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Analysis Of The Corn Supply Chain In Pallantikang Village, Bangkala Subdistrict, Jeneponto

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Abstract

This study aims to analyze the supply chain flow, distribution mechanisms, and marketing *margins* and *farmers' share* for corn in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency. The research approach is both qualitative and quantitative. The types of data used include primary and secondary data. The sample consisted of 30 farmers, 1 wholesaler, and 2 collectors; the sampling technique for farmers used *random sampling*, while *snowball sampling* was used for traders. Data collection was conducted through questionnaires, interviews, observations, and documentation. Data analysis was performed descriptively to describe the supply chain system, product flow distribution, financial flows, information flows, as well as marketing *margins* and *the farmers' share.* The results of the study indicate that the corn supply chain system consists of three supply chain channels, namely: (1) farmers–factory, (2) farmers–collector–factory, and (3) farmers–wholesaler–factory. The distribution process occurs systematically through the involvement of farmers, collector traders, wholesalers, and mills as the main actors; the product flow moves from producers to end consumers; the information flow includes the communication of prices, market demand, and transaction processes among the actors; while the financial flow follows the payment mechanisms in each channel. The marketing *margin* for Channel I is Rp0/kg, for Channel II is Rp1,500/kg, and for Channel III is Rp1,400/kg. Meanwhile, the farmer's share is 100%, 74.54%, and 72.72%, respectively. If the farmer*'s share* is < 50%, marketing is considered inefficient; if it is > 50%, marketing is considered efficient. The research analysis shows that Marketing Channel I is the most efficient channel because it has the highest *farmer's share* at 100%. This high value indicates that farmers receive the full sales price without any *margin* deductions by intermediary institutions.

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INTRODUCTION

Indonesia possesses abundant natural resources, making it a country with significant potential in the agricultural sector. The role of the agricultural sector in Indonesia's development can be seen from its contribution to the national economy (Rahim *et al.*, 2023).

Corn is one of the world's strategic food commodities with significant future potential. With a global trade value of 64.7 trillion USD—more than twice the trade value of rice—corn offers numerous benefits beyond its use as a food source for humans. Downstream processing of corn can also utilize it as an industrial raw material, animal feed, and even as a raw material for environmentally friendly bioenergy. With more flexible utilization options and a demand level projected to continue rising in tandem with global population growth (Abriana & Fitriyah, 2025).

Jeneponto Regency is one of the regencies in South Sulawesi, with a total area of 749.79 km². It has 25,995 ha of rice paddies and 42,598 ha of non-rice agricultural land (Jeneponto BPS, 2025). Corn productivity in Jeneponto Regency has fluctuated over the past five years, as has the harvested area. In 2020, corn productivity reached 7.45 metric tons per hectare. It then rose to 7.45 metric tons per hectare in 2021, before declining to 7.31 metric tons per hectare in 2022 and recovering to 7.43 metric tons per hectare in both 2023 and 2024. The harvested area in 2020 was 61,866 ha; it then increased to 65,120.50 ha in 2021, decreased to 56,355 ha in 2022, then fell to 42,540 ha in 2023, and in 2024, the harvested area increased to 52,618 ha. Nevertheless, Jeneponto Regency remains well-known and recognized as a center for corn production in South Sulawesi, with a sufficiently large agricultural land area for the development of hybrid corn.

Corn cultivation in Jeneponto Regency is one of the staple crops in Bangkala District; corn is a major source of income for farmers in Jeneponto Regency. The potential of corn cultivation must be harnessed so that farmers' income can be increased through strategies aimed at greater progress, self-reliance, and prosperity. It is hoped that enhancing the potential of corn cultivation in the future will make a greater contribution, expand employment opportunities, and enable farmers to take advantage of existing economic opportunities (Ardiansyah, 2024).

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Marketing is of critical importance following the completion of agricultural production. Marketing conditions create a cycle or market environment for a commodity. If marketing is not smooth and does not provide farmers with fair prices, this situation will affect farmers' motivation; consequently, supply will decrease, and the shortage of supply will drive prices up. Once prices rise, farmers' motivation will increase, causing prices to fall again. (Kusbiantoro & Nasution, 2022). The flow of goods from upstream to downstream requires the vital role of supply chain management. This is evident in activities within the corn agribusiness sector, particularly in Jeneponto Regency, South Sulawesi. Supply chain management ensures the smooth flow of goods all the way to the end consumer (Utami, et al., 2019).

In general, the corn supply chain in Pallantikang Village, Bangkala Subdistrict, involves several key actors: farmers, collector-dealers, wholesalers, and mills as end consumers. The marketing flow begins with farmers—as producers—selling their harvest to collector-dealers ( ), who then pass it on to wholesalers, until it reaches the mills; however, in some cases, mills may also purchase directly from farmers. This supply chain structure reflects a diverse distribution mechanism but also has the potential to cause significant price differences at each level of the chain due to the length of the marketing channel. This results in varying marketing margins and indicates that the marketing system is not yet optimal, with farmers often finding themselves in a less advantageous position compared to other actors.

Based on the above description, this study aims to: (1) Analyze the market structure of flying fish roe in South Galesong Subdistrict, including the number of market participants, barriers to market entry, and the level of market concentration; (2) Identify and evaluate the market behavior of business actors in the flying fish roe marketing chain, such as pricing strategies, distribution patterns, and relationships among market participants; (3) Assess the performance of the flying fish roe market based on indicators of marketing margins, marketing efficiency, and profits earned by each market participant.

RESEARCH METHODS

Research Location and Time

The research area was selected using *a purposive sampling method* in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency. This selection was based on survey results indicating that Bangkala Subdistrict is the largest producer of corn and one of the largest suppliers of corn in Jeneponto Regency; therefore, it was

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deemed capable of providing information on the supply chain and enabling the collection of the necessary data. This study was conducted from March to May 2026 in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency.

Type of Research

This study employs a descriptive method using both quantitative and qualitative approaches through a case study design. Quantitative and qualitative approaches through a case study design are two research approaches that can be used depending on the objectives and characteristics of the research problem (Creswell, 2018).

Types and Sources of Data

The data types used in this study are surveys and interviews, employing a combination of both (mixed methods) to obtain comprehensive results. The mixed-methods research model is a research model used with that combines both quantitative methods and qualitative methods within a single study to obtain a more comprehensive understanding of a phenomenon. This approach is used when quantitative data alone is insufficient to explain the context or meaning of an event, thus requiring qualitative data to complement the analysis (Aqil et al., 2022).

The data used in this study were derived from primary and secondary sources. Primary data tracked the corn marketing supply chain through direct interviews with respondents who possess the necessary expertise and are involved in marketing activities. The primary data collected includes respondent characteristics, supply chain conditions, prices at each stage of the supply chain, marketing costs, and the value of outputs and inputs. The aim is to obtain an overview of the corn supply chain system from producers to consumers. Secondary data was used to supplement the study and was obtained from previous research or relevant literature. Specifically, secondary data was sourced from research reports, journals, the Central Statistics Agency (BPS), the Data and Information Center (Pusdatin) of the Ministry of Agriculture, the Industry and Trade Office, and the Food Crops and Horticulture Office of Jeneponto Regency.

Population and Sample

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The population for this study consists of corn farmers in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency, totaling 300 households; therefore, the study sample will consist of 30 individuals.

The sampling technique used for farmers in this study was simple random sampling. To determine the sample size, we followed the guidelines proposed by Wirartha (2006), which state that if the number of subjects is less than 100, it is better to include all of them so that the study constitutes a population study. Furthermore, if the number of subjects is large, 10–15%, 20–25%, or more can be selected. The selection of merchant samples was conducted using the snowball sampling technique to follow the flow and pathways of the supply chain. Snowball sampling is a method that involves identifying and selecting samples through a network. It is based on the analogy of a snowball, which starts small but grows larger as the process continues. Snowball sampling is a multistage technique. It begins with a small number of people and expands as the research progresses (Quantitative, 2016).

Data Analysis Techniques

The analysis technique used is qualitative descriptive analysis. The data analyzed consists of primary and secondary data. Primary data was obtained through in-depth interviews with key respondents selected via random sampling and snowball sampling, namely farmers, collector traders, and wholesalers or distributors. To calculate the marketing margin earned by each marketing institution, the following formula (Arinong & Kadir, 2008) was used:

M = Hp – Hb

Where:

M = Marketing Margin (Rp/kg)

Hp = Selling Price at the Producer Level (Rp/kg)

Hb = Purchase Price at the End-Consumer Level (Rp/kg)

An analysis of the farmer's share is useful for determining the portion of the consumer price received by farmers, expressed as a percentage. The farmer's share for corn is calculated as follows:

Fs = Pf/Pr × 100%

Where:

Fs = The portion of the price received by farmers (%)

Pf = Price at the farm level (Rp/kg)

Pr = Price at the final consumer level (Rp/kg)

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The criteria for determining whether corn marketing is considered economically efficient are that each marketing channel has a low percentage of marketing margins and a high percentage of the farmer's share for corn farmers. If the farmers' share is < 50%, marketing is not yet efficient; if the farmers' share is > 50%, marketing is considered efficient (Sudiyono, 2002).

RESULTS AND DISCUSSION

Respondent Characteristics

Respondents are the most important component of a study. The characteristics of the respondents must align with the objectives of the study. As indicated by the title, the respondents in this study are corn farmers residing in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency.

Farmer Respondents

A farmer can be defined as a worker who utilizes biological resources to produce food, industrial raw materials, or energy sources.

Age is a factor that influences farmers' ability to work more productively, as they possess greater capacity to manage their farming operations. The age characteristics of the sample of corn farmers in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency, based on age ranges, are shown in the following table.

Table 1. Distribution of Farmer Respondents by Age in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency

No	Respondent Age	Number (people)	*Percentage (%)*
1	24–35	8	*26.67*
2	36–45	9	*30*
3	46–55	12	*40*
4	56–65	1	*3.33*
	Total	**30**	***100%***

Source: Processed primary data, 2026.

According to Table 1, the highest number of respondents was in the 46–55 age group, with 12 people, or 40%; respondents aged 24–35 numbered 8 people, or 26.67% of the total sample; those aged 36–55 numbered 9 people, or 30%; and those aged 56–65 years old numbered 1, or 3.33% of the total sample. The 29–58 age group is classified

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as the productive workforce because individuals in this age range are considered capable of producing goods and services. A productive age group is one of the key factors for success in farming activities.

Educational Level

Educational level is one of the key factors, particularly in terms of technology and farming skills. Educational level also influences decision-making patterns, as farmers with relatively higher educational levels can act more dynamically in managing their farms. The characteristics of respondents based on educational level are presented in Table 2 below:

Table 2. Distribution of Respondents by Educational Level in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency

No	Educational Level	Number	*Percentage (%)*
1	Elementary School	11	*36.67*
2	Junior High School	7	*23.33*
3	Vocational High School/High School	9	*30*
4	Bachelor's Degree	3	*10*
	Number	**30**	***100%***

Source: Processed primary data, 2026.

Based on Table 2 above, it can be concluded that the educational level of farmers in Pallantikang Village, Bangkala Subdistrict, is as follows: 11 people (36.67%) have an elementary school education, 7 people (23.33%) have a junior high school (SMP) education, 9 people (30.00%) have a senior high school (SMA) or vocational high school (SMK) education, and 3 people (10.00%) have a bachelor's degree (S1). This indicates that the largest number of research respondents is at the elementary school (SD) level, namely 11 people or 36.67% of the total sample.

Farming Experience

The length of time spent farming is one of the indicators that directly contributes to farmers' overall success. Experienced farmers, supported by comprehensive production facilities, are better able to increase their agricultural productivity. The

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characteristics of the respondents based on their farming experience are shown in Table 3 below:

Table 3. Distribution of Respondents Based on Farming Experience in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency

No	Farming Experience	Number (people)	Percentage (%)
1	4–15	13	*43.33*
2	16–25	13	*43.33*
3	26–35	3	*10*
4	36–50	1	*3.33*
	Total	30	*100%*

Source: Processed primary data, 2026.

Based on the data in Table 3, it can be seen that the largest number of respondents, based on farming experience, had 5–15 years and 16–25 years of experience, totaling 13 people or 43.33% of the total sample, followed by the 26–35-year group with 3 respondents, or 10.00%, and the 36–50-year group with 1 respondent, or 3.33%.

According to Astuti (2023), the length of time spent farming is one of the characteristics of farmers related to their ability to adopt innovations, because the experience farmers have gained can enhance their knowledge and skills in making farming decisions, as well as make them more cautious in the decision-making process when carrying out their farming activities; conversely, less experienced farmers typically make decisions more quickly because they tend to take on more risks.

Land Area

Land is one of the factors of production in agricultural management. The land area in question:

Table 4. Distribution of Respondents by Land Area in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency.

No.	Land Area (ha)	Number (people)	Percentage (%)
1	0.4–1	17	*56.66*
2	1.1–1.5	7	*23.33*

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3	1.6–2	6	*20*
	Total	30	*100*

Source: Processed primary data, 2026.

Based on the data in Table 4 above, it can be seen that the number of research respondents with land areas of 0.4–1 ha was 17 people, representing 56.66%; those with land areas of 1.1–1.5 ha was 7 people, representing 23.33%; and those with land areas of 1.6–2 ha was 6 people, representing 20%.

Marketing Agency Respondents

In the industrial supply chain from producers to consumers, there are intermediaries, also known as marketing agencies. These agencies play a crucial role in marketing activities; they distribute products directly to consumers, as well as to out-of-town and local merchants. The traders or marketing institutions involved in the marketing of corn in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency, consist solely of collector traders. The identities of the collector traders and wholesale corn traders in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency, are shown in Table 5 below:

Table 5. Distribution of Characteristics of Collectors in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency.

No.	Name	Age	Education	Experience	Purchase Volume (kg/Season)
1	Jumadi	42	Elementary School	9	400,000
2	Hamzah	50	Junior High School	8	100,000
	Total	**92**		**17**	**500,000**
	Average	**46**		**8.5**	**250,000**

Source: Processed primary data, 2026.

Based on Table 5 above, we can see that the age of the respondent corn collectors falls within the productive age range, with an average of 42 years, and some

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as old as 50 years. During their productive years, these traders are able to learn more effectively, supported by strong physical and mental resilience in fulfilling their role as distributors of corn to consumers. The highest level of education among the corn traders in Pallantikang Village is junior high school, and the lowest is elementary school. This level of education significantly influences the traders' knowledge regarding information and corn marketing mechanisms. The higher the educational level of the collectors, the better their marketing channels will be, making it easier for them to increase their income.

Experience in marketing also influences traders' ability to market corn. The length of experience among grain collectors ranges from a high of 9 years to a low of 8 years. The more experience traders have, the easier it is for them to market corn. This is because of their experience in marketing corn, their recognition among consumers, and the fact that they already have a loyal customer base.

Table 6. Distribution of Characteristics of Wholesale Traders in Pallantikanng Village, Bangkala Subdistrict, Jeneponto Regency.

No.	Name	Age	Education	Experience	Purchase Volume (kg/season)
1	Rahasin	42	Elementary School	18	1,200,000
	Total	**42**		**18**	**1,200,000**
	Average	**42**		**18**	**1,200,000**

Source: Processed primary data, 2026 .

Based on Table 6, the wholesalers in Pallantikang Village are traders who purchase relatively large volumes of corn and have substantial capital. Typically, large-scale traders purchase corn from collectors and farmers both within and outside Pallantikang Village. The average volume of corn purchased by these large-scale traders is 1,200 metric tons per season. They sell the corn to animal feed mills located outside the region, such as in Gowa Regency.

Corn Marketing Supply Chain

Producers (corn farmers) sell their harvest to collector-dealers located in the study area. The marketing channel structure in Pallantikang Village consists of four members

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of the supply chain: corn farmers, collector-dealers, wholesalers, retailers, and end consumers. There are two collector traders in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency; one wholesaler; and the rest of the supply goes directly to factories or end consumers. The research findings indicate that the marketing supply chain in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency, exhibits three distinct marketing channel patterns. The presence of marketing intermediaries influences the size of marketing margins, price differentials, and the costs incurred by each intermediary in marketing corn. The marketing channel patterns identified are as follows:

Channel 1.



Figure 1. Marketing Channel I Pattern in the Corn Commodity Marketing Supply Chain in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency.

Figure 1 illustrates that Marketing Channel I is the shortest marketing chain in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency. In this first marketing channel, farmers distribute their produce directly to the factory. In this channel, farmers collaborate with several other farmers to distribute their harvest to the factory. The factory purchases corn from farmers at a price of Rp. 4,900, processes it into livestock feed, and then sells the finished product directly to consumers. In this channel, there are approximately 3 farmers in the Makassar Industrial Area who sell their produce directly to the factory—3 out of the 30 samples in this study. The reason these 3 farmers were included in the study sample is that they receive a higher selling price.

Channel 2.

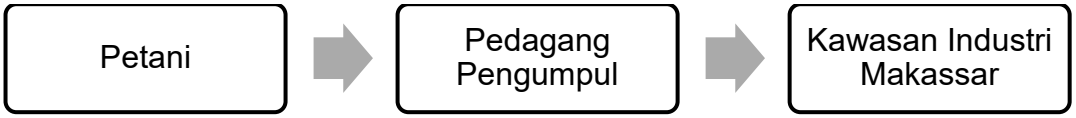


Figure 2. Channel II pattern in the corn marketing supply chain in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency.

Figure 2 above illustrates the second distribution channel, which involves one intermediary—the collector—who sells shelled corn to the factory, which then supplies

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the end consumer. In this marketing channel, the producers—farmers—harvest corn from their farms to sell to collector merchants, such as Mr. Hamka or Mr. Jumadi, located in Pallantikang Village, who then sell it to the factory in the Makassar Industrial Zone (KIMA). All merchants involved share the same sales volume, purchase price, selling price, and expenses. In this marketing channel, farmers sell corn on the cob to collector-dealers (Mr. Hamka or Mr. Jumadi) in Pallantikang Village. This second marketing channel is quite popular among farmers, as they sell their corn to collector-dealers, who then distribute it to the factory and ultimately to consumers. Collectors who purchase farmers' harvests pick up the corn directly from the farmers' homes. Collectors in the Makassar Industrial Area buy corn from farmers at a price of Rp. 4,000 and then sell it to the factory at a price of Rp. 5,500. In this channel, approximately 21 of the 30 farmers in this study's sample sell their produce directly to collectors. This is why the 21 farmers in this study's sample sell their produce to collectors.

Channel 3.

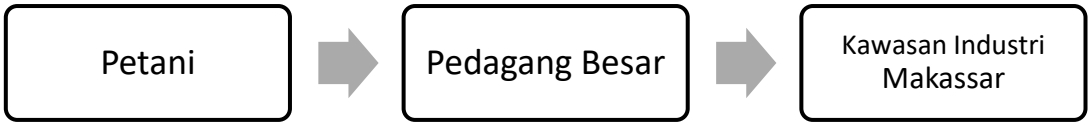


Figure 3. Channel III Pattern in the Marketing Supply Chain in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency

Figure 3 illustrates Channel III of the supply chain, showing that in this marketing channel, farmers sell corn directly to Mr. Rahasin, a wholesaler based in Pallantikang Village. Wholesalers typically come directly to farmers' homes to purchase corn after being notified by the farmers to pick it up. After purchasing the requested quantity of corn, Mr. Rahasin then sells it to the industrial zone located in KIMA. The wholesaler buys corn from farmers at a price of Rp. 4,100 and distributes it to factories at a price of Rp. 5,500. Of the 30 samples in this study, 6 farmers sold their produce to wholesalers. Wholesalers who purchase farmers' harvests pick them up directly from their homes or even from their fields. Farmers Wholesalers Makassar Industrial Zone Figure 4. Channel Pattern III in the Marketing Supply Chain in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency. To market the corn production, wholesalers typically deliver it directly to the factory. In this Type III marketing channel, the purchase price and selling price are determined by the factory. Wholesalers typically sell to the factory for around Rp. 5,500; this price difference is influenced by the moisture content of the corn. The

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lower the moisture content of the corn, the higher the price the wholesaler receives from the factory. These findings are consistent with those of Rahim et al. (2023), who state that wholesalers serve as intermediaries between farmers and the industry, with the responsibility of collecting, transporting, and ensuring that the corn meets factory standards, thereby making the marketing process more efficient. That study also explains that corn quality—particularly moisture content—is one of the key factors influencing the selling price within the corn supply chain.

The results of the study, specifically the number of farmers by marketing channel acting as intermediaries in the marketing of corn, are shown in Table 7 below:

Table 7. Number of farmers in each supply chain channel in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency

No	Marketing Channel	Number (people)	*Percentage (%)*
1	Channel I	3	*10*
2	Channel II	21	*70*
3	Channel III	6	*20*
	Total	**30**	***100%***

Source: Processed primary data, 2026.

Based on Table 7, we can identify the marketing channels used by farmers in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency. It is noted that Marketing Channel I is used by 10% of the farmers—or 3 corn farmers. This channel is utilized because these farmers produce large yields and have their own vehicles to transport their crops directly to the factory. Through this marketing channel, farmers earn higher profits than through other channels. Marketing Channel II is the most widely used by farmers, accounting for 70% or 21 corn farmers. This channel is popular because farmers have vehicles to transport their produce to be sold to collectors; it is also favored due to family ties or financial relationships between farmers and collectors. Another marketing channel used by farmers in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency, is Marketing Channel III. This channel is used by 20% of the farmers, or 6 corn farmers.

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Mechanisms of Product Flow, Financial Flow, and Information Flow in the Corn Supply Chain.

The distribution channels in the corn supply chain in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency illustrate the product, financial, and information flows that occur among supply chain members. In this corn supply chain, there are three channels, as follows:

Channel 1: Farmers – Makassar Industrial Area (KIMA)

The first supply chain for corn in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency consists of corn producers and KIMA. There are product flows, information flows, and financial flows occurring within this first supply chain. The product flow within the first maize supply chain is as follows: Maize produced by farmers in Pallantikang Village is sold to the factory located at KIMA.

- Product Flow

The corn product flow refers to the sequence of movements of corn from farmers—as the primary producers—to end consumers or industrial users. This flow begins with cultivation and harvesting by farmers; the harvested crop is then collected—amounting to approximately 12 metric tons—and marketed through various marketing institutions involved in the supply chain. After harvesting, corn generally undergoes post-harvest handling, such as drying, cleaning, and storage to maintain product quality before distribution. Subsequently, the corn is then delivered to the factory located at KIMA. The continuity of the corn product flow is greatly influenced by the effectiveness of coordination among supply chain actors, the availability of transportation, infrastructure conditions, and the market information possessed by each actor. An efficient product flow not only ensures the availability of corn supply in the market but also contributes to increasing the product's value added and the income received by farmers.

- Cash Flow

The flow of funds in the corn supply chain in Channel I proceeds from the factory, as the buyer, to the farmers, as the producers. This flow occurs through cash payments or bank transfers for the corn that farmers have delivered to the factory. Once the corn is received and meets the established quality standards, the mill makes payment based on the quantity and quality of the product received. Thus, the flow of funds moves in the opposite direction of the product flow: while the product flows from the farmer to the mill, funds flow from the mill to the farmer. The payment system implemented by the mill plays

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a crucial role in supporting the smooth operation of the corn supply chain. Timely payments can improve farmers' liquidity, enabling them to meet operational needs such as purchasing seeds, fertilizers, pesticides, and covering labor costs for the next planting season. In addition, a smooth flow of funds can also strengthen the partnership between farmers and mills, build trust among the parties, and ensure a sustainable supply of raw materials for the mills. Therefore, effective management of cash flow is one of the factors that determine the success and sustainability of the corn supply chain.

- Information Flow

Based on the research findings, the flow of information between farmers and the mill takes place directly via telecommunications (telephone) regarding prices, volume requirements, harvest schedules, quality standards, and corn delivery times. This direct communication pattern allows both parties to obtain information quickly, thereby minimizing errors in the transaction and product distribution processes. The flow of information between farmers and the mill is considered quite effective because it is direct and continuous. The transparency of the information provided by farmers helps the mill obtain accurate data on production conditions in the field. On the other hand, intensive communication also fosters better cooperative relationships between the two parties. With a smooth exchange of information, decision-making processes regarding raw material procurement, product receipt scheduling, and supply management can be carried out more accurately and efficiently. Overall, the research findings indicate that the flow of information from farmers to the mill plays a crucial role in ensuring the smooth operation of the corn supply chain. Accurate and timely information reduces supply uncertainty, improves coordination among supply chain actors, and supports the continuity of production processes at the factory level. Therefore, the quality of the information flow is one of the factors contributing to the efficiency and effectiveness of corn supply chain management.

Channel 2: Farmers – Collectors – Makassar Industrial Zone (KIMA)

The second supply chain channel for corn in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency consists of corn producers – collector-dealers – KIMA. There are product flows, information flows, and financial flows occurring within this second supply chain channel. The product flow within the second maize supply chain channel is as follows: Maize produced by farmers in Pallantikang Village is sold to local collector traders, either by farmers delivering the maize directly to the collectors' homes or by the collectors visiting the farmers to transport the product.

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- Product Flow

The flow of products in Channel II begins with the producers—namely, corn farmers—who serve as the primary producers of corn. After harvesting, the corn generally undergoes initial post-harvest handling in the form of drying to reduce moisture content and maintain product quality. Next, the corn is sold to collector-dealers because most farmers face limitations in terms of market access, storage capacity, and transportation to sell their harvest directly to processing plants. Collector-dealers act as intermediaries connecting farmers with the processing industry. At this stage, collectors purchase corn from a number of farmers, then gather and consolidate the harvest into larger quantities. In addition, collectors also carry out sorting, cleaning, temporary storage, and, in some cases, further drying to ensure the corn's quality meets the standards set by the mills. Based on interviews with informants, the flow of corn products in the supply chain begins with farmers as the primary producers. Informants explained that after harvest, the corn is first dried before being sold to collector-dealers. Sales to collectors are made because it is easier for farmers to access the market through these collectors than by selling directly to the mill. Furthermore, limited capital, transportation, and storage capacity are the main reasons farmers choose to sell their harvest to collectors.

- Cash Flow

The flow of funds in the corn supply chain is a stream of payments that moves in the opposite direction of the product flow. If corn flows from farmers to collectors and then to mills or end consumers, the flow of funds moves from downstream to upstream—that is, from mills to collectors and then on to farmers. At the collector level, funds obtained from the sale of corn to the mill are used to pay for the corn purchased from farmers. Payments to farmers are generally based on the volume and quality of the corn delivered. The price received by farmers is determined by prevailing market prices, moisture content, and the costs incurred by the collector during the collection and distribution process. In practice, payments can be made in cash or by non-cash methods. Cash payments are usually made immediately after the corn is received and weighed by the collector. Meanwhile, in some areas, payments may be made several days after the transaction, especially if the collector is still waiting for payment from the mill or the primary buyer. Interview results indicate that grain collectors act as financial intermediaries, facilitating payments from the mill to the farmers. The timeliness of payments significantly influences the cooperative relationship between the two parties.

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The faster payments are made, the higher the level of trust farmers have in selling their harvest to the same grain collector in the following season.

- Information Flow

The flow of information is a key component of the corn supply chain, as it serves as a means of communication and coordination among supply chain actors—from farmers and grain collectors to processing plants. This flow of information is two-way, moving both upstream and downstream, ensuring that every actor can obtain the information needed to support corn production, marketing, and distribution. Based on interviews with informants, the information most frequently exchanged between farmers and grain collectors includes corn prices, harvest times, production volumes, corn quality, and harvest pickup schedules. Farmers typically obtain price information from grain collectors before making a sale. This information serves as the basis for farmers in determining when to sell their harvest. According to the research findings, the flow of information within the corn supply chain generally occurs through direct communication, telephone calls, and messaging apps such as WhatsApp. The use of these communication channels facilitates the rapid transmission of information, thereby reducing uncertainty in corn marketing and distribution activities. A smooth flow of information benefits all participants in the supply chain. Farmers can obtain information on prices and market demand more quickly; collectors can manage procurement and distribution effectively; and mills can secure a corn supply that meets their production needs. Therefore, an accurate, timely, and transparent flow of information is a critical factor in improving the efficiency and sustainability of the corn supply chain.

Channel 3: Farmers – Wholesalers – Factories

Product flow refers to the physical movement of corn from producers to end users within a supply chain system. In Channel III, the flow of corn begins with farmers as the primary producers, then moves to wholesalers who act as collectors and distributors, and ends at factories as users of raw materials. This product flow demonstrates the close interdependence among supply chain actors in ensuring the sustainable availability of industrial raw materials. This indicates that wholesalers serve as the primary intermediaries linking corn production at the farmer level with raw material needs at the industrial level. The presence of wholesalers is crucial because most farmers are not yet able to supply factories directly due to limitations in production volume, post-harvest facilities, and market access.

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- Product Flow

Product flow is one of the key components of the supply chain, describing the physical movement of commodities from producers to end users. Based on the research findings, the product flow in the corn supply chain begins with farmers as the primary producers, proceeds to wholesalers as distributors, and is then shipped to factories as users of raw materials. This product flow pattern indicates an integrated relationship between upstream and downstream actors in meeting the needs of the industrial market. Farmers are the first actors in the corn product flow. After cultivation and harvesting are completed, farmers perform post-harvest handling, such as cleaning and drying, before the product is sold. These conditions indicate that farmers serve as the primary suppliers of raw materials in the supply chain but lack the capacity to deliver their products directly to factories. Limitations in production volume per farmer, industry-set quality standards, and restricted market access are factors that cause farmers to rely more heavily on wholesalers as their primary distribution channel. Based on interviews with informants, the flow of corn products begins with farmers as the primary producers; the corn is then sold to wholesalers and subsequently distributed to mills as users of the raw material. Each actor plays a distinct role in this product transfer process.

The role of wholesalers is crucial because they are able to consolidate production from scattered farmers and ensure a steady supply for mills. In addition, wholesalers also perform sorting and quality control functions so that the products received by the mills meet established standards. Thus, the flow of products in the corn supply chain demonstrates an interdependent relationship among farmers, wholesalers, and mills in maintaining the continuity of supply and product quality.

- Financial Flow

The flow of funds is a key component of the corn supply chain because it determines the smooth operation of trade activities from farmers to mills. Unlike the flow of products, which moves from upstream to downstream, the flow of funds moves from downstream to upstream—that is, from mills to wholesalers and then to farmers. The smooth flow of funds is a factor that influences the sustainability of business relationships among supply chain actors as well as each actor's ability to carry out their business activities. At the farmer level, income is derived from the sale of corn to wholesalers. However, the process of receiving funds does not always occur immediately. In practice, some farmers receive cash payments after weighing their crops, while others receive payments in installments according to prior agreements. This situation highlights farmers' dependence on the liquidity of wholesalers.

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The research findings indicate that wholesalers play a central role in maintaining the stability of financial flows within the corn supply chain. Wholesalers serve as intermediaries who bridge the gap between farmers' need for prompt payment and mills' need for large-volume, standardized-quality supplies. Therefore, the working capital capacity of wholesalers is a key factor determining the efficiency of financial flows in the corn supply chain. Overall, the flow of funds in the corn supply chain involves not only the payment of sales proceeds but also financing arrangements, informal credit provision, working capital management, and risk sharing among participants. The complexity of these relationships indicates that the success of the corn supply chain depends heavily on trust, timely payments, and each actor's ability to manage their cash flow.

- Information Flow

The flow of information in the corn supply chain is two-way between farmers, wholesalers, and mills. The information exchanged includes not only selling prices but also harvest estimates, supply volume requirements, quality standards, delivery schedules, and market conditions. An effective flow of information enables each participant in the supply chain to plan more effectively, thereby minimizing the risk of both supply shortages and surpluses. Recent research indicates that access to market information and the quality of information exchange influence the efficiency of the corn supply chain. At the farmer level, the information received from wholesalers generally pertains to market price trends, corn demand from mills, and quality standards that must be met. This information serves as the basis for farmers in determining harvest timing and the sale of their produce. The findings of this Channel III study indicate that wholesalers serve as *the* primary *information hub* in the corn supply chain. This position means that the quality of information received by farmers is highly dependent on the wholesalers' ability to obtain and relay information from processing plants. Therefore, the accuracy, timeliness, and transparency of information are critical factors in improving the efficiency of the corn supply chain and reducing information asymmetry among supply chain participants.

Marketing Margin

The corn marketing margin is the difference between the selling price and the purchase price of corn in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency. To determine the corn marketing margin for each marketing channel, it is essential to know the selling and purchase prices of each marketing entity involved. The

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following are the marketing margins for each marketing entity in the corn marketing channel in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency.

To understand the corn marketing mix, middlemen employ specific strategies to achieve higher profits. The prices received by farmers and paid by consumers vary across each distribution channel. Consequently, differences arise in terms of price, costs, profits, and marketing margins for corn in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency, as shown in Table 8 below.

Table 8. Marketing Margins in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency.

Marketing Institution	Purchase Price (Rp/kg)	Selling Price (Rp/kg)	Margin (Rp/kg)
Marketing Agency I			
Farmers	-	4900	0
Warehouse	4,900		
	Total		0
Marketing II			
Farmers	-	4,000	-
Collectors	4,100	5,500	1,500
Factory	5,500	-	
	Total		1,500
Marketing III			
Farmers	-	4,100	
Wholesalers	4,000	5,500	1,400
Factory	5,500		
	Total		1,500

Source: Processed primary data, 2026

Based on Table 8, which shows the marketing margins earned, there are three marketing channels used in the product distribution process from farmers to warehouses. Each marketing channel shows differences in the margins earned by marketing intermediaries. The marketing margin is the difference between the selling price and the purchase price received by marketing institutions in each distribution

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channel. Generally, the longer the marketing channel, the larger the resulting marketing margin, due to additional costs and profits incurred by each marketing institution.

Overall, the research results show that Marketing Channel I is more efficient than Marketing Channels II and III because it has no marketing margin. Meanwhile, Marketing Channel II has the highest margin at Rp1,500/kg, indicating a longer distribution chain and higher marketing costs. This situation demonstrates that the existence of marketing institutions facilitates product distribution but, on the other hand, can reduce the share of the price received by farmers. This is consistent with the research (Rahayu et al., 2021), which states that a longer marketing chain leads to larger margins and lower marketing efficiency.

Farmer's Share

Farmer's share is an indicator of marketing efficiency. In addition to the marketing margin, this indicator measures the proportion of the selling price in a distribution channel that is received by corn farmers as compensation for their contribution. The larger *the farmer's share* and the smaller the marketing margin, the more efficiently a marketing channel is operating. *The farmer's share* in the corn marketing channel in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency is as follows:

Table 9. Farmer's Share in the Marketing Channel in Pallantikang Village, Bangkala Subdistrict, Jeneponto Regency

No	Marketing Channel	Price at the Farmer Level (Rp/kg)	Price at the Mill (Rp/kg)	*Farmer's Share (%)*
1	Channel I	4,900	4,900	100
2	Channel II	4,000	5500	74.54
3	Channel III	4100	5,500	72.72

Source: Processed primary data, 2026

Based on Table 9 above, there are three marketing channels with varying Farmer's Share values. These differences indicate that the length of the marketing channel affects the portion of the price received by farmers. The shorter the marketing channel, the larger the portion of the price received by farmers, whereas a longer marketing channel results in a smaller portion of the price for farmers due to the margins earned by intermediary institutions.

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The research analysis shows that Marketing Channel I is the most efficient channel because it has the highest *Farmer's Share*, at 100%. This high value indicates that farmers receive the full selling price without any margin deductions by intermediary institutions. In contrast, in Marketing Channels II and III, the Farmer's Share is lower due to the presence of collectors and wholesalers, which results in larger marketing margins.

CONCLUSION

Based on the research results and discussion outlined above, it can be concluded that:

1. The corn supply chain system in Pallantikang Village consists of three marketing channels: Channel I (farmer-to-factory), Channel II (farmer-to-collector-to-factory), and Channel III (farmer-to-wholesaler-to-factory). Channel II is the most widely used by farmers because it is considered easier for sales and provides better access to capital, while Channel I is the most efficient because farmers can sell their harvest directly to the mill without going through an intermediary.
2. The flow of products, information, and finances within the corn supply chain in Pallantikang Village indicates that the distribution process has been carried out systematically through the involvement of farmers, collectors, wholesalers, and mills as the main actors, with the flow of products moving from producers to end consumers, the flow of information covering the communication of prices and market demand, as well as transaction processes among the actors, while the flow of funds follows the payment mechanisms in each marketing channel with varying levels of efficiency depending on the length of the distribution chain.
3. The results of the marketing margin analysis show that Channel I has a marketing margin of Rp0/kg with a farmer's share of 100%, meaning that farmers receive the entire selling price. Channel II, on the other hand, has a marketing margin of Rp1,500/kg with a farmer's share of 74.54%, while Channel III has a marketing margin of Rp1,400/kg with a farmer's share of 72.72%. Thus, it can be concluded that the shorter the marketing channel, the smaller the marketing margin and the larger the portion of the price received by farmers.

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