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Marketing Value Chain Analysis of Corn as Animal Feed Material in Rea Village, Binuang District, Polewali Mandar Regency

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ABSTRACT

This study aims to understand and analyze the marketing value chain of corn as animal feed in Binuang District, Polewali Mandar Regency. This study uses a qualitative Descriptive Analysis method with primary data collection through interviews and direct observation in the field, as well as secondary data through relevant literature reviews. Data analysis uses food supply chain network analysis to understand the corn marketing process from farmers to end consumers. The results of the study show that the corn supply chain in Rea Village involves several parties, including corn farmers, collectors, animal feed processing factories, and laying hen farmers with three supply chain flows. Analysis of food supply chain network data shows that the structure of the corn supply chain consists of several flows, namely product flow, financial flow, and information flow. This study also shows that corn production in Rea Village has great potential to increase farmers' income and meet market needs.

Keywords: *Marketing Value Chain, Corn as Animal Feed, Binuang District*

INTRODUCTION

Corn production in Indonesia is still not optimal and cannot meet the increasing domestic demand. The limitations of national corn production cause Indonesia to still import corn to meet the growing demand for the feed and food industry (Mahmud et al, 2024).

Table 1. Harvested Area, Production, and Productivity of Corn in Indonesia

Harvested Area (ha)	Productivity (ku/ha)	Production (tons)
2548654	59,4	15138912

Source: BPS Indonesia (2024)

Based on the table above, the area of corn plantations in Indonesia In 2024, the area of corn plantations in Indonesia increased to 2,548,654 hectares, or an increase of 72,563 hectares or 2.93% compared to the previous year. However, corn productivity decreased slightly to 59.4 tons per hectare, or a decrease of 0.27 tons per hectare or 0.45% compared to the previous year. Although corn productivity decreased, total corn production in 2024 still increased to 15,138,912 tons, or an increase of 364,479 tons or 2.47% compared to the previous year. This is due to the increase in the area of corn plantations which is greater than the decrease in its productivity. Thus, it can be concluded that the area of corn plantations in Indonesia increased in 2024, but corn productivity decreased slightly. However, total corn production still increased due to the increase in the area of corn plantations.

The Ministry of Agriculture of the Republic of Indonesia in (2023) stated that corn is a very important animal feed in Indonesia, has the advantage of being a high energy source, easy to store

and produce, and easy to use with other foodstuffs. In its use as animal feed, corn can be divided into several parts, such as corn kernels, corn straw, corn cobs, and corn husks. Thus, corn can be the right choice as animal feed.

Corn plants (Zea Mays L) have a relatively similar age to rice plants, but are more resistant to the dry season, making them very suitable for planting in areas with low rainfall. With the increasing need for the animal feed industry, the prospects for developing corn processing as a raw material for animal feed are very promising, as evidenced by the need for 7.7 million tons of corn to meet the production of animal feed of 19.4 million tons (Surianti & Syam, 2022).

Corn is one of the most important agricultural commodities needed by farmers. In addition to being the second most important food source in Indonesia after rice, corn also has the potential to be processed into various industrial products with high competitiveness and relatively high nutritional value, so that it can create significant economic value in the market. (Mukhlisah et al, 2023).

The corn marketing value chain in Indonesia is a system that connects farmers, processors, distributors, and consumers. This value chain involves various stages, from production to end consumers. Where the actors in the corn value chain are farmers, middlemen, large collectors, small traders, processors (Jayadi, 2023).

The corn marketing value chain in Polewali Mandar involves farmers, collectors, factories, and consumers. Where this value chain consists of several stages, namely production, harvesting, processing, distribution, and consumption. Stages of the corn marketing value chain, farmers produce and harvest corn, farmers sell corn to large and small collectors, then it is sold to the factory and processed by the factory and then marketed to consumers (Nabhan, 2021).

Corn (Zea mays L.) is one of the food crop sub-sector commodities in Indonesia that has an important meaning for both the community and the Indonesian economy. Corn is a very adequate commodity to be used as a staple food as a substitute for rice or mixed with rice because it has advantages over other food commodities, namely its nutritional content is almost the same as rice. In addition, corn also has economic value because it functions as the main raw material for animal feed and the food industry. Given the important role of corn, it is necessary to prioritize the development of domestic corn production by increasing farming efficiency (Khairunnisa et al, 2021).

Maria, (2019) stated that the marketing chain is a group of organizations involved in the process of providing products or services provided to consumers or end users. The length of the agricultural commodity marketing chain depends on several factors, including the distance between producers and consumers, product durability, production scale, and financial position.

Marketing is an effort to market a product or service to consumers by conveying the benefits that consumers will get when they have the product or service offered, marketing is carried out conventionally in various ways, namely through marketing strategies (Khairunnisa, 2022).

A marketing channel is a collection of interrelated entities that assist in the preparation of a product or service for use or consumption. Basu Swastha calls marketing channels distribution channels by emphasizing that what is distributed is a commodity. The distribution channel of a good, according to him, is a channel through which producers move goods from producers to consumers or industrial users (Prayoga & Aslami, 2021).

RESEARCH METHODS

This research was conducted in Rea Village, Binuang District, Polewali Mandar Regency, West Sulawesi Province, from February to April 2025. The selection of the research location was carried out intentionally or purposively, considering that Rea Village is one of the centers of corn production in Polewali Mandar Regency. In addition, corn is also a very important chicken feed ingredient in the area. Thus, this study aims to study and analyze the marketing chain of corn as a chicken feed ingredient in Rea Village, Binuang District, Poslewali Mandar Regency. The results of this study are expected to contribute to the development of better and more sustainable agriculture in Polewali Mandar Regency, and can help improve the efficiency and effectiveness of the corn marketing chain as a chicken feed ingredient in the area.

The population in this study were all corn farmers in Rea Village, totaling 139 farmers and traders and chicken farmers in Rea Village. Sampling used the Purposive Sampling method or intentionally with the consideration that the selected sample had represented the population and the respondents were 58 farmers and 2 traders and 1 chicken farmer. The criteria for sampling informants in this study were farmers, traders and livestock breeders who live in Rea village and have had experience planting corn for 2 years or more, and are 20 years or older.

Types and Sources of Data, namely primary and secondary data, where primary data is data collected directly from the source, namely corn farmers, corn traders, and owners of laying hen feed businesses in Rea Village, Binuang District, Polewali Mandar Regency. While secondary data is data collected from existing sources, such as literature, articles, and previous research reports related to the marketing chain of corn and laying hen feed.

Observations were conducted to collect data on field conditions, activities of corn farmers, corn traders, and owners of laying hen feed businesses. Observations were conducted directly in the field using field notes and documentation photos. Objectives of observation: Collecting data on field conditions and activities of corn farmers, corn traders, and owners of laying hen feed businesses, identifying patterns and processes of the corn and laying hen feed marketing chain.

The questionnaire was used as a guideline to interview corn farmers, corn traders, and owners of laying hen feed businesses to collect data on: Respondent characteristics (age, gender, education, etc.), Activities and processes of corn and laying hen feed production, Patterns and processes of corn and laying hen feed marketing chains, Prices and costs of corn and laying hen feed production. Objectives of the questionnaire: Collecting data on respondent characteristics and corn and laying hen feed production activities, identifying patterns and processes of corn and laying hen feed marketing chains.

Documentation is conducted to collect data on: Official documents related to the production and marketing of corn and feed for laying hens (business licenses, certificates, etc.) Financial records related to the production and marketing of corn and feed for laying hens (notebooks, financial reports, etc.) Documentation objectives: Collecting data on official documents and financial records related to the production and marketing of corn and feed for laying hens, identifying patterns and processes of the marketing chain for corn and feed for laying hens.

The data analysis technique used in this study is qualitative analysis with the food supply chain network framework method. According to Dzulfiqar, (2019) the Food Supply Chain Network Framework is the chain objectives by identifying specific characteristics of the supply chain, quality integration and chain optimization.

RESULTS AND DISCUSSION

Corn farming in Rea Village is an important agricultural activity to increase farmers' income and meet food and animal feed needs. Based on the research results, corn farmers in Rea Village have an average land area of 0.70 Ha with a production of 1.39 tons in one harvest.

Table 2. Corn Production in Rea Village

Corn Data	Land Area (Ha)	Production (Tons)
All	40,00	94,35
Average	0,70	1,39

Source: Primary Data processed 2025

The stages of corn cultivation in Rea Village include:

1. Land Preparation: Land preparation is carried out to clear the land of weeds, remnants of previous plants, and others.
2. Planting: Corn planting is carried out using quality seeds and proper planting techniques.
3. Maintenance: Corn plant maintenance includes activities such as watering, fertilizing, and controlling pests and diseases.
4. Harvesting: Corn harvesting is carried out when the corn is ripe and ready to be harvested.

Factors that influence corn farming in Rea Village include:

1. Climate: The tropical climate in Rea Village is very suitable for corn cultivation.
2. Soil: The fertile soil in Rea Village with good drainage is very important for corn cultivation.
3. Seeds: Quality seeds are very important to increase corn production.

4. Cultivation Techniques: Proper cultivation techniques, such as planting, maintenance, and harvesting, are very important to increase corn production.

The benefits of corn farming in Rea Village include:

1. Increasing Farmers' Income: Corn farming can increase farmers' income in Rea Village, with an average income of IDR 5-10 million per harvest.
2. Increasing Food Availability: Corn is an important food ingredient, so corn farming can increase food availability in Rea Village.
3. Increasing Animal Feed Availability: Corn is also used as animal feed, so corn farming can increase the availability of animal feed in Rea Village. Thus, corn farming in Rea Village is an important agricultural activity to increase farmers' income, food availability, and animal feed availability.

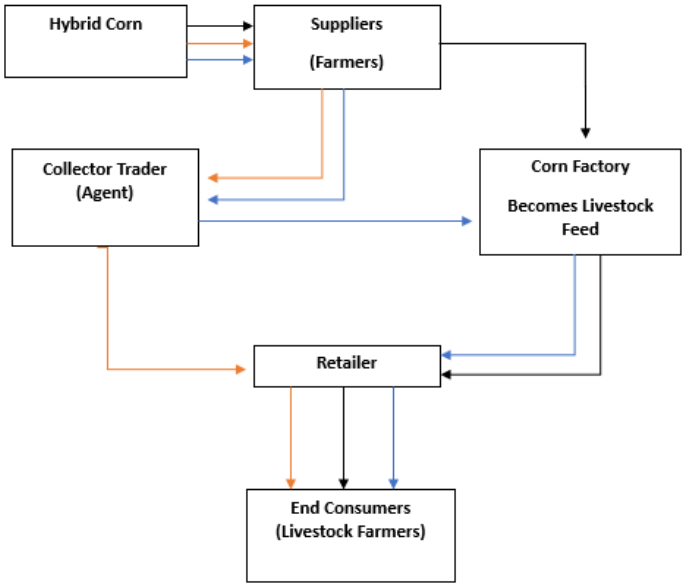

Figure 1. Product flow in rea village
(Source,2025)

Analysis of Corn Product Flow in Rea Village has three different corn product flows, namely Stream 1, Stream 2, and Stream 3. Each stream has distinct characteristics and advantages.

1. Stream 1: Farmer - Collector - Retailer – Farmer

   This stream shows that farmers sell corn to collectors, who then sell it to retailers in the nearest market. Farmers then buy back corn from the retailers. This stream has several weaknesses, such as:
   a. Higher transaction costs due to the presence of collectors and retailers.
   b. Farmers have no control over the selling price of their corn.
   c. Farmers have to buy back corn from retailers at a higher price.

2. Stream 2: Farmer - Collector - Feed Mill - Retailer – Consumer

   This stream shows that farmers sell corn to collectors, who then sell it to feed mills. Feed mills then sell feed products to retailers, who sell them to end consumers. This stream has several advantages, such as:
   a. Increased value-added of corn products due to processing into feed.
   b. Feed mills can increase farmers' income by buying corn in large quantities.
   c. This stream can improve production and distribution efficiency of feed.

3. Stream 3: Farmer - Feed Mill - Retailer – Consumer

   This stream shows that farmers sell corn directly to feed mills, which then sell feed products to retailers, who sell them to end consumers. This stream has several advantages, such as:
   a. Lower transaction costs due to the absence of collectors.
   b. Feed mills can buy corn directly from farmers at a more competitive price.
   c. This stream can increase farmers' income by selling corn directly to feed mills.

4. Critical Analysis

Based on the analysis above, Stream 2 and Stream 3 seem more beneficial for farmers and feed mills. Stream 2 and Stream 3 can increase the value-added of corn products and improve farmers' income. However, Stream 3 seems more efficient due to the absence of collectors, which can reduce transaction costs.

5. Dominant Stream

Based on the analysis above, Stream 2 and Stream 3 seem to have greater potential to increase farmers' income and improve production and distribution efficiency of feed. Overall, the analysis of corn product flow in Rea Village shows that there are several alternative streams that can be chosen by farmers and feed mills. Choosing the right stream can increase farmers' income and improve production and distribution efficiency of feed.

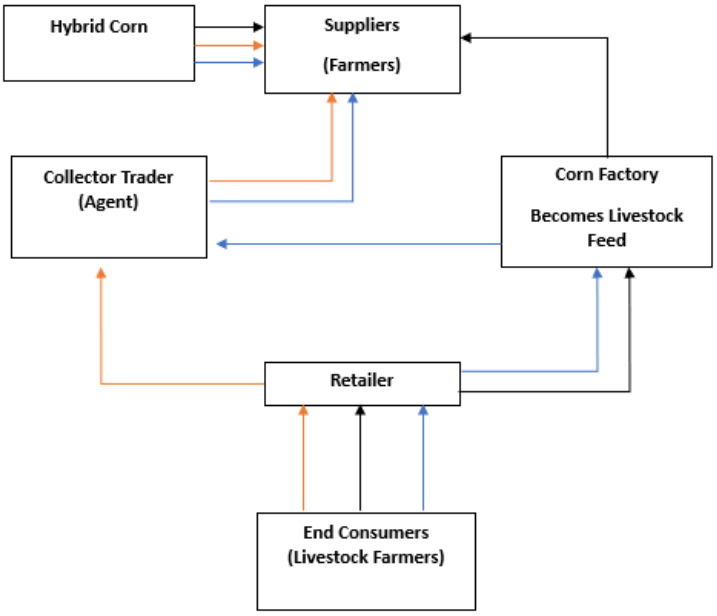

Figure 2. Financial flow in rea village
(Source,2025)

Analysis of Corn The financial flow of corn in Rea Village has three different flows, namely Flow 1, Flow 2, and Flow 3. Each flow has distinct characteristics and advantages.

1. Flow 1: End Consumer - Retailer - Collector – Farmer

This flow shows that end consumers buy corn from retailers, who then buy from collectors, and collectors buy from farmers. This flow has several weaknesses, such as:

a. Higher transaction costs due to the presence of collectors and retailers.
b. Farmers may not get a fair price due to the presence of intermediaries.

2. Flow 2: End Consumer - Retailer - Feed Mill - Collector – Farmer

This flow shows that end consumers buy feed products from retailers, who then buy from feed mills. Feed mills buy corn from collectors, and collectors buy from farmers. This flow has several advantages, such as:

a. Feed mills can increase the value-added of corn products by processing them into feed.
b. This flow can increase farmers' income by selling corn in large quantities.

3. Flow 3: End Consumer - Retailer - Feed Mill – Farmer

This flow shows that end consumers buy feed products from retailers, who then buy from feed mills. Feed mills buy corn directly from farmers. This flow has several advantages, such as:

a. Lower transaction costs due to the absence of collectors.
b. Farmers can get a fairer price by selling directly to feed mills.

4. Critical Analysis

Based on the analysis above, Flow 3 seems more beneficial for farmers and feed mills. Flow 3 can increase farmers' income by selling corn directly to feed mills, and also improve production and distribution efficiency of feed.

5. Dominant Flow

Based on the analysis above, Flow 3 seems to have greater potential to increase farmers' income and improve production and distribution efficiency of feed. This flow can also increase transparency and fairness in financial transactions between farmers and feed mills.

Overall, the analysis of corn financial flow in Rea Village shows that there are several alternative flows that can be chosen by farmers and feed mills. Choosing the right flow can increase farmers' income and improve production and distribution efficiency of feed.

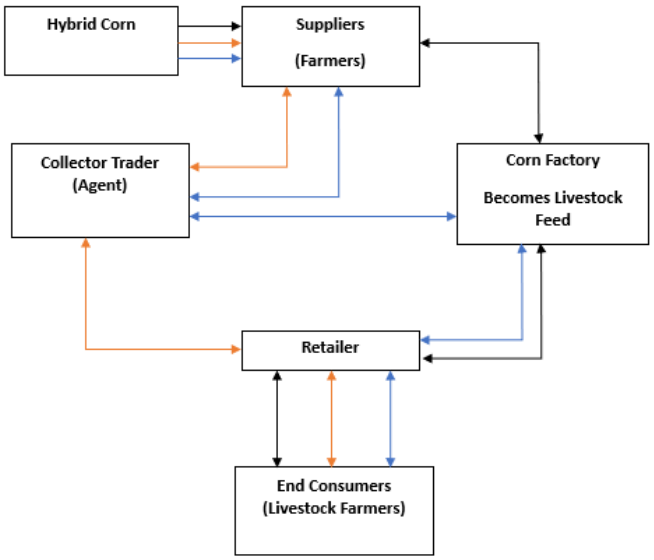

Figure 3. Information flow in rea village
(Source,2025)

1. Food Supply Chain Network

Information Flow in Food Supply Chain Network:

The food supply chain network involves several related parties, including farmers, collectors, retailers, and consumers. The flow of information in this network is crucial to ensure that all parties have accurate and up-to-date information about food products.

2. Three Types of Information Flow

The information flow in the food supply chain network can be divided into three types:

a. Information Flow from Farmers to Collectors: Farmers provide information about the food products they produce, including type, quality, and quantity. Collectors then use this information to purchase food products from farmers.
b. Information Flow from Collectors to Retailers: Collectors provide information about the food products they purchase from farmers to retailers. Retailers then use this information to sell food products to consumers.
c. Information Flow from Retailers to Consumers: Retailers provide information about the food products they sell to consumers. Consumers then use this information to make purchasing decisions.

3. Benefits of Information Flow

Effective information flow in the food supply chain network can provide several benefits, including:

a. Increasing production and distribution efficiency of food
b. Reducing transaction costs and increasing farmers' income
c. Improving food quality and safety
d. Increasing consumer satisfaction and sales

4. Challenges in Information Flow
   However, there are several challenges in information flow in the food supply chain network, including:
   a. Limited information and communication technology in rural areas
   b. Lack of standardization in information collection and dissemination
   c. Difficulty in monitoring and controlling food quality

5. Solutions to Overcome Challenges
   To overcome challenges in information flow, several solutions can be implemented, including:
   a. Using better information and communication technology
   b. Developing standardization in information collection and dissemination
   c. Improving farmers' and collectors' ability to use information and communication technology
   d. Developing more effective food quality monitoring and control systems.

Thus, effective information flow in the food supply chain network can improve efficiency, quality, and safety of food products, as well as increase farmers' income and consumer satisfaction.

1. Supply Chain Structure

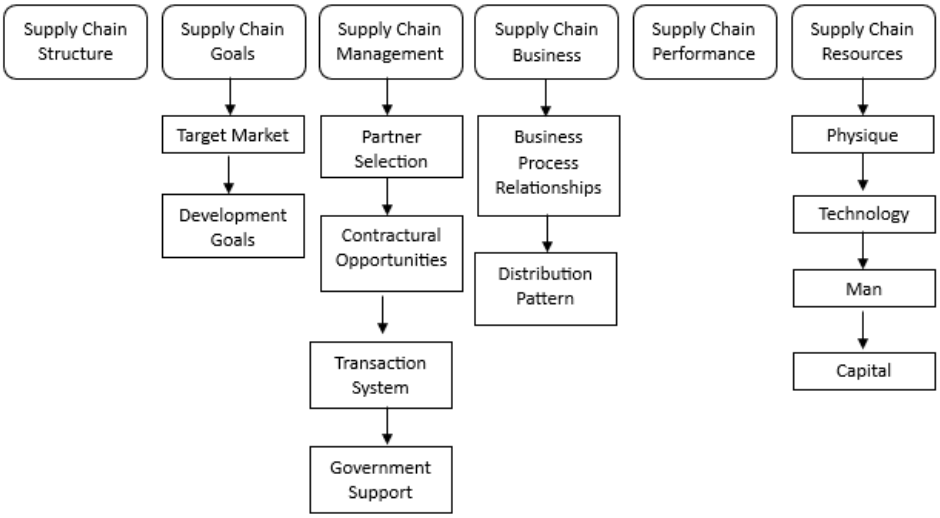

Figure 4. Supply Chain Structure in rea village

(Source,2025)

a. Supply Chain Targets
   1) Market Target
      The main market for corn is laying hen farmers, who need corn as a raw material for animal feed. The market potential for corn is very large because the demand for corn as animal feed continues to increase. Therefore, it is important to increase corn production and marketing to meet market needs.
   2) Development Target

      The development target for the corn supply chain is to increase the income of corn farmers, increase the efficiency of the corn supply chain, and improve the quality of corn. To achieve these targets, it is necessary to increase corn production and marketing, as well as improve the supply chain infrastructure.

b. Supply Chain Management

Corn supply chain management involves several aspects, including the selection of collectors who can provide better prices, contractual opportunities to increase price certainty and sales volume, an effective transaction system, and government support in the form of providing market information, training, and infrastructure.

1) Selection: Corn farmers need to choose a collector who can provide better prices and has a good reputation.
2) Contractual Opportunities: Corn farmers can make contracts with collectors or layer chicken farmers to increase price certainty and sales volume.
3) Transaction System: Transactions between corn farmers, collectors, and layer chicken farmers can be done in cash or credit.
4) Government Support: The government can provide support in the form of providing market information, training, and infrastructure to improve the efficiency of the corn supply chain.

c. Supply Chain Business Process

The corn supply chain business process involves several stages, including production, collection, distribution, and marketing. The business process relationship between corn farmers, collectors, and laying hen farmers is very important to improve the efficiency and quality of the corn supply chain.

1) Business Process Relationship: Corn Farmers -> Collectors -> Laying Hen Farmers
2) Distribution Pattern: Corn is distributed from farmers to collectors, then to the chicken feed processing plant, then to retailers and then to the end consumers, namely laying hen farmers.

d. Supply Chain Performance

The performance of the corn supply chain can be measured from several aspects, including efficiency, quality, and flexibility.

1) Efficiency: The efficiency of the corn supply chain can be improved by reducing costs and delivery times.
2) Quality: Corn quality can be improved by improving the production process and post-harvest handling.
3) Flexibility: The flexibility of the corn supply chain can be improved by increasing the ability to adapt to changes in demand and supply.

e. Supply Chain Resources

Corn supply chain resources include several aspects, including physical, technological, human, and capital.

1) Physical: Agricultural land, storage warehouses, and road infrastructure are essential to increase corn production and marketing.
2) Technological: Agricultural technology and information technology can be used to improve the efficiency and quality of the corn supply chain.
3) Human: Corn farmers, traders, and laying hen farmers have important roles in the corn supply chain.
4) Capital: Capital can be used to increase corn production and marketing, as well as improve supply chain infrastructure.

CONCLUSION

Based on the analysis conducted, it can be concluded that: (1) Corn Marketing Value Chain Structure: The corn marketing value chain structure in Binuang District, Polewali Mandar Regency involves several parties, including farmers, collectors, retailers, and consumers. There are three different corn product streams, namely Stream 1, Stream 2, and Stream 3, each with its own advantages and disadvantages; (2) Factors Affecting Corn Prices: The factors that affect corn prices in Binuang District, Polewali Mandar Regency include production costs, selling prices, and marketing margins. Additionally, other factors such as climate, soil, seeds, and cultivation techniques also affect corn prices; and (3) Corn Marketing Margin: The corn marketing margin in Binuang District, Polewali Mandar Regency can be calculated based on the difference between the selling price and buying price between farmers, collectors, and retailers. Based on the analysis, Stream 3 has the potential to increase farmers' income and reduce transaction costs.

Research recommendations: Development of Efficient Corn Marketing System: The government and collectors can work together to develop an efficient corn marketing system, such as building adequate market infrastructure and improving farmers' ability to use information and communication technology. Farmer Capacity Building: The government can provide training and mentoring to farmers to improve their ability in corn

cultivation and product marketing.

Development of Marketing Contracts: Farmers and collectors can create clear and transparent marketing contracts to increase price certainty and sales volume. Development of Information and Communication Technology: The government and collectors can work together to develop information and communication technology that can improve the efficiency of corn marketing, such as market information systems and online marketing applications. Monitoring and Evaluation: The government and collectors can conduct monitoring and evaluation of the corn marketing system that has been developed to ensure that the system is effective and efficient.

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