

## **Supply Chain Structure of Gedong Mango in Jatigede District, Sumedang Regency, West Java**

### **Struktur Rantai Pasok Mangga Gedong di Kecamatan Jatigede Kabupaten Sumedang Jawa Barat**

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#### **ABSTRACT**

District Jatigede is the center of production of mango gedong gincu, the biggest in the Regency of Sumedang. Mango gedong gincu is unique because it has a little red color between the color yellow dominant. Although District Jatigede is one center of production of mango gedong in the Regency Sumedang, it is the second biggest production of mango gedong at the province Level after Regency Indramayu based on 2021 data. Even so, it has yet to be widely known by consumers or people. Hence, the chain supply of mango gedong is interesting to study. This case study uses an analysis structure chain supply to see the flow of products, information, and money linked to commodities mango gedong. Actor tracing in this study approaches the rapid market appraisal method. This study shows four supply chain structures; generally, the chain supplies mango gedong in the Regency Sumedang were sold to local collectors to sell to the big collectors in the Regency of Majalengka or Cirebon. That is due to the center city Majalengka and Cirebon's proximity to District Jatigede compared to Sumedang city center. Apart from that, there are packing houses in Majalengka and Cirebon that are also representative.

*Keywords: Jatigede, Gedong Gincu, Manggo, Sumedang, Supply Chain*

#### **ABSTRAK**

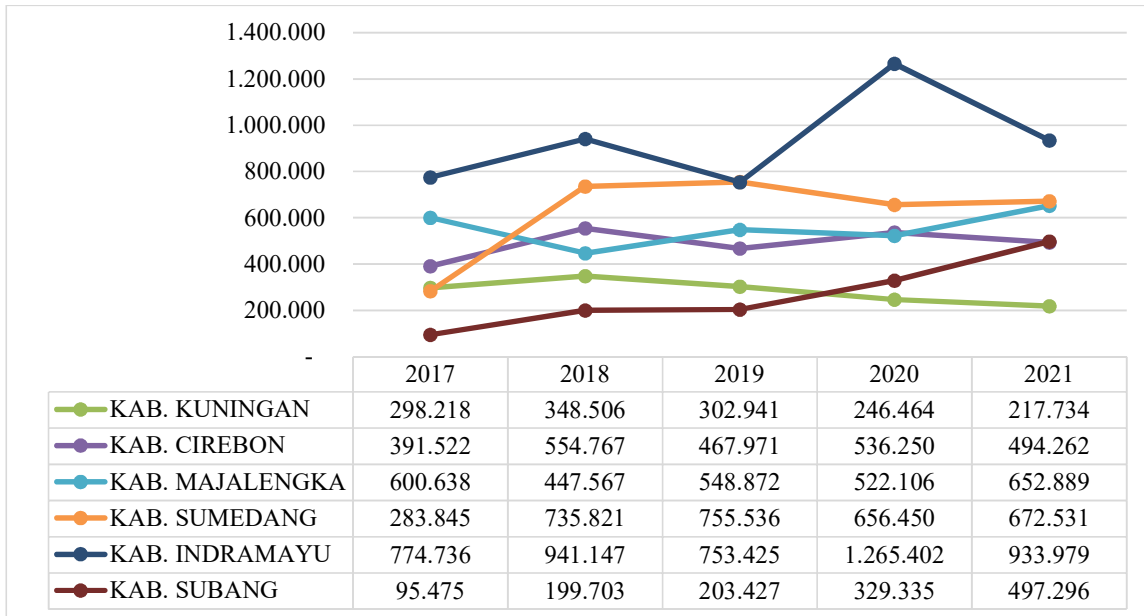
*Kecamatan Jatigede merupakan sentra produksi mangga gedong gincu terbesar di Kabupaten Sumedang. Mangga gedong mempunyai keunikan tersendiri karena dalam waktu tertentu akan muncul warna merah atau gincu diantara warna kuning sehingga sering disebut mangga gedong gincu. Meskipun kecamatan Jatigede sebagai salah satu sentra produksi mangga gedong gincu terbesar di Kabupaten Sumedang bahkan di tingkat provinsi Kabupaten Sumedang sebagai produsen terbesar ke dua mangga gedong gincu setelah Kabupaten Indramayu berdasarkan data tahun 2021 namun tidak banyak di kenal oleh konsumen. Oleh karena itu, rantai pasok mangga gedong gincu menarik untuk di kaji. Penelitian ini menggunakan pendekatan analisis struktural rantai pasok untuk melihat aliran produk, informasi dan uang terkait dengan komoditas mangga gedong gincu. Penelusuran pelaku rantai di lakukan dengan metode RMA (Rapid Market Appraisal). Hasil Penelitian menunjukan bahwa ada empat struktur rantai pasok mangga gedong gincu di Kabupaten Sumedang, umumnya sebagian besar di jual ke pengepul lokal dimana pengepul lokal akan menjual ke pengepul besar di Kabupaten Majalengka dan Cirebon hal ini disebabkan kedekatan Kecamatan Jatigede dengan Majalengka dibandingkan dengan ke Sumedang selain itu terdapatnya rumah kemas di Majalengka dan Cirebon yang memadai.*

*Kata Kunci: Gedong Gincu, Jatigede Manggo, Sumedang, Supply Chain*

#### **INTRODUCTION**

Mango (*Mangifera indica*) is a tropical fruit found in almost all regions in Indonesia with various types. Mangoes have high economic value and are rich in vitamins and fiber, making them one of the leading export commodities (Indrajati, Saputra, and Rosita 2021). Mango is one of the leading commodities because domestic and international demand is increasing (Riana, Roni, and Marina 2022)(Sulistiyowati, Syamsiah, and Azisah 2016). West Java, one of the mango production centers found in all districts/cities, certainly has potential that needs to be well managed.

One popular and widely known type of mango in West Java is the gedong mango or gedong gincu mango, which is for sale when the gincu (red hue) appears. Based on data (Dinas Tanaman dan Hortikultura 2022), West Java mango production, filtered based on total production for five years from 2017 to 2021, found 6 (six) production center districts shown in the image below.



**Figure 1. Mango production trend in 6 west Java Production Centre 2017-2021 (Kuintal)**

Source: (Dinas Tanaman dan Hortikultura 2022)

Regency Sumedang is an area with mango production, the second biggest after Regency Indramayu in West Java Province since 2018. However, Regency Sumedang is still being determined compared to Regency surroundings like Regency Kuningan, Cirebon Regency, Regency Majalengka, and Regency Indramayu, especially with commodities mango gedong gincu.

In its development, the commodity mango gedong gincu originated from West Java, especially Regency Indramayu, Cirebon, Majalengka, and Kuningan, known as centers of production of mango gincu. Regency of Cirebon, Majalengka, and Indramayu is center planting mango gedong, the most extensive lipstick (Sukandi and Landy 2023) and (Ariningsih et al. 2021) statement of the research refuted by production data Mango, Regency Sumedang. Although Sumedang is one of the centers of production of mango gedong gincu, it has yet to be widely known by people. Based on field research and data from service agriculture Regency Sumedang and official data, the West Java Department of Agriculture stated that the production of commodity mango gedong, the second biggest ever in 2018-2021, is in the Regency Sumedang. Hence, the study about the supply chain structure of mango gedong gincu became interesting, primarily related to the flows of mango, money, and information, specifically mango gedong gincu in the District Jatigede as the significant production center in the regency of Sumedang.

## RESEARCH METHODS

This research is a case study research (Pardian et al. 2023a), using survey and interview methods to obtain primary data from the field and secondary data from various sources (Pardian, Hapsari, and Sukayat 2021), especially from informants including big collectors, small collectors, mango farmers, cooperatives and also extension in Jatigede District. Supply chain structure analysis uses qualitative analysis, carried out descriptively following the modified Food Supply Chain Network framework from (Lambert and Cooper 2000), only using supply chain structure analysis that consists of material flows, money flows, and information flows. In

supply chain tracing, members find out who is a member of the supply chain using the Rapid Market Appraisal method (Pardian et al. 2023b) to quickly trace the flow of mango commodities through the main actors who can direct them to other actors, both markets and suppliers.

## RESULT

Sumedang Regency, identical to Sumedang Tofu, is one of the regencies in West Java Province with a distance of about 45 km northeast of Bandung City, which borders Indramayu Regency to the north, Majalengka Regency to the east, Garut Regency in the south, Regency of Subang and Bandung Regency in the west. Sumedang Regency comprises 26 sub-districts, seven urban villages, and 270 villages. Apart from being known as the city of tofu, it is also known for other typical agricultural commodities such as Cilembu sweet potato and sapodilla sukatali. Another developing agricultural commodity that needs to be better known is the gedong gincu mango, which has spread in almost all Districts in Sumedang Regency. Still, only three Districts are the big production centers for gedong gincu mangoes: Jatigede, Ujungjaya, and Tomo Districts. The total production of Gedong Gincu mangoes in Sumedang Regency 2020 was 656,450 quintals. In 2021, it was 564,561 quintals with a percentage of 87% from three sub-districts producing center Gedong Gincu mangoes, as presented in the following table:

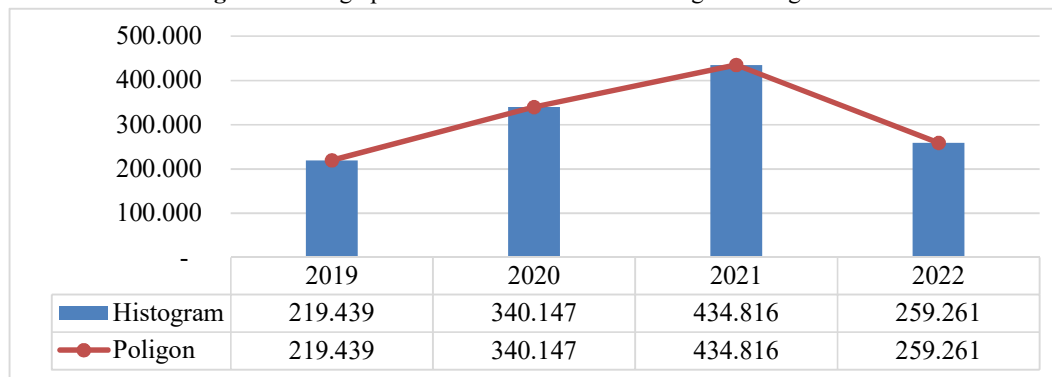
**Table 1. Value and Percentage of Gedong Gincu Mango Production in 3 Production Center Districts 2020-2021**

District	Production (Kuintal)		% of total Production	
	2020	2021	2020	2021
Jatigede	340.147	324.816		
Ujungjaya	111.962	76.601	82.03%	87.60%
Tomo	86.384	93.158		
<b>Total Production in 3 Districts</b>	<b>538.493</b>	<b>494.575</b>		
<b>Total Gedong Gincu Mango Production in Sumedang Regency</b>	<b>656.450</b>	<b>564.561</b>	<b>100%</b>	<b>100%</b>

Source: primary data processed (2018)

Jatigede District, apart from being known for the Jatigede Dam, is also the biggest gedong gincu mango production center in Sumedang Regency. As the biggest gedong gincu mango production center, with a percentage of 57.53% of the total gedong gincu mango production in Sumedang Regency, amounting to 564,561 quintals in 2021. Jatigede District, as the gedong mango production center in Sumedang Regency during 2019 – 2022, the production result fluctuated, highest in 2020, to 340,147 quintals, as shown in the image below.

**Figure 2. Mango production in the District of Jatigede mango 2019-2022**



Source: (BPS Kabupaten Sumedang 2023)

The big production of gedong mangoes and gedong gicu mangoes in Sumedang Regency from supply chain investigations in the field toward actors involved shows that the majority of gedong and gedong gicu mangoes sent by the small and big collectors from Jatigede district to the big dealers in Panyingkiran District Majalengka Regency and the area Cirebon Regency.

### Supply Chain Structure

Supply chain management (SCM) in business activities is a series of structured and measurable activities designed to produce specified outputs for specific customers or markets (Davenport 1993). The supply chain is a series of productive activities from upstream to downstream that are

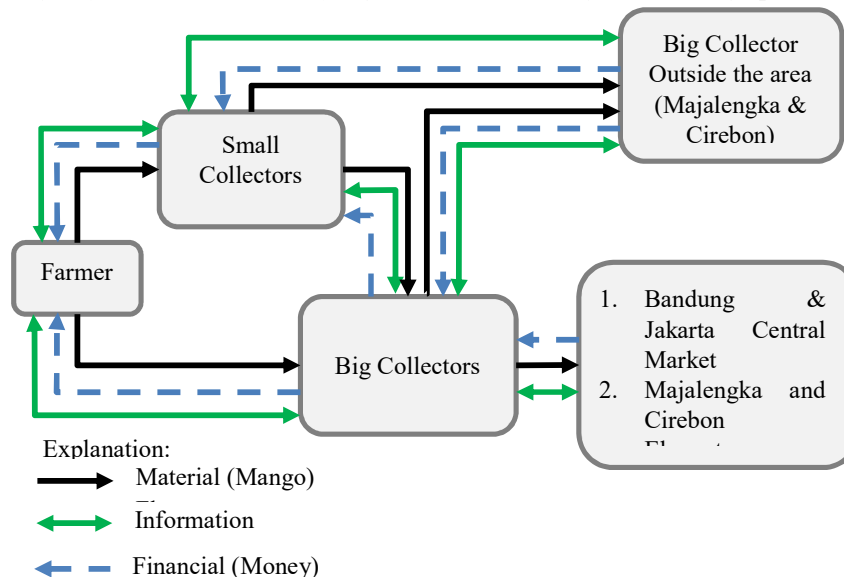
interconnected between activities and form a value chain, which is a concept for implementing an integrated logistics system in business activities (Afriyani, Yazid, and Aryani 2021).

There are three interconnected elements in supply chain management, namely

1. Supply chain network structure Working network between members and relationships with other supply chain members.
2. Supply chain business processes: The value of certain customer expenditures originating from various activities.
3. Components of supply chain management Business processes are integrated and arranged along the supply chain in managerial variables.

In this research, what we examine in more depth is related to the supply chain structure.

The results of research on the supply chain structure of gedong gincu mangoes in Jatigede District, which is a network of cooperation in mango procurement that is interconnected with each other to make and distribute gedong gincu mangoes starting from farmers as producers. In the search and mapping carried out, the perpetrators of the Gedong Gincu Mango supply chain in Jatigede identification, consisting of farmers, small collectors (local), big collectors (local), dealers outside the region, exporters, market and fruit shops, and consumers. In the Gedong Gincu mango supply chain in Jatigede Regency, the main actors connecting direct sales to consumers are dealers outside the region, especially from Majalengka and Cirebon Regencies, but mainly from Majalengka Regency because it is directly adjacent to the Gedong Gincu mango production center.



**Figure 3. The pattern of Mango SupplyChain Flow, Jatigede District**

The structure of the mango supply chain in Jatigede District describes the flow of mango products, the flow of money, and the flow of information. The explanation is descriptive as follows:

1. Mango Flow

The flow of Gedong Gincu Mango products in Jatigede District begins from production input at the farmer level, cultivating to produce Gedong Mangoes harvested in June. The gedong gincu mango harvest in Jatigede District occurs twice a year, namely in the middle of the year, from June until the end of September, and then some yield in November or December to February, depending on conditions and treatment. The Gedong mango harvests will sold to collecting traders, but the mangoes are not sorted or packed. The management and sales pattern of mango plants carried out by farmers as follows:

- 1) Farmers sell mangoes by picking them themselves and selling them to collectors, and small farmers do this.
- 2) Farmers sell mangoes using a tree sales system (contract system) where the tenant of the mango tree will handle its plant care. This activity has decreased, and not much to do.

- 3) Farmers sell mangoes by selling mango trees that are already bearing fruit and ready to harvest to (small or big) collectors, and then they will carry out the harvest by the buyer.
- 4) Farmers take care of their mango plants because they have partnered with (small or big) collectors, so they get capital loan assistance to care for the plants. Once they are ready to harvest, they will sold to collectors who harvest themselves.

The supply chain structure for gedong gincu mango products in Jatigede District, Sumedang Regency, starts from farmers to small and big collectors. Meanwhile, marketing is carried out outside the Jatigede area, even outside the Sumedang Regency area, most of which is in the Majalengka and Cirebon areas, which are directly adjacent to the three gedong gincu mango production center sub-districts in Sumedang Regency. In general, the flow of mango commodities has four supply chain models for gedong gincu mangoes.



**Figure 4. Distance Jatigede District Gedong Mango Production Center, from Sumedang City Center and Majalengka City Centre**

Source: Google Map

The picture above shows that the distance to the center of Sumedang city is further compared to the center of Majalengka city. The distance between the location of the Gedong mango production center and the Sumedang city center is around 38.7 kilometers, with an expected travel time of 1 – 2 hours or even more due to road infrastructure and density. The distance between the location of the Gedong mango production center, Sumedang Regency, and the center of Majalengka city is only 21.6 kilometers with a distance of 22 - 38 minutes, just crossing the Cimanuk River as the regional border of Sumedangan Regency and Majalengka Regency. This condition is one of the reasons why more Gedong mangoes from Sumedang Regency are sent to big dealers in Majalengka Regency, apart from the post-harvest infrastructure at the Gedong mango production center in Majalengka Regency in Panyingkiran District, which borders the Gedong mango production center, which is complete and better.

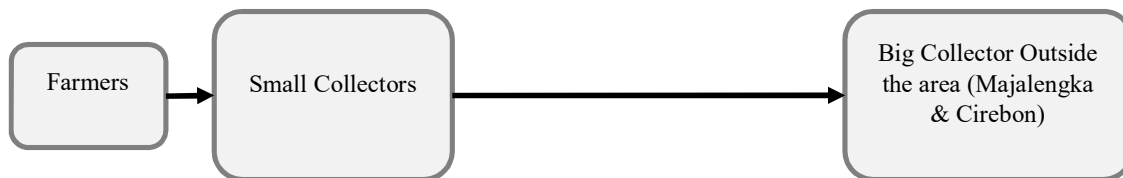
As one of the components of the supply chain, the structure of the Gedong mango supply chain in Sumedang Regency, from the result of field investigations and interviews with actors in production centers, consists of extension workers, big collectors, small collectors, and farmers, using triangulation techniques to ensure the same answers in addition to observations in the field as follows:

- 1) The first supply chain structure is that farmers sell to small collectors by harvesting by the buyer or harvesting by the farmer and then delivering it to the collector's location using an abres sales system (no grading). Small farmers usually do with small land ownership areas or plants around the house. The collector will distribute it to big collectors using a grading system. Actors in the Jatigede District mainly carry out this first structure with a percentage of 80%.



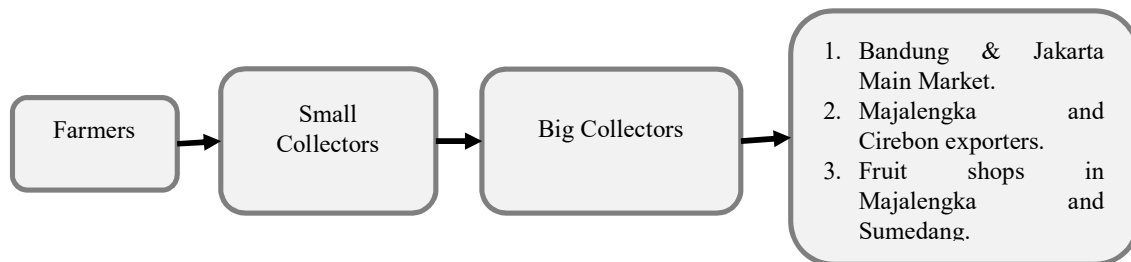
**Figure 4. The Pattern of First: Mango Supply Chain Structure in Jatigede District**

- 2) The second supply chain structure: farmers sell to small collectors by harvesting by the buyer or harvesting by the farmer and then delivering it to the collector's location using an abres system (sells everything without grading). Small collectors will carry out the grading and send it directly to big dealers in the Majalengka and Cirebon Regencies.



**Figure 5. The Pattern of Second: Mango Supply Chain Structure in Jatigede District**

- 3) The three supply chain structure: farmers sell to small collectors by harvesting by the buyer or harvesting by the farmer and then delivering it to the small collector's location without grading. Small collectors will carry out grading and send it directly to big collectors. Then, big collectors will be grading and packing to sell to consumers like the central market and exporters in Majalengka Regency and Cirebon Regency. Then, a small portion will be sold in fruit shops, especially in the Majalengka Regency area.



**Figure 6. The Pattern of Three: Mango Supply Chain Structures in Jatigede District**

- 4) The four supply chain structure: farmers sell to big collectors using the abres system (sells everything without grading), then the big collectors will carry out grading and packaging to sell to consumers at the wholesale market, exporters in Majalengka Regency and Cirebon Regency and then part is selling in fruit shops, especially in the Majalengka Regency area.



**Figure 7. The Pattern of Four: Mango Supply Chain Structure in Jatigede District**

## 2. Money Flows

*Money flows* are transactions that occur between actors. This flow is money flowing from consumers, in this case, the most significant collectors out-of-the-area and big collectors in the Jatigede District as the final actors. The flow of information is abstract (intangible) because it is the basis for decision-making regarding the size of the material flow and money flow in the network. Collectors market the original flow of Gedong Gincu Mango products from the Jatigede District to various regions. Based on the picture above, it can be identified as follows: Farmers, local collectors, collecting traders, local dealers, and inter-regional dealers where inter-regional dealers are the meeting point for demand and offering Mango Gedong Gincu which also plays a role in spreading Mango Gedong Gincu to all marketing areas.

**Table 2. Gedong Gincu Mango Supply Chain Characteristic in Jatigede District**

Actors	System and payment method
Small Collector – Farmers	Cash
Big Collector – Farmers	Cash
Big Collector – Small Collector	Postpone Payment (negotiable)
Bandar Outside the area – Small Collector	Postpone Payment (negotiable)
Bandar Outside the area – Big Collector	Postpone Payment

The payment system for small collectors by big collectors or big collectors by big dealers from Majalengka Regency and Cirebon Regency usually uses a Postpone payment system. However, in practice, this can be negotiated.

## CONCLUSION

So far, most of the gedong mangoes from Sumedang Regency have been sold to dealers in Majalengka Regency and partly to Cirebon Regency, so they are less well known, and not many fruit shops can be found in the center of Sumedang city, but with the existence of the Jatigede Dam and access to location has improved, gedong gincu mangoes starting to become known, especially Jatigede District as the biggest production center, also Tomo and Ujung Jaya District so that the attention of the regional government with the start of cooperation for exports abroad. Big collectors in Regency Sumedang are starting to have access to markets outside the region, such as Bandung and Jakarta. However, markets to the Bandar of Majalengka and Cirebon still keep it due to significant uptake and long-term demand. Emerge gedong gincu processing industry for processing non-grade gedong mangoes as dried gedong gincu mangoes with higher added value and more profits.

## SUGGESTION

Government and private sector support is needed to collaborate tourism management with Sumedang souvenir shop management that sells various agricultural and processed products. Further study must overall supply chain management, including distribution and market development of agricultural commodities

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