



Farmers' Ability to Supply Corn to Village Collectors in Takalar Regency, South Sulawesi Province, Indonesia

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Abstract

This study aimed to determine the ability of farmers to supply corn to village collectors in Takalar Regency, South Sulawesi province. This study was conducted from August to November 2018. This study used descriptive qualitative and quantitative approaches. The data analysis used was descriptive statistics. The results showed that the activities of farmers in supply chain activities on the exchange function, namely selling corn to village collectors, and doing planting, maintenance and harvesting, in the physical function of farmers doing shelling corn and carrying shelled corn in sacks that can hold 70 kg 80 kg. In the facility function, farmers receive financing from village collectors, and seek information on corn prices in order to compare market prices with the established price transaction or payment system for corn and farmers are ready to bear the risk in case of corn harvest failure.

Keywords: Supply Corn, Takalar Regency, Indonesia

INTRODUCTION

One of the most critical national raw materials in the agricultural sector was hulled maize for household needs and the needs of the animal feed industry, including broilers and laying hens. Increasing corn production is quite promising, but in reality, it often experiences problems with selectivity in the quality of water content, mold, and wrinkles in marketing. As a result of this low quality dramatically affects the level of prices received by wholesalers from the feed industry or manufacturers, which also impacts the prices received by collectors and corn farmers as the initial or upstream supply chain. This is in line with [1] that the condition of feed raw materials derived from corn produced by farmers is of low quality, it dramatically affects the price received because between up strain (upstream) and down strain (downstream) is very attractive in terms of aspects Supply chain. Therefore, to improve such conditions, supply chain management is urgently needed and the involvement of the main actors and supporting actors and business actors in handling it, because if this continues not getting the attention, it will affect the enthusiasm of farmers in managing corn crops. For example, farmers as the main actors need to get coaching, training and provision of technology transfer, markets and assistance with corn dryers complete with corn storage warehouse ownership provided by supporting actors (government) or business actors (private parties).

[3] stated that the role of corn in the broiler and layer sector is increasing and has shifted its role as food for human consumption. [4] stated that with the development of the poultry industry and the increase in rice production, the use of maize shifted from food to feed. [2], reports that this shift in the role of corn has contributed a lot to the broiler and layer feed industry.



In a period of 5 years, namely for the years 2014-2018, the growth of corn production seemed to increase. The increasing trend is due to the need for corn commodities, apart from food and feed and bio-energy, which tend to grow rapidly. The Ministry of Agriculture of the Republic of Indonesia (2018) reports that in the last 5 years, maize production has increased by an average of 12.49% per year, and maize production in 2018 reached 30 million tonnes of dry shells, while consumption for 2018 was 15.50 million tonnes. Dry shelled corn is used for animal feed of 7.76 million tons, independent breeders 2.52 million tons, seeds 120,000 tons, and the food industry 4.76 million tons of dry shelled corn. In addition to production data, domestic corn sales channels, especially in South-Sulawesi, indicate dominance in specific nodes that need to be proven. For example, the Indonesian Poultry Entrepreneurs Association (GAPPI, 2014) said that 83.3% of farmers' corn was absorbed and purchased by traders and 25.37% went to the feed industry. This condition indicates that the role of traders is huge in distributing local corn to the corn processing industry into feed.

Salch et al. [6] stated that traders dominate corn marketing. However, this research has not comprehensively explained how the structure of each level of traders is different (collectors, wholesalers, and the animal feed industry, etc.), marketing management, and resources, wholly human and business processes. The Center for Domestic Trade Research and Development (2006) has also researched maize, concluding that the Indonesian maize distribution system was efficient, only seen from market integration based on price variables. Therefore, it is necessary to determine the ability of farmers to supply corn continuously to village collectors in Takalar Regency, South Sulawesi Province.

RESEARCH METHODS

This research was conducted in Takalar Regency because corn production is quite large and close to Makassar's broiler and layer feed industry. The research implementation time starts in August 2018 - November 2018. This research uses descriptive qualitative and quantitative approaches. The formulation of the first problem, namely the structure of the corn supply chain in terms of market targets, development targets and corn supply, was carried out by quantifying qualitative data by using a measurement scale, where the measurement scale used was a score scale by making several categories and then giving weights/scoring. Types of descriptive quantitative research, the statistical tool used is descriptive statistics

RESULTS AND DISCUSSION

Farmers' Capability in terms of corn continuity to be supplied to village collectors (PD) in Takalar Regency, South Sulawesi Province

The results are shown in Table 1, the strength of farmers in providing continuity to village collectors, which then end up in the supply chain for broiler and layer animal feed.

Table 1. Farmers' Ability to Maintain Corn Continuity to be Supply to Village Collectors (PD)

No	Variable and indicator	criteria	Value score	number of respondents	Number of score	Average score
1	continuity and readiness of raw materials	Always available	3	10	30	2.04
		Quite available	2	55	110	
		Less available	1	7	7	
2	Market continuity and availability	Always available	3	65	195	2.88
		Quite available	2	5	10	
		Less available	1	2	2	
3	Continuity and contractual	Written	3	0	0	1.94
		Verbal	2	68	136	
		Nothing	1	4	4	
4	Continuity and payment transaction system	Cash	3	7	21	1.96
		Down payment 25% and 75% for 2 weeks ago	2	55	110	
		100% within 3 weeks	1	10	10	
5	Continuity and role of village collector traders (PPD)	100% capital assistance	3	10	30	1.76
		50% capital assistance	1	35	70	
		No help	2	27	27	
	Value			360	762	10,58
	Average				2,12	2,12

Source: Primary data, 2018

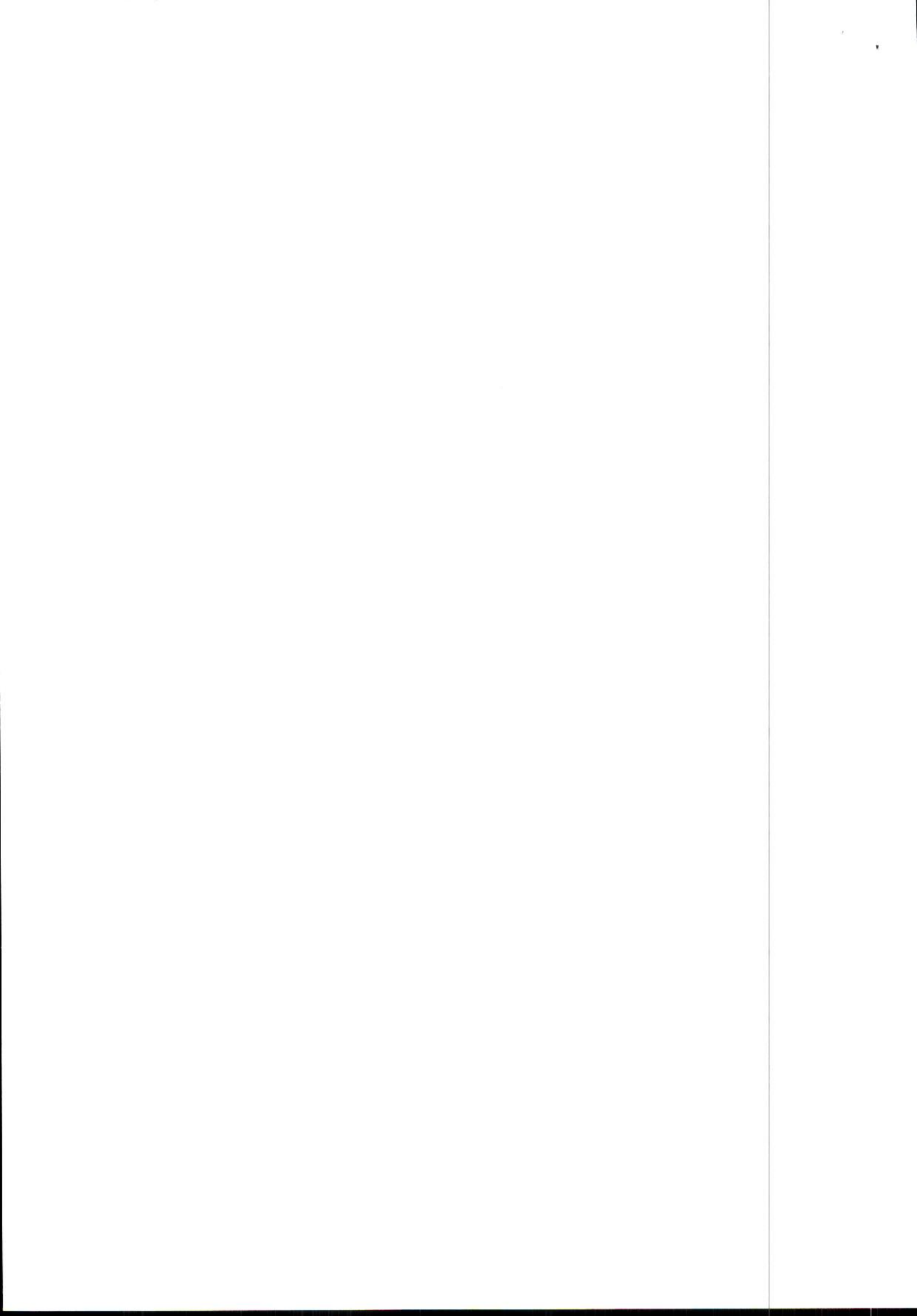


Table 1 shows that the corn that farmers have delivered to village collectors (PPD) falls into the category of medium continuity, i.e. the average value achieved by the farmers is 2.12 or is in the value range of the medium category, namely 1.34 - 2.67. However, this is still far from the expected continuity, a value > 2.67.

The results of the investigation of the continuity variable with the indicator of the readiness to deliver maize raw materials to collectors managed by agriculture showed that 72 respondents out of 60 maize farmers and 12 village collectors stated that 10 respondents (13.89%) stated that maize is available at any time to be delivered to village collectors to become. However, the supply of corn to farmers depends heavily on the results of their payments. That is, after completing the payment process for corn bought by village collectors, it takes 3 weeks for the payment to be received, then after completing the payment process, the collector dealers can take back the corn that is in the farmer's corn bunker those in the camp and on stilt houses.

The ten respondent corn farmers are considered farmers who focus on corn plants and are categorized as fairly well-established farmers. While the other respondents, amounting to 55 people (76.39%), stated that the corn they supplied to village collectors was supplied sufficiently from the corn they had harvested up to 75%, this is due to the factor of limited land area as well as the factor of capital in procuring seeds, fertilizers and relatively little labor wages. Similarly, according to 7 respondents (9.72%), the harvested corn they have to supply to collectors is very low, namely <50% due to very limited land area, capital factors in buying seeds, fertilizers, and limited labor wages. Because they use their own capital, the solution, according to the farmer, is that most of them still use relatively limited family labor and this has an impact on the productivity they achieve is very low and correlated with the supply of corn to village collectors also never enough. However, on a continuum, from the 3 categories of assessment readiness of corn raw materials to be supplied by farmers to village collectors, it is included in the medium category with the achieved value of 2.04, which is within the range of 0.34 - 2.67. This means that it can be interpreted that the value of the medium category is because most corn farmers are powerless in supplying corn to village collectors due to the limited land for corn cultivation and limited capital to buy seeds, fertilizers, and labor wages. Hence, many farmers are still using limited family labor in corn farming activities.

The value of the continuous variable with the indicator of the availability of corn raw materials by farmers to be supplied to village collectors moves from the less available category to the value range of < 1.34 or is included in the low category. For the moderately available category or the moderate category, the score ranges from 1.34 - 2.67, and the score value is greater than 2.67, including the always available category or good category. For respondent class categorization and interpretation in terms of availability of corn raw materials by farmers to be supplied to village collectors as shown in Table 2

Table 2. Categorization of Respondent Farmers' Class and Interpretation of Availability of Corn Raw Materials for Supply to Village Collecting Traders (PPD)

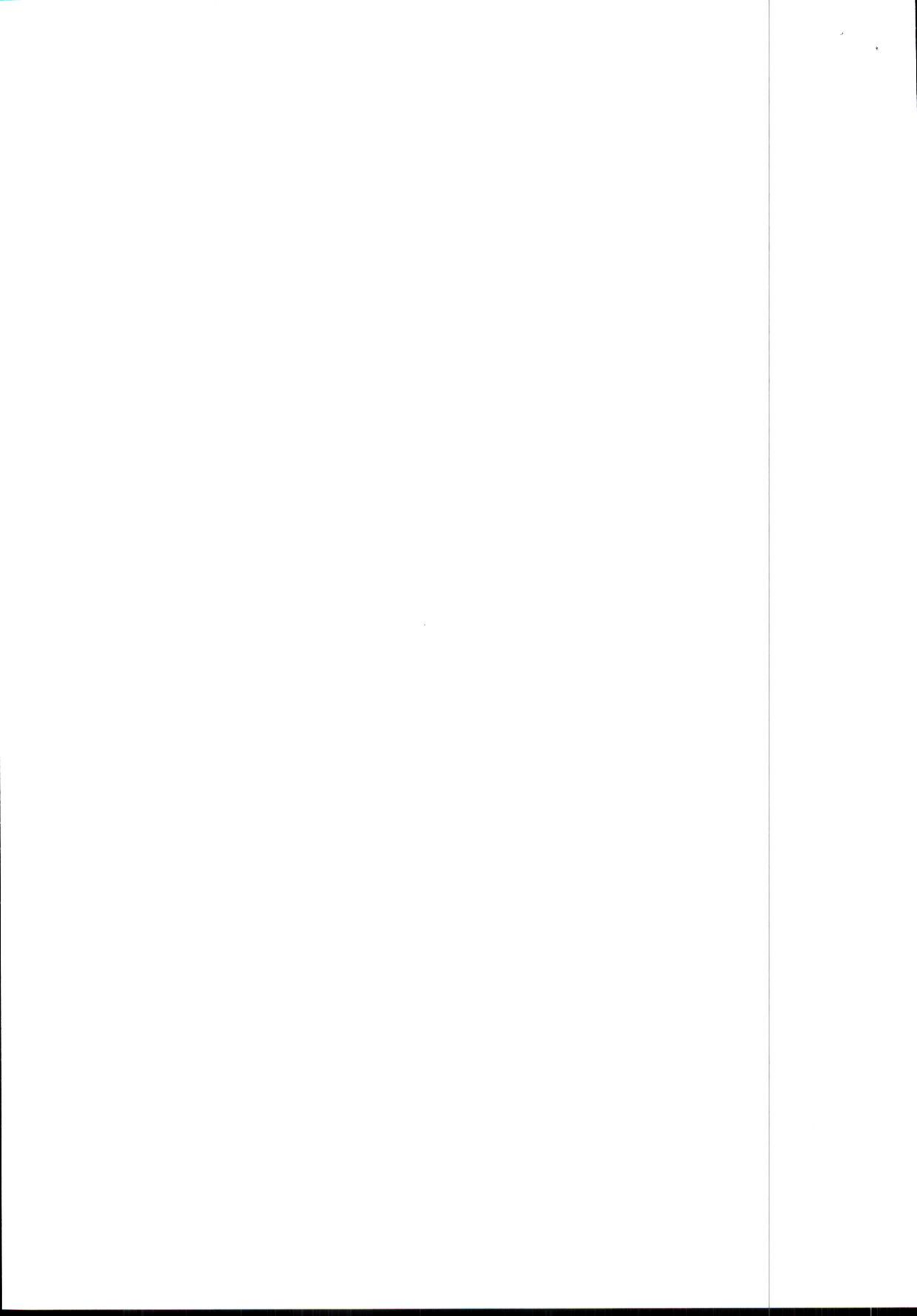
Range variable	Class category	Interpretation
< 1,34	Corn raw materials are not available for supply to PPD	Corn raw materials owned by farmers to be supplied to village collectors are included in the medium category with a value of 2.04. This means that farmers have not been able to fully meet supply demand due to limited land, limited capital in buying fertilizers, seeds and labor, so that they are highly dependent on village collector
1,34 - 2,67	Enough corn raw materials are available to be supplied to PPD	
2,67	Corn raw materials are always available to supply to PPD	

Source: Primary data, 2018

Table 2 shows the value of the continuous variable with indicators of farmers' availability of corn raw materials to be supplied to village collectors; it moves from the less available category to the value range of < 1.34 or is included in the low category. For the moderately available category or the moderate category, the score ranges from 1.34 - 2.67, and the score value is greater than 2.67, including the always available category or good category.

The continuity variable using the indicator of the availability of the corn market for farmers who have harvested their corn, showing that 72 respondents from 60 corn farmers and 12 village collectors (PPD) indicated that 65 respondents (90.28%) stated that the market for corn harvested by farmers is always available, namely village collectors (PPD). Meanwhile, 5 respondents (6.94%) indicated that they were quite available, and 2 respondents (2.78%) stated that the market for harvested corn was not available.

This means that on average, farmers are dominated by saying that the market is always available because the grade of corn they produce includes grade I (water content <20%), and II (20%-30% moisture content), and respondents who stated that it was sufficient and not available were due to the grade of corn they have is grade III (moisture content > 30%). Village collector traders sometimes state delaying the purchase of grade III corn to farmers if sub-district collector traders (PPK) as representatives of wholesalers (PB) refuse. In contrast, corn has a moisture content of > 30%, so that if village collector traders buy grade III corn to farmers, of course at a price lower than the standard price of grades I and II so that farmers sometimes hold it down until the water



content of their corn decreases, which is <30%, so that when detailed there are farmers who have corn with a water content of grade I (<20%) there are 14 people (19.44%), there are also 19 respondent farmers (26.39%) who have 20% -30% moisture content and there are also farmers who do not mind the price with the grade of corn they have grade III (moisture content > 30%) there are 32 Orang farmer respondents (44.44%). And for farmers who survive and do not match the prices offered by village collectors, there are 7 respondent farmers (9.72%). The reason the 7 respondent farmers persisted was to reduce the water content of their corn to < 30% water content. because there is a price difference of Rp. 1,000 per kilogram.

As an illustration, the price of corn purchased by collectors from farmers is if the water content is < 20% or grade I the price is IDR 3,500 per kilogram, and if the moisture content is 20% to 30%, including grade II the price is IDR 3,000 per kilogram. Meanwhile, if the moisture content of corn is > 30%, the price per kilogram purchased by village collectors is IDR 2,000.

Hidayat (2017) states from his research that farmers are always in a weak position when marketing their corn because farmers are not supported by knowledge of good corn quality nor are they supported by sufficient equipment and capital. It was also reported that the farmers' corn market is dependent on village collector traders because farmers are already bound by debts given by village collector traders (PPD).

However, on a continuum, from the 3 categories of assessment of farmers in terms of the availability of the corn market to meet continuity, it is included in the high category with the achieved value of 2.88, which is the value > 2.67. This means that it can be interpreted that the corn market is not a problem with a high category value. The obstacle for farmers is the variation in the price they receive depending on the grade of corn they have, therefore to achieve market perfection in terms of price, quality and continuity, it is necessary for farmers who know the quality of corn that is ready to be supplied, sufficient capital to buy seeds, fertilizers and labor wages as well as drying equipment and hand tractors for land processing.

The value of the continuity variable with the indicator of market availability of harvested corn moves from the range of categories, namely the less available category with a value of < 1.34. The score is quite general for the market category, and the score is 1.34 – 2.67. And the market category of harvested corn is always available, and the score is more than 2.67. For respondent class categorization and interpretation in terms of market availability of harvested corn as shown in Table 3.

Table 3. Categorization of Respondent Farmers' Class and Interpretation of Market Availability of Harvested Corn

Range score	Category class	Interpretation
< 1,34	Lack of market availability	The market availability value of harvested corn is in the high category, namely 2.88. This means that the market is always available, and the price received by farmers depends on the grade of corn owned by the farmer. Therefore, to get a reasonable price of corn for farmers, farmers need to know corn quality, capital, and farming equipment and post-harvest corn
1,34 - 2,67	Sufficient market availability	
2,67	Market availability is always available	

Source: Primary data, 2018

Table 3 shows the continuity variable using contractual indicators between farmers as corn supply providers and village collector traders (PPD) as buyers of harvested corn, showing that from 72 respondents from 60 corn farmers and 12 village collector traders (PPD), there are 0 respondents (0.00%) stated that there was no written contractual agreement between farmers and village collectors. While there are 68 respondents (94.44%) stated that there was a contractual orally. And there are 4 respondents (5.56%) stating that there is no contractual agreement between farmers and village collectors. This means that, on average, farmers carry out contractual agreements between farmers and village collector traders (PPD) orally, with the principle of mutual trust. However, 4 respondents did not do the contractual orally or in writing because the farmers included farmers whose corn yields were limited in several yields or farmers whose harvests only followed other farmers. Therefore, when analyzed on a continuum from 3 categories of contractual assessment between corn farmers and village collectors to fulfill continuity, it is included in the medium category with the achieved value of 1.94, which is in the range of 1.34 – 2.67. This means that it can be interpreted that the value of the medium category is included in the category of mutual trust between farmers and village collectors so that the contractual implementation is mostly verbal.

The value of the continuous variable with contractual indicators between corn farmers and village collector traders moves from the category range, namely the no contractual category with a value < 1.34. For the verbal contractual category between farmers and village collector traders, the score value is 1.34 - 2.67. The contractual category is written between farmers and village collectors, and the score is more than 2.67. For respondent class categorization and interpretation in terms of the contract between farmers and village collectors, it is shown in Table 4.

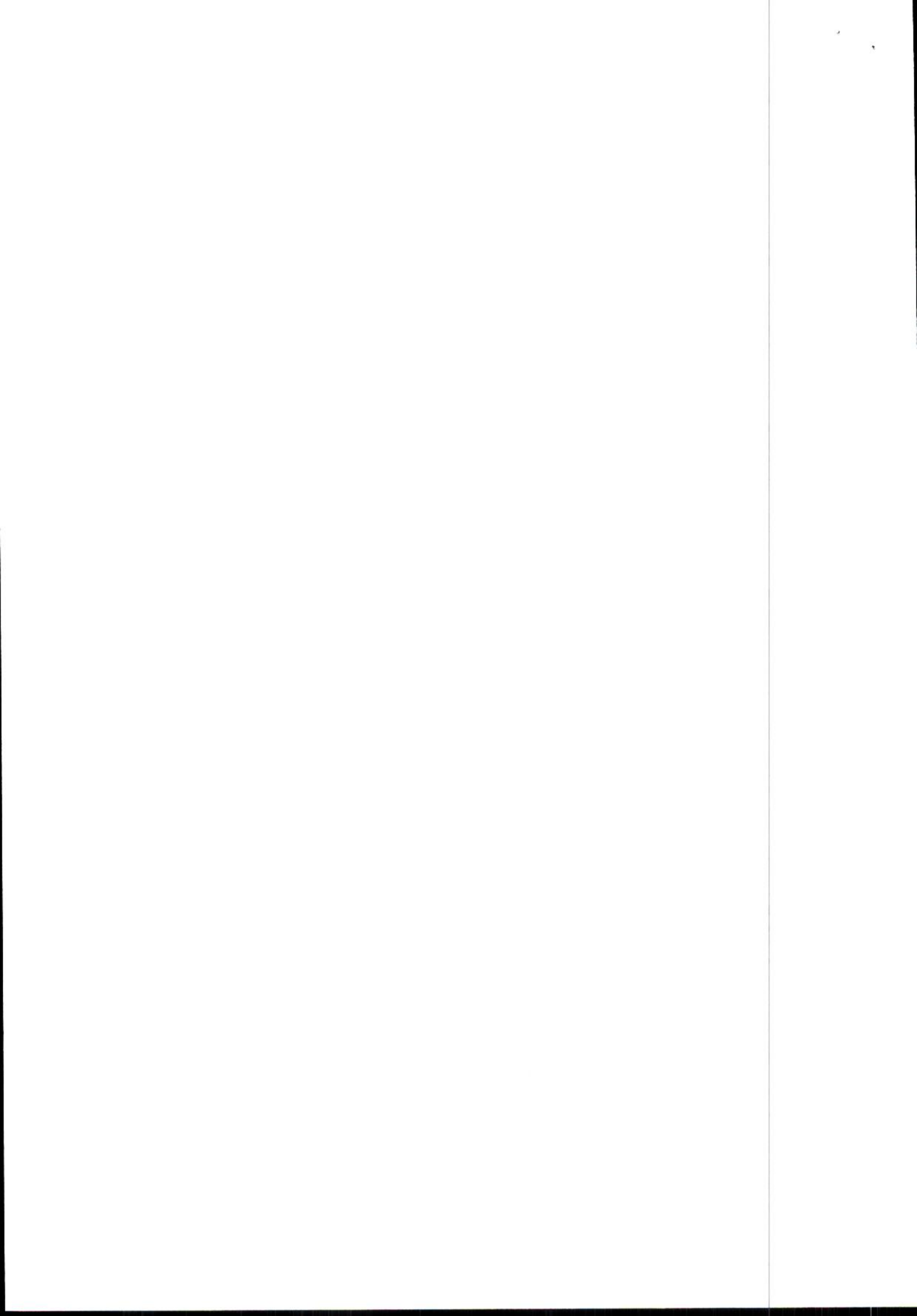


Table 4. Categorization of Respondent Farmers' Class and Contractual Interpretation Between Corn Farmers and Village Collector Traders (PPD).

Range score	category class	Interpretation
< 1,34	There is no contractual between farmers and village collectors	The contractual value between corn farmers and village collecting traders (PPD) is 1.94, including the medium category, which means that the contractual status still needs to be improved in writing to maintain long-term mutual trust and legally bind each other. However, it is considered good because farmers and collecting traders have mutual trust, marked by verbal contractual.
1,34 - 2,67	There was a verbal contractual between farmers and village collectors.	
2,67	There was a written contract between farmers and village collectors.	

Source: Primary data,2018

The results of the study on the continuity variable using the payment transaction system indicator between farmers as corn supply providers and village collector traders (PPD) as buyers of harvested corn showed that 72 respondents from 60 corn farmers and 12 village collector traders (PPD) showed that there were 7 respondents (9.72%) stated that village collectors bought corn to farmers in cash. Meanwhile, 55 respondents (76.39%) stated a 25% down payment transaction system (DP), and 75% were given 2 next week. And there are 10 respondents (13.89%) stating that the payment transaction system is done 100% with the required grace period of 3 weeks ahead. This means that, on average, village collectors carry out a non-cash payment transaction system, and the essence of this payment system is mutual trust between farmers and village collectors and is carried out by verbal agreement on both sides. Village collectors do this. This is because the capital owned by village collectors also depends on wholesalers (PB). And the time for giving funds to wholesalers to village collectors is 21 days. However, 7 respondents accept that the payment transaction system is made in cash by village collectors because the quantity of corn owned by the farmers is still affordable for purchase by village collectors following the cash they have.

When analyzed on a continuum, from 3 categories of assessment of the payment transaction system between corn farmers and village collectors to fulfill continuity, it is in the medium category with the achieved value of 1.96, which is in the range of values 1.34 – 2.67. This means that it can be interpreted that the value of the medium category is included in the category of mutual trust between farmers and village collectors so that in the implementation of the payment transaction system, it can still be done with the principle of a mutually agreed payment period orally. This also shows that the buying capital of corn owned by the collecting traders is weak and the nature of the dependence on funds is determined mainly by the wholesalers (PB).

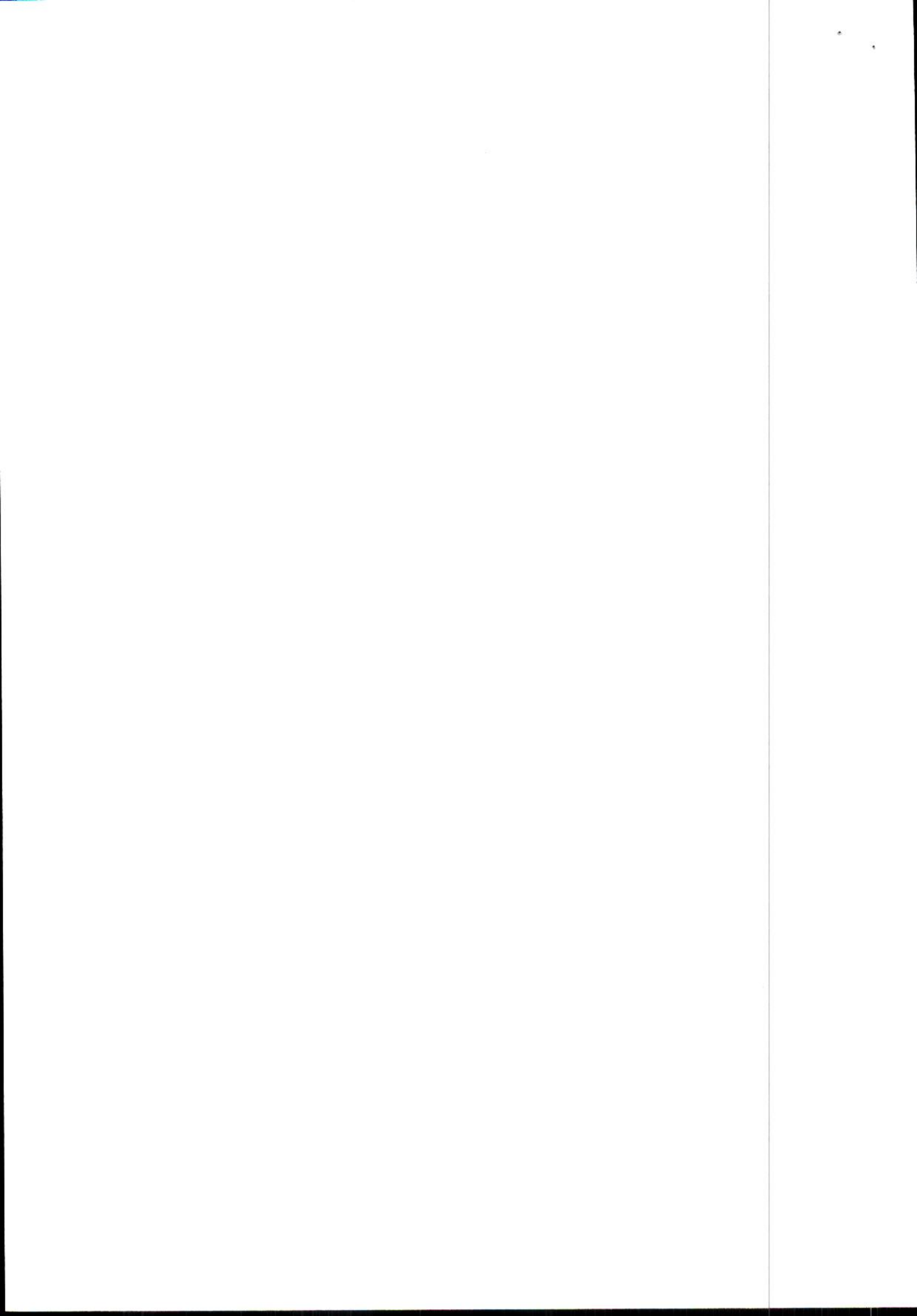
For the value of the continuous variable with the indicator of the payment transaction system between corn farmers and village collectors, moving from the range of categories, namely the 100% payment category in the next 3 weeks, the value is < 1.34, including the low category. Meanwhile, 25% DP and 75% payment will be made in the next 2 weeks with a value of 1.34 – 2.67, including the medium category. For the cash payment transaction systems category between farmers and village collectors, the score > 2.67 is high.

Table 5. Categorization of Respondent Farmer Class and Interpretation of Payment Transaction System Between Corn Farmers and Village Collector Traders (PPD)

Score Range	category class	Interpretation
< 1,34	The payment transaction system is 100% paid in the next 3 weeks.	The value of the payment transaction system between corn farmers and village collecting traders (PPD) is 1.96, including the medium category, which means that the payment transaction system by village collecting traders is still weak because the dependence of funds is very dependent on big traders. Therefore, it is necessary for village collectors and farmers to maintain a network with banks as working capital providers.
1,34 - 2,67	Payment transaction system DP 25% and paid 75% in the next 2 weeks.	
2,67	Cash payment transaction system	

Source: Primary data,2018

The results of the study on the continuity variable using the indicator of the role of village collectors in terms of capital assistance to buy seeds, fertilizers, and worker wages, showed that from 72 respondents from 60 corn farmers and 12 village collector traders (PPD), there were 10 respondents (13.89%) stated that in running a corn farming business there was 100% capital assistance from village collectors. Meanwhile, 35 respondents (48.61%) stated that farmers received 75% funding or capital assistance in running their farms. And there are 27 respondents (37.50%) stating that there is no capital assistance for corn farmers who are sourced from village collectors. This means that on average, the role of village collectors is to provide capital assistance of 50% to 100% to corn farmers, with a verbal agreement system that if there is a corn harvest, the farmer's corn is not marketed to other places, and must be sold to village collectors. Who provide capital loans. The essence of providing working capital by collecting traders to farmers is the principle of mutual trust. However, 27 respondents did not receive any loan capital aid from village collectors, since in addition to their capital, 10 respondents (13.89%) and 17 people (23.61%) had doubts about the capital aid from collectors' dealers. Because these farmers do not want to be bound by verbal agreements with collectors and farmers, also



farmers who do not want to take any risks if the harvest fails one day. When analyzed on a continuum, from 3 categories of assessment of the role of collectors in terms of working capital loans to corn farmers to fulfill continuity, it is included in the medium category with the value achieved is 1.76. It is in the range of values from 1.34 to 2.67, which means the category value Medium is the category of mutual trust between farmers and village collectors so that in the implementation of payments made in kind by farmers to collectors, and the main principle that both parties still maintain is mutual trust and mutual benefit. This is shown in Table 5 for the categorization of the respondent class and the interpretation with regard to the role of the collectors with regard to the subsidies for farm inputs.

Table 6. Categorization of Respondent Farmers' Class and Interpretation of the Role of Village Collector Traders (PPD) in terms of Working Capital Assistance to Corn Farmers.

Score Range	Category class	Interpretation
< 1,34	No working capital assistance for farmers from PPD	The value of working capital assistance for farmers from PPD is in the medium category, namely 1.76, meaning that working capital assistance for farmers from PPD is dominated by 50% capital assistance, indicating that farmers are still classified as wanting to advance because the personal funds they use are 50%. So there is still a fairly large marketing margin to enjoy.
1,34 - 2,67	Working capital assistance for farmers 50% of PPD	
2,67	100% working capital assistance for farmers from PPD	

Source: Primary data, 2018

Table 6 shows the value of the continuous variable with the indicator for the role of bulk traders concerning working capital support for corn farmers, which is moved out of the category area, namely the category of no working capital support for farmers by village bulk traders is given a value of <1.34 including lower categories. At the same time, working capital support for farmers is 50% from village collectors, worth 1.34-2.67, including the middle category. For farm inputs to farmers, 100% of village collectors with a value > 2.67 are in the high category.

CONCLUSIONS

The activities of farmers in supply chain activities in the exchange function are selling corn to village collectors and planting, maintaining and harvesting, while in the physical function, farmers are shelling corn and carrying shelled corn. Looking for information on corn prices to compare market prices with the price transaction system or corn payments set by the PPD, farmers are also ready to bear the risk in the event of a corn harvest failure. one adheres to 3 functions: (1). exchange function; (2). physical function; and (3). Facility function

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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