

## Analysis of Dairy Farmers Cooperative Partnership and Participation toward Cooperative Performance to Increase Farmer's Income

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**Abstract.** The purpose of this study was to analyze the direct and indirect effect of cooperative partnerships, farmer participation and cooperative performance on farmer's income. This research method was carried out by distributing questionnaires to 164 farmers as research respondents in Kemiri village who were active members of the Agroniaga Cooperative Jabung. The research variables were X1 (cooperative partnership), X2 (farmers participation), Y1 (cooperative performance), Y2 (farmer's income). The data obtained were analyzed by path analysis using SPSS. The results show that 1) cooperative partnerships have a significant effect directly on the cooperative performance at 0.533, 2) farmer participation has a significant effect directly on the cooperative performance at 0.362, 3) the cooperative partnership has a significant effect directly on the income of farmers at 0.341, 4) farmer participation has a significant effect directly on the income of farmers at 0.426, 5) cooperative performance has a significant effect directly on the income of farmers at 0.180, 6) cooperative partnership has no significant effect indirectly on the income of farmers through the cooperative performance at 0.096, 7) farmer participation has no significant effect indirectly on farmer income through cooperative performance at 0.18. This study concludes that 1) cooperative partnerships and farmer participation have significant effect directly on the cooperative performance, 2) cooperative partnerships, farmer participation, and cooperative performance have a significant effect directly on farmers' incomes, 3) cooperative partnerships and farmer participation have no significant effect indirectly on farmer income through cooperative performance.

**Keywords:** cooperative partnerships, farmer participation, cooperative performance

**Abstrak.** Tujuan dari penelitian ini adalah untuk menganalisis pengaruh secara langsung dan tidak langsung kemitraan koperasi, partisipasi peternak dan kinerja koperasi terhadap pendapatan peternak. Metode penelitian ini dilaksanakan dengan menyebarkan kuesioner kepada 164 peternak di Desa Kemiri yang tergabung dalam Koperasi Agroniaga Jabung sebagai responden penelitian. Variabel penelitian adalah X1 (kemitraan koperasi), X2 (partisipasi peternak), Y1 (kinerja koperasi), Y2 (pendapatan peternak). Data yang diperoleh dianalisis dengan analisis jalur menggunakan SPSS. Hasil penelitian menunjukkan bahwa 1) Kemitraan koperasi berpengaruh signifikan secara langsung terhadap kinerja koperasi sebesar 0,533; 2) Partisipasi peternak berpengaruh signifikan secara langsung terhadap kinerja koperasi sebesar 0,362; 3) Kemitraan koperasi berpengaruh signifikan secara langsung terhadap pendapatan peternak sebesar 0,341; 4) Partisipasi peternak berpengaruh signifikan secara langsung terhadap pendapatan peternak sebesar 0,426; 5) Kinerja koperasi berpengaruh signifikan secara langsung terhadap pendapatan peternak sebesar 0,180; 6) Kemitraan koperasi tidak berpengaruh signifikan secara tidak langsung terhadap pendapatan peternak melalui kinerja koperasi sebesar 0,096, 7) Partisipasi peternak berpengaruh signifikan secara tidak langsung terhadap pendapatan peternak melalui kinerja koperasi sebesar 0,18. Penelitian ini menyimpulkan bahwa 1) Kemitraan koperasi dan partisipasi peternak berpengaruh signifikan secara langsung terhadap kinerja koperasi, 2) Kemitraan koperasi, partisipasi peternak, dan kinerja koperasi berpengaruh signifikan secara langsung terhadap pendapatan peternak, 3) Kemitraan koperasi dan partisipasi peternak tidak berpengaruh signifikan secara tidak langsung terhadap pendapatan peternak melalui kinerja koperasi.

**Kata kunci:** kemitraan koperasi, partisipasi peternak, kinerja koperasi

## Introduction

The animal husbandry is a sub-sector of the agricultural sector, so the formation of the animal husbandry sub-sector can be used as a benchmark for economic development besides the industrial sector. Increasing people's incomes, increasing population, and awareness of fulfilling nutritional needs will cause the demand for products to increase. One of the fields that are often found in the community is dairy farming. The successful of its developments is reflected in the development of the livestock population, including the dairy cattle population. Dairy cattle are livestock that is mainly raised to produce milk. It is well understood that milk is a product of cattle with high nutrition value. Milk is needed by everyone, including children in their growth period. In dairy farming, livestock waste is also produced which can be used as additional income besides the sale of calves and culled dairy cows. Dairy cattle are one of the livestock commodities that are guaranteed to make a profit. Besides the meat, every farmer gets milk which can generate money. Based on the data, majority of the population of dairy cattle in East Java is located in Malang Regency and Batu City DITJEN PKH (2013). From 2016 to 2020 according to the data, it increases every year. The milk production market in Indonesia is still controlled by the milk processing industry, although there is already a Village Unit Cooperative and the Indonesian Dairy Cooperative Association, in fact the bargaining position of farmers is still very low. Dairy cooperatives are one of the institutions that play a strategic role in supporting the development of the dairy industry in Indonesia Priyono and Zulfanita (2013).

Dairy cooperatives in Indonesia have the potential role to help farmers in terms of fresh milk marketing, counseling, calves, animal health, providing feed, and saving and loan units. Dairy cooperatives can carry out business diversification in their institutions, such as having business units for animal feed processing,

supermarkets, savings and loans, and milk production processing. By diversifying their business, cooperatives can increase income for cooperative members, especially for dairy farmers. One of the business diversification activities that are often encountered is the processing of fresh milk into products such as pasteurized milk, yogurt, and cheese. They do this because the product can still be purchased by all levels of consumers. Unfortunately, not all dairy cooperatives have a complete business unit. Business units owned by cooperatives help the progress of cooperatives and their farmers. Zikri et al. (2018) stated that one of the alternative strategies that can be done to develop milk production cooperatives is to diversify dairy products, improve technology and develop healthy partnerships.

The partnership is a strategy that can provide mutual benefits with the principle of mutual need. Farmers partnership with cooperative is expected to reduce the farmers problem in terms of business capital, to gain additional knowledge related to breeding management, get credit assistance related to the purchase of quality feed. Retnaningsih and Basuki (2017) stated that the cooperative partnership strategy with farmers is considered effective to increase income and welfare. Good cooperative performance is considered to be able to increase the income of farmers. Asmara et al. (2017) stated that the performance of cooperatives which includes milk marketing, financing, consulting, and education/training has a positive relationship with the business performance of farmers.

Kemiri Village is one of the villages in Jabung District with the highest amount of milk production compared to other villages in the Jabung area. Most of the farmers in Kemiri Village join the Jabung Agroniaga Cooperative. There are many benefits that can be obtained from cooperatives, especially the benefits of assistance from cooperatives for farmers related to dairy cattle breeding. Milk production that

meets the standards is distributed to the Jabung Agroniaga Cooperative. Dairy cooperatives can assist farmers in the milk marketing process and provide capital assistance Asih et al. (2013). The formulation of the problem in this research is how the effect of cooperative partnerships, farmer participation and cooperative performance on farmers' income, either directly or indirectly. The purpose of this study is to analyze the effect of cooperative partnerships, farmer participation, and cooperative performance on farmers' income either directly or indirectly.

## Materials and Methods

This research was conducted in Kemiri Village, Jabung District, Malang Regency in May 2018. The sample used is 164 farmers as active members of the Jabung Agroniaga Cooperative. The sampling technique used in this study is purposive sampling Sugiyono (2015). This study uses a quantitative approach which is carried out by the methods of observation, interviews, questionnaires, and documentation. Questionnaires are written questions that are submitted to farmers. The variables observed were cooperative partnerships (X1) consisting of assistance in the form of credit for livestock facilities, assistance for training and ownership

development of livestock, supervision assistance, marketing assistance. Farmer participation variables (X2) consist of the active farmer, livestock care according to the instructor's direction and sales of products to cooperatives. Cooperative performance variables (Y1) consist of improving the quality of breeders, globally oriented and environmentally friendly, following the development of science and technology, implementing sustainable community empowerment. Indicators of the variables X1, X2, and Y1 are measured using Likert scale. Variable farmer's income (Y2) comes from sales of cow's milk, sales of calves, and sales of processed waste. The indicators measured can be seen in Table 1 below. The data obtained were analyzed using path analysis with SPSS application. The significance level used was 5% whenever the results of p value was less than 0.05 then the variable has a significant effect. The direct and indirect effects of each variable can be seen in the model image below.

Research hypothesis: 1) It is suspected that cooperative partnerships have a direct significant effect on cooperative performance. 2) It is suspected that the participation of farmers have a direct significant effect on the performance of the cooperative.

Table 1. Research Instrument

Variable	Indicator
Cooperative Partnerships (X1)	a. Capital Assistance b. Farmer Training and Coaching Assistance c. Supervision Assistance d. Marketing Assistance
Dairy Farmer Participation (X2)	a. Farmer Activities b. Livestock Raising c. Sales
Cooperative Performance (Y1)	a. Improving Quality of Farmer b. Globally Oriented and Environmentally Friendly c. Keeping up with the Development of Science and Technology d. Implement Sustainable Community Empowerment
Famer's Income (Y2)	a. Sale of milk b. Sale of calf c. sale of organic fertilizer

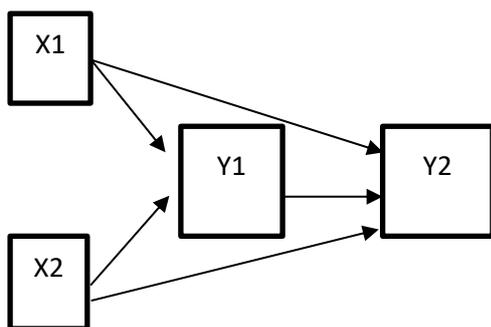


Figure 1. Path analysis model

3) It is assumed that the cooperative partnership have a direct significant effect on the income of farmers. 4) It is suspected that the participation of farmers have a direct significant effect on the income of farmers. 5) It is suspected that the performance of cooperatives have a direct significant effect on farmers' income. 6) It is suspected that cooperative partnerships have an indirect significant effect on farmers' incomes through cooperative performance. 7) It is suspected that farmer participation have an indirect significant effect on farmer income through cooperative performance.

## Results and Discussion

Based on the output of the regression analysis model I, the significance value of Cooperative Partnership (X1) = 0.000, and the significance value of Farmer Participation (X2) = 0.000. The value of R square = 0.681 indicates that the contribution of the effect of Cooperative Partnership (X1) and Farmer Participation (X2) on Cooperative Performance (Y1) is 68.1% and the remaining of 31.9% is the contribution of other variables that were not included in this study. The value of e1 is obtained by calculation using the formula  $e1 = \sqrt{1 - 0,681} = 0,564$ .

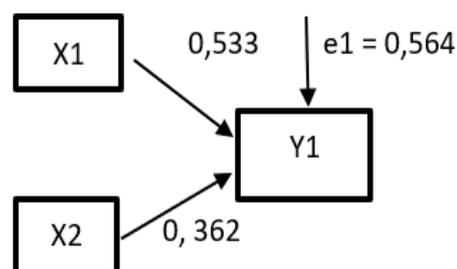


Figure 2. Regression Model I

Table 2. Results of R Square Model I

R	R square	Adjusted R square	Std. error of the estimate
0,825 <sup>a</sup>	0,681	0,677	1,397

Description:

a. Predictors: (Constant), participation, partnership

b. Dependent Variable: performance

Table 3. Results of Regression Coefficient Model I

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	2,026	1,898		1,068	0,287
	Partnership	0,318	0,037	0,533	8,657	0,000
	Participation	0,211	0,036	0,362	5,885	0,000

Source: Primary data processed (2021)

Table 4. Results of R Square Model II

R square	Adjusted R square	Std. Error of the estimate
0,738	0,733	1033945,070

Description:

a. Predictors: (Constant), performance, partnership, participation

b. Dependent Variable: income

Table 5. Results of Regression Coefficient Model II

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
(Constant)	-25280612,027	1409986,566		-17,930	0,000
1 Partnership	165568,796	32893,542	0,341	5,033	0,000
Participation	201611,406	29198,042	0,426	6,905	0,000
Performance	146273,753	58339,338	0,180	2,507	0,013

Dependent Variable: income

Based on the results of the regression analysis model II, the significance value of the Cooperative Partnership (X1) is 0.000. The significance value of Farmer Participation (X2) is 0.000. The significance value of Y is 0.000. The value of R square of 0.738 shows the contribution of the influence of Cooperative Partnership (X1), Farmer Participation (X2), and Cooperative Performance (Y1) to Farmer's Income (Y2) is 73.8%, and the remaining of 26.2% is the contribution of other variables that were not included in this study. The value of e2 is obtained by calculation using the formula  $e2 = \sqrt{1 - 0,738} = 0,512$ .

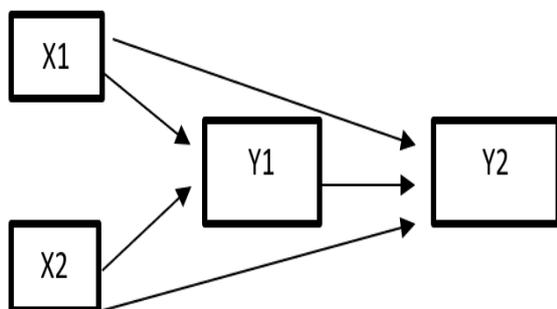


Figure 3. Regression Model II

### The Effect of Cooperative Partnership on Cooperative Performance

Based on the results of the regression analysis model I, the significance value of X1 is 0.000 (<0.05), meaning that cooperative partnerships have a direct significant effect on cooperative performance. The cooperative partnership strategy that has been carried out by KAN Jabung so far is in the form of capital assistance in the form of loans, training and coaching assistance, supervision assistance, and

marketing assistance. Capital assistance is given to farmers to purchase feed and seeds in cooperatives. Farmers as members of the cooperative are given the advantages of buying feed at the livestock production facilities unit and later paid with milk receipts which are calculated every 10 days. This is a very helpful thing for farmers because the expenditure for buying feed does not have to be paid in cash when the farmer takes the feed. Farmers can use this facility to purchase dairy cows with a payment system in installments through the sale of milk. Furthermore, on 2018 PT. Jasindo, one of state-owned Company collaborated with KAN Jabung in the Partnership Program purchased 50 dairy cows worth 1 billion (Rupiah) for 50 farmers who are active members of KAN Jabung.

Health assistance for livestock is also provided by cooperatives to improve the quality of dairy cattle breeding in the form of artificial insemination, health checks, and livestock pregnancy. The training and coaching assistance provided by KAN Jabung is very diverse. This includes training on proper breeding of dairy cattle starting from feeding and drinking water, the process of milking and handling milk after milking, as well as the sanitation process and processing of waste produced by cows into compost.

Utami et al. (2014) stated that KAN Jabung farmers, in general, had a fairly good performance (score = 2) in feeding and drinking water procedures, had a fairly good performance (score = 2) in carrying out milking and post-milking procedures, and good performance (score = 3) in sanitary procedures.

There is an increase in the quality and quantity of the partnership activities of KAN Jabung in which previously training and coaching activities for farmers were considered very minimal due to the small number of employees serving all cooperative members. Firmansyah et al. (2016) stated that the credit assistance provided by the North Bandung Cattle Breeders Cooperative to dairy farmers of small to medium scale ownership was able to help increase the income of farmers. The form of credit repayment is by cutting the milk produce deposits twice a month so that this does not burden the farmer.

### **The Effect of Farmer Participation on Cooperative Performance**

Based on the output of the regression analysis model I, the significance value of X2 is 0.000 ( $< 0.05$ ), meaning that the farmers participation has a direct significant effect on the cooperative performance. This is because the activity of the farmers as members of KAN Jabung provides positive contributions such as the soft loan and savings process carried out by the farmers. This will make the cooperative's financial cycle fluent and the activities of all divisions in the KAN Jabung become dynamic.

Farmers who are members of cooperative are required to buy concentrate feed and sell their milk to KAN Jabung. Of course, the quality of milk received comply the minimum standard that have been determined by KAN Jabung. Farmers are expected to play an active role in the process of raising cattle by the direction of the employee so that production results are in line with the expectations. The farmers activity in counseling activities held in groups can provide great benefits for them because new information related to the breeding of dairy cattle can be obtained easily through outreach activities.

Nugroho (2011) stated that in the operational of the milk district model, it is necessary to increase the active participation of farmers in the form of changing their mindset towards achieving fresh milk quality standards so that

they meet IPS (milk processing industry) standards. Moreover, farmers also utilize feces and urine waste to be processed into biogas and liquid fertilizer to minimize environmental pollution.

### **The Direct Effect of Cooperative Partnerships on Farmers' Income**

Based on the output of regression analysis model II, the significance value of X1 is 0.000 ( $< 0.05$ ), meaning that the cooperative partnership has a direct significant effect on the income of farmers. It shows that all the strategies that have been carried out by the cooperative through partnerships can increase the income of farmers as members of the cooperative. Capital assistance for the purchase of feed and cattle is very helpful for farmers because. With this assistance, farmers do not need to be confused about finding concentrated feed for their livestock with good quality feed and relatively cheaper prices compared with another feed marketer.

KAN Jabung also provides assistance to farmers related to training on processing waste to be used as compost. This can increase the income of farmers a bit, although not all farmers always carry out this processing. The cooperative partnership guarantees to receive all the dairy products of farmers as long as they meet the standards set. In certain periods sometimes there is a decrease in the quality of the milk produced, resulting in the KAN Jabung decline. This causes a decrease in farmers income. This often happens when the price of feed increases due to scarcity or an increase in one of the feed ingredients price, so farmers reducing the amount of feedings.

KAN Jabung has a Dairy Development and Procurement unit with its task of providing support for dairy farmers to develop livestock businesses. Activities from this unit include providing counseling, mentoring breeding management to distribution of business results. The assistance provided by KAN Jabung is in the

form of credit for improving infrastructure, increasing the number of livestock population, health assistance for livestock, and biogas processing. Nugroho (2010) stated that the importance of training and counseling on cattle farming for dairy farmers so that the farmer's mind set in maintaining product quality is very important. Geetha and Murthy (2021) stated that farmer's who are members of the Women's Dairy Cooperative (Women's Milk Cooperative) get an economic improvement because cooperatives have an important role in improving the socio-economic conditions of milk producers in rural areas by implementing a fair price policy.

#### **The Direct Effect of Cooperative Farmers' Participation on Farmer's Income**

Based on the output of regression analysis model II, the significance value of  $X_2$  is 0.000 ( $< 0.05$ ), meaning that the farmers participation has a direct significant effect on the farmers income. The farmers participation that are carried out properly and regularly will increase the income of the farmers themselves. Farmers' activities are in the form of raising dairy cattle with the directions given by the field employee. Breeding begins with the provision of appropriate feed and according to the needs of the livestock, the cleanliness of the housing which is always maintained to the processing of the waste produced into compost which is worth money for the breeders themselves. Field employee always monitor livestock raising periodically so that the quality and quantity of dairy cows' milk remains in the standards of KAN Jabung.

Sutawi et al. (2021) stated that the management of dairy farms for small-scale farmers in the Ngantang area, Malang Regency based on the Good Dairy Farming Service (GDFS) assessment showed the "Good" category. This is related to the process of cleaning the cages and livestock before milking and maintaining the cleanliness of the equipment in the milking

process which also determines the quality of milk and the number of bacteria in milk which affects the price of milk. In addition, farmers are also trying to get additional income from processing livestock manure into biogas and organic fertilizer. Utami and Samudra (2017) reported that statistically, monthly meetings that should serve as a means of counseling and exchanging information are ineffective because sometimes employee on duty are not present so that their routine activities are only farmer gatherings. Meena. et al (2017) said that farmers participation in cooperatives will improve the social status of farmers and bring prosperity to the farmers themselves.

#### **The Direct Effect of Cooperative Performance on Farmers' Income**

Based on regression analysis model II, a significance value of  $Y$  is 0.013 ( $< 0.05$ ), meaning that the cooperative performance has a direct significant effect on the farmers income. It shows that the performance of KAN Jabung that has been carried out so far has had a positive impact on farmers income. KAN Jabung as a downstream business institution provides services in the form of procurement of livestock production facilities, capital assistance, and health supervision. KAN Jabung assists farmers in providing production facilities, especially concentrate feed, production equipment, livestock health services, business capital, artificial insemination, and collecting and selling milk to Dairy Processing Industry Amam and Soetriono (2019).

KAN Jabung carries out a diversification strategy concentrically, horizontally and conglomerately. The concentric diversification strategy carried out by KAN Jabung by processing fresh milk into pasteurized milk and yogurt with the JabMilk trademark. In addition, KAN Jabung have an animal feed factory that produces concentrate feed for dairy cattle. This makes it easier for farmers to buy concentrate feed with good quality and cheaper prices than

others. Malau et al (2021) state that the existence of a dairy cooperative for dairy farmers makes a positive contribution to the performance of its members by looking at the R/C ratio of farmers that exceeds 1, which means that the farmer's business is feasible to develop because it is profitable.

#### **Indirect Effect of Cooperative Partnerships on Farmer's Income through Cooperative Performance**

Based on regression analysis output, the coefficient of cooperative partnership directly on the income of farmers is 0.341. The coefficient of cooperative partnership on farmers' income indirectly through cooperative performance is 0.096 ( $0.533 \times 0.180$ ). The value of 0.096 ( $< 0.341$ ) means that there is no significant indirect effect of cooperative partnerships on farmers' income through cooperative performance. It shows that the cooperative partnership activities that have been carried out for farmers have not been optimal to increase farmer income through cooperative performance. This is possible due to the benefits of counseling that have not been felt optimally by dairy farmers because at the time of activities, the farmers did not pay attention and even fell asleep during the presentation.

The development of new information related to the dairy cattle breeding and other information related to the Cooperative is always informed by KAN Jabung. The employee of the cooperative provides the latest information for farmers. The cooperative performance refers to the mission of the KAN Jabung, including improving the quality of life of members, being globally oriented and environmentally friendly, following developments in science and technology, and implementing sustainable community empowerment. KAN Jabung also always tries to improve the quality of its human resources by holding regular training and refreshments for all the employees.

Retnaningsih and Basuki (2017) stated that the effectiveness of the Musuk cooperative partnership strategy with cattle farmers was said to be effective because it obtained a score of 71%. This is indicated by the level of satisfaction of farmers with the sales of milk, the price of milk paid by the cooperative, the provision of agro-inputs and credit, coaching activities by cooperative officers, and the distribution of cooperative surplus. Maulida et al (2021) said that the cooperatives performance is assessed based on the providing guidance to improve the quality of human resources, guaranteeing the purchase of milk products according to the agreement, ensuring marketing of farmers' products, paying for production on time, developing business plans with partners, providing guidance technology to partners, providing services and production facilities based on agreements, developing technology to support business continuity, responding to partner complaints, providing incentives or rewards to partners.

#### **Indirect Influence of Farmer Participation on Farmer's Income through Cooperative Performance**

Based on regression analysis output, the coefficient of farmer participation directly on the income of farmers is 0.426. The coefficient of farmer participation on farmer's income indirectly through cooperative performance is 0.065 ( $0.362 \times 0.18$ ). The value of 0.065 ( $< 0.426$ ) means that there is no significant effect of farmer participation indirectly on farmer income through cooperative performance. This shows that farmers participation in the performance of cooperatives is still low to increase the income of farmers. KAN Jabung seeks to improve the quality of farmers with various activities such as training on waste management, processing milk into other processed foods. This activity is very beneficial for farmers but sometimes farmers are reluctant to attend for various reasons. This mindset must be motivated to change because

such a mindset will hinder the progress of farmers.

Some farmers' mindsets that can hinder the progress of their farm include selling their livestock to meet household consumptive needs, applying for credit capital with the aim of business development but not being realized properly. KAN Jabung conducts community empowerment in a sustainable manner through diversification. The business diversification that has been carried out by the cooperative has not been able to increase the income of farmers. For example, pasteurized milk products and yogurt for the people of Kemiri Village are not basic needs that must be consumed. Most people still feel strange with yogurt drinks. This is also the cause of the low purchasing needs of the processed products by the surrounding community.

Consumers of pasteurized milk and yogurt products are dominated by people outside Kemiri Village. The level of knowledge about the nutrients contained in pasteurized milk and yogurt which is good for health is still low. So that the movement to drink milk launched by the government must be encouraged so that the younger generation, especially in rural areas, increasingly understand the importance of drinking milk. The government's efforts to promote the movement of drinking milk for elementary school children need support from all. Because the government's good intentions to prevent malnutrition that can reduce the level of intelligence and growth of children. Kumar et al. (2018) stated that there is a positive and significant relationship between farmers who are members of cooperatives on the income of farmers besides that cooperatives can also increase farmer compliance with the stages of food safety processing.

Asmara et al. (2017) stated that there is a positive relationship between the performance of dairy producer cooperatives through marketing, financing, consulting, and education/training activities with the

performance of livestock business by looking at the profitability of livestock with a medium ownership scale which is higher than the profitability of livestock with small ownership scale. Thus, it needs more intensive guidance and services to farmers with a small scale of ownership. Dairy farmers are very dependent on cooperatives, but not all dairy cooperatives performance is considered good by farmers. This was conveyed by Muatip et al (2018) which stated that the level of satisfaction of dairy farmers in Boyolali Regency with dairy cooperative services which include savings and loans, concentrate loans, Artificial Insemination and animal health is in the medium category.

## Conclusions

Based on the results of the study, it was concluded that 1) cooperative partnerships and farmer participation have a significant effect directly on the cooperative performance, 2) cooperative partnerships, farmer participation, and cooperative performance have a significant effect directly on farmers' incomes, 3) cooperative partnerships and farmer participation have no significant effect indirectly on farmer income through cooperative performance.

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