to buy milk at a higher price. However, the purchasing milk by buyers outside the cooperative is not many, it makes farmers keep on selling milk to cooperative.

Cooperative provides concentrated feed, i.e. feed for dairy cows as alternative for forage feed. Farmers buy concentrated feed from cooperatives, outside the cooperative, and other farmers. Farmers purchase concentrates in cooperatives through booking mechanism. The mechanism could be from the sale of milk that will be deducted by the cooperative to pay for the concentrate that members have purchased. If the farmer deposits less milk than usual, then the farmer can only buy a smaller amount of concentrate. Farmers who are members of cooperatives that buy concentrates outside the cooperative argue that the quality of the concentrate provided by the cooperative is not satisfactory. Farmers who make their own concentrate food explains the cost of concentrated feed becomes cheaper and produce better quality than produce by cooperative. The results of the research on cooperative member farmers showed that 60% of the member farmers purchased concentrate feed from the cooperative, 24% of the member farmers purchased feed concentrates outside the cooperative, and
16% of the farmers made their own concentrated feed. The result of this study indicates that most farmers in fulfilling concentrate feed depend on the cooperative.

Two main cooperative services as mentioned above, i.e. selling milk and concentrated feed, could be known that the dependence of farmers on cooperatives is quite high. This means that members also put their trust to cooperative. The member trust influences their participation through affective commitment, and the need for cooperative managers to create conditions that generate cooperative member trust due to an effective source of bonding and beneficial behavior such as participation [7]. Cooperative manager must pay attention to members every day, by encouraging and maintaining reliable relationships with them.

3.3. Cooperative service satisfaction
Farmer who has relation to cooperative is not only in selling milk, but also in fulfilling the needs for livestock. Some of the services organized by cooperative are the provision of feed concentrates, livestock health services, and artificial insemination. The level satisfaction of farmers is still lacking for service concentrates, especially viewed from the price aspect. However, most farmers rely on the service of feed concentrates from cooperative.

Table 2. Farmer satisfaction with feed services

| Number of farmers | Service satisfaction |
|-------------------|----------------------|
|                   | Price | Quality |
| 0                 | expensive | good |
| 4                 | expensive | medium |
| 3                 | expensive | poor |
| 6                 | reasonable | good |
| 5                 | reasonable | medium |
| 6                 | reasonable | poor |
| 3                 | cheap | good |
| 3                 | cheap | medium |
| 0                 | cheap | Poor |

| Price satisfaction category: expensive; reasonable; cheap | Quality satisfaction category: good; medium; poor |

Farmers must work hard to provide food on time, and maintain the cleanliness of livestock and cages. As for handling the health of livestock, especially if there is a disease, farmers get health services from the cooperative. Many farmers feel unsatisfied to the health services organized by the cooperative. The lack attention of cooperative in this case is due to lack of human resources competent who deal with livestock health issues.

Table 3. Farmer Satisfaction towards livestock health services.

| Number of farmers | Service satisfaction |
|-------------------|----------------------|
|                   | Price | Quality |
| 0                 | expensive | fast |
| 0                 | expensive | medium |
| 0                 | expensive | slow |
| 2                 | reasonable | fast |
| 6                 | reasonable | medium |
| 10                | reasonable | slow |
| 0                 | cheap | fast |
| 4                 | cheap | medium |
| 8                 | cheap | slow |

| Price satisfaction category: expensive; reasonable; cheap | Quality satisfaction category: fast; medium; slow |
Cooperative provides services for artificial insemination to the farmers with relatively low costs, but some farmers use other services even at a higher cost. This is because services artificial insemination provided by cooperatives are often too late to come to the farmers, while the cow oestrus is relatively short.

Table 4. Farmer satisfaction with artificial insemination services

| Number of farmers | Price       | Quality       |
|-------------------|-------------|---------------|
| 0                 | expensive   | on time       |
| 0                 | expensive   | not on time   |
| 2                 | expensive   | late          |
| 5                 | reasonable  | on time       |
| 10                | reasonable  | not on time   |
| 0                 | reasonable  | late          |
| 6                 | cheap       | fast          |
| 5                 | cheap       | not on time   |
| 2                 | cheap       | last          |
| 30                |             |               |

Price satisfaction category: expensive; reasonable; cheap
Quality satisfaction category: on time, not on time, late

Table 4, showed the artificial insemination services are quite satisfying for farmers, especially from the price aspect. Cooperative must improve this service from the aspect of timeliness of service, because timeliness determines the success of artificial insemination. Overall, cooperative services have not satisfied members, even though there are services that are the mainstay of farmers. Member satisfaction towards cooperative services will have an effect on the increasing of their participation and sense of ownership on cooperative. Various characteristics of members of dairy farmers who influence their participation in cooperatives have been identified [8]. The characteristics of members include beliefs about the principle of cooperation, collective action, individual identity associated with cooperative membership, satisfaction with agriculture, satisfaction with cooperative efforts, representation, influence of members on decision making, and fair treatment among members. Including the characteristics of the size of agricultural business. He found that farmers from larger agricultural units were more involved in cooperatives while farmers from smaller units were less satisfied and had less time participating. The course of the growth of cooperatives, the relationship between cooperatives and their members can become less close [2]. Trust is an important factor for service companies. Factors such as transparency and quality of service have an impact on members' trust in rural cooperative.

3.4. Milk production and farmer's income

Farmers do milk twice a day, i.e. morning and evening. Handling of cow, i.e. keeping hygiene of cages and environment, and feeding cow is very influential on the amount and quality of milk produced. Data on average milking results in a day can be seen in Table 5. If we pay attention to productivity data in Table 5, it can be known that milk production in farmers both in the groups of young and older farmers is still relatively low, while some of them are less than 10 liters and has not reached 15 liters per day.
Table 5. Milk production and farmer’s income.

| Farmer Group | (1)          | (2)          | (3)          |
|--------------|--------------|--------------|--------------|
| Milk production (liters/head/Days) | 12,09        | 9,35         | 8,50         |
| Income (IDR/head/day)    | 19,650,00    | 13,790,00    | 11,030,00    |

(1): Group Existence > 15 years
(2): Group Existence 10-15 years
(3): Group Existence < 10 years

The milk production which is not still optimum has an impact on the low income earned by farmers. The income of farmers will also stay low if they still keep small quantities of cow. However, farmers who have the unsatisfactory income from selling milk does not weaken their enthusiasm for work. For farmers in rural areas in Indonesia, owning and maintaining dairy cow, although in small amounts is enough to give them peace because it means they have a source of livelihood. Nevertheless, farmer who raising dairy cows is not only have income from selling milk but also from selling calves.

4. Conclusions
According to the result, this study was concluded as follow are farmer who are members of cooperative have strong dependence on cooperative in the aspects of selling milk and buying concentrate feed. Cooperative services for member are generally not satisfactory. Services that are less satisfying for member include health care and artificial insemination. The low price of purchasing milk by cooperatives is complained by member and encourages them to sell some of their milk to other parties. The small amount of keeping cow and the low income of selling milk resulted in dairy farming business is developing slowly.

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