

# Development of Joint Sales Business by Regional Agricultural Cooperatives in a Major Apple Production Region of Korea - Focused on the Case of Muju County, North Jeolla Province -

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한국 사과 주산지의 지역농협 연합판매사업의 전개  
- 전라북도 무주군을 사례로 -

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In Muju County, one of Korea's major apple producers, the regional agricultural cooperatives united together and invested to establish a cooperative joint business corporation in charge of the sales business. The corporation carried out the sales business transferred from the participating regional agricultural cooperatives. While the two participating cooperatives showed a marked difference in the degree of participation at the beginning of the business, the introduction of the agricultural product processing centers (APCs) and the participation of co-selection and shipment organizations and general farms helped settle this gap. In addition, commercialization through the APCs enhanced the market competitiveness of apples, which led to the stable securing of sales outlets. The corporation integrated the sales business in the county and this resulted in increased sales volume and sales revenue. Playing a leading role in introducing and cultivating new crops on a trial basis, the corporation demonstrated its potential as the main body of the joint sales business.

Key words : *agricultural product processing center, cooperative joint business corporation, agricultural product sales business, co-selection and shipment organization, regional agricultural cooperatives*

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## I . Introduction

Prior to the 1990s, the South Korean National Agricultural Cooperative Federation (NACF) mainly engaged in the purchase and credit business, and performed joint sales business for agricultural products only on a small scale. Therefore, joint sales business was carried out mostly in the form of co-selection and shipment centered around village-level cultivation teams (Hwang and Lim, 2011).

The opening of the agricultural market, which began in 1990, led to a decrease in the prices of domestic agricultural products. In response to the Uruguay Round that took effect in 1995, the NACF strengthened the agricultural products sales business (Park et al., 2013). To meet the changing demand of the market, the NACF formed small joint accounting organizations in the mid-1990s to strengthen the producer distribution system, which had been in place as part of joint sales business. After 2000, led by the NACF, joint sales business based on the co-selection and shipment system was started at the city and county levels (Hwang and Lim, 2011).

Although the NACF-led joint sales business contributed to increasing the scale of sales to a certain extent, since the sales business organization within the NACF could play only a limited role, it was required that the business be led by a corporation to act as a distinct transaction entity (Jeong and Hwang, 2007). Accordingly, the government strategically introduced the cooperative joint business corporation system in order to respond to the market opening as well as the changes in the distribution environment. The system also aimed to reflect the reality of small-scale farms, aging of farmers, and the polarization between farms, and to maintain a production base and agricultural manpower above a certain scale (Kim, 2016). With the amendment of the Agricultural Cooperative Act in 2004, the NACF recognized cooperative joint business corporations as a new form of the NACF sales organization and granted them associate membership in the federation.

The NACF's fruit and vegetable sector joint sales business, which started in the early 2000s, has been led by two different organizations: joint business groups of the NACF and cooperative joint business corporations established by regional agricultural cooperatives. As of 2015, joint sales business is carried out under the system where these two types of organizations coexist: 59 joint business groups generating sales of KRW 800 billion, and 47 cooperative joint business corporations generating sales of KRW 1.3 trillion coexist (Hwang et al., 2018b).

Previous studies on cooperative joint business corporations include those conducted by Jeong and Hwang (2007), Chae (2012), Jeong and You (2014), You et al. (2016), Hwang et al. (2018b), and Hwang and Sakashita (2018a). Jeong and Hwang (2007) assessed the current status

of cooperative joint business corporations and problems posed since the introduction of the system and suggested development measures. Chae (2012) presented operational problems and tasks based on the types and operating status of cooperative joint business corporations. Jeong and You (2014) compared the status and performance of joint business groups and cooperative joint business corporations, based on which they analyzed the problems faced by these organizations and provided development measures. You et al. (2016), Hwang and Sakashita (2018a), and Hwang et al. (2018b) carried out case studies to analyze the structure of cooperative joint business corporations. In particular, Hwang and Sakashita (2018a) identified the development process and structure of the joint sales business in Jinju City, a producer of vegetables, from the time it had been carried out by a joint business group to after conversion to the cooperative joint business corporation system. In addition, Hwang et al. (2018b) revealed the structure in which a cooperative joint business corporation developed the agricultural products sales business in Namwon City, a producer of numerous crops. To date, only a few studies have been conducted on cooperative joint business corporations, and most have focused on the status of such corporations after the introduction of the system and measures for their development.

In order to differentiate this research from previous studies, Muju County, a main producer of apples, was chosen as the study subject. The objectives of this study are to analyze the following: the process in which the sales business was transferred to two regional agricultural cooperatives, each having different sales strategies; the changes in the business after the transfer, including the changes regarding sales outlets and sales amount; and the performance of the co-selection and shipment organization and the cooperative joint business corporation.

## II . Agriculture and Apple Cultivation in Muju County

Muju County is located at the northeast end of North Jeolla Province and borders four provinces, as shown in Figure 1. The area consists of six administrative districts, which comprise one “eup” (administrative unit) and five “myeon” (township). The six districts are as follows: Muju-eup, Mupung-myeon, Seolcheon-myeon, Anseong-myeon, Jeoksang-myeon, and Bunam-myeon.

As of 2016, the population of Muju County amounts to 25,208 persons from 11,893 households, of which 8,333 persons from 3,675 households (33.1%) are engaged in farming. The farming households are again divided into 2,153 full-time farming households (58.6%) and 1,523

non-full-time farming households (41.4%). The total cultivation area is 5,408ha, which includes 1,416ha (26.2%) of rice paddies and 3,991ha (73.8%) of fields, and the cultivation area per household is 1.47 ha. The number of farms with owners aged 60 or older is 2,761, and the average age of farm owners is 66.3, indicating the aging of the local farming community.

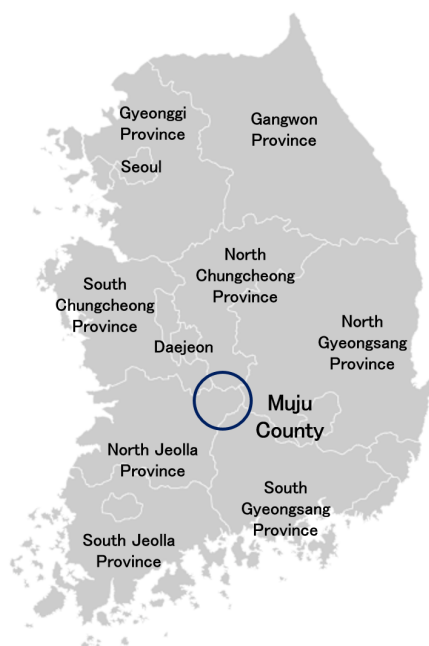


Fig 1. Location of Muju County.

The cultivation area and production by crop type are as follows: 1,479 ha (17,339 tons) of food crops (rice, corn, buckwheat, soybean, red bean, mung bean, potato, and sweet potato), of which 932 ha (6,453 tons) is occupied by rice, 196.5 ha (1,124 tons) by corn, and 82 ha (107 tons) by soybeans; and 538 ha (1,699 tons) of condiment vegetables (chili pepper, garlic, onion, and green onion); 183 ha (12,247 tons) of leafy vegetables (napa cabbage, lettuce, and cabbage); 41 ha (1,316 tons) of root vegetables (radish and carrot); 39 ha (1,710 tons) of fruits and vegetables (watermelon, strawberry, tomato, and pumpkin). Out of all vegetables, chili pepper and cabbage occupy the largest area and represent the highest production, with 512 ha (1,307 tons) and 179 ha (12,101 tons), respectively. Fruit trees are cultivated over 8,946 ha (13,665 tons) of the total cultivation area, consisting of 685 ha under apple cultivation (10,006 tons), 85 ha (1,600 tons) under grape cultivation, and 80 ha (2,219 tons) under peach cultivation.

The area under apple cultivation in Muju County increased from 49.6 ha in 1990 to 284 ha

in 2000, 450 ha in 2010, and 685.3 ha in 2016. Mupung-myeon, which has been the leading apple producer in the county, is a mountainous area with an average altitude of 400 meters above sea level or higher. Mupung-myeon began cultivating apples in the mid-1990s following some advanced farms. Through market development and farming guidance by regional agricultural cooperatives, the area under apple cultivation increased from 58.1ha in 1995 to 357ha in 2016, and currently occupies 52% of the total cultivation area in Muju County.

### **III. Sales Business of Regional Agricultural Cooperatives and the Establishment of a Cooperative Joint Business Corporation**

#### **1. Sales Business of Regional Agricultural Cooperatives**

Muju County has two regional agricultural cooperatives: the Gucheon-dong Agricultural Cooperative and the Muju Agricultural Cooperative. The former covers Mupung-myeon and Seolcheon-myeon, while the latter covers Muju-eup, Anseong-myeon, Jeoksang-myeon, and Bunam-myeon.

The Gucheon-dong Agricultural Cooperative was formed in 1997 as the Mupung Agricultural Cooperative merged with the Seolcheon Agricultural Cooperative. In the initial years, the Gucheon-dong Agricultural Cooperative dealt in corn, high-altitude napa cabbage, walnuts, apples, and grapes as major crops primarily through route sales using joint markets. In addition, from the initial years, it carried out marketing campaigns for apples, grapes, and other crops. Such efforts included promotional and tasting events that were centered around the NACF's Hanaro Club (big supermarket chain operated by the NACF) stores, large discount stores, and distribution centers, and regularly held farm tours for the collection of products. The increase in the area under apple cultivation accelerated with the support for seedling purchases from the county in 2004 (50% of purchases were subsidized). Also, in the same year, the Gucheon-dong Agricultural Cooperative diversified its sales outlets by supplying 80,000 tons (worth KRW 190 million) of agricultural products to a large supermarket chain (Samsung Homeplus) other than the NACFs. In order to improve the quality of agricultural products, the cooperative also set its focus on the production of eco-friendly agricultural products, and provided agricultural materials necessary for cultivation. As a result, the total agricultural sales increased from KRW 6.4 billion in 1997 to KRW 11.1 billion in 2012, accounting for 42.9% of the total proceeds from economic business (KRW 25.8 billion). The cooperative has a membership of 2,290 farmers, 43

agricultural associations, and 45 cultivation teams.

The predecessor of the Muju Agricultural Cooperative was the Muju Jeoksang Agricultural Cooperative, which merged with the then Muju Agricultural Cooperative and Bunam Agricultural Cooperative in 2003 and with the Anseong Agricultural Cooperative in 2005. It was renamed the present Muju Agricultural Cooperative in 2008. It has mainly dealt in Cheonma (*Gastrodia elata*), peaches, apples, grapes, etc, mostly through route sales at joint markets. In the case of Cheonma, the cooperative has served as the exclusive distributor of the crop that purchases, processes, and sells the whole production of the area. It began operating an agricultural product processing center (APC) in 2007, and expanded sales outlets to large supermarkets and other retailers in 2009, breaking away from dependency on route sales. As a result, the total sales increased from KRW 5.7 billion in 2005 to KRW 9 billion in 2012, accounting for 28.8% of the total economic business of KRW 31.3 billion. The cooperative has a membership of 4,102 farmers, 108 agricultural associations, and 66 cultivation teams.

In comparison, the Muju Agricultural Cooperative is much larger than the Gucheon-dong Agricultural Cooperative in terms of the number of members, participating farms, and economic business revenues. However, the Gucheon-dong Agricultural Cooperative has a larger scale of sales business than the Muju Agricultural Cooperative.

## 2. Establishment of the Muju Banditbul Cooperative Joint Business Corporation

The joint sales business currently carried out by the two regional agricultural cooperatives was started by a joint business group organized under the NACF Muju County Branch in 2008. The joint business group consisted of one manager from the Muju County Branch and one employee recruited by the group. It was not granted authority to make decisions regarding marketing and only performed the role of maintaining a register of the sales of the two regional agricultural cooperatives. In addition, the head of the group also served as the director of the Economic Development Guidance Division of the branch office. In 2012, the division changed to the Agricultural Administration Support Division in charge of providing economic development guidance and allocating and managing the budget across the county.

In April 2012, after being selected for a government-led project to revitalize the producer distribution system, the two regional agricultural cooperatives agreed on establishing an integrated marketing organization on the condition that it be incorporated by 2015. Discussions on the establishment of the organization began thereafter, followed by a promoters' meeting and a public hearing for the founding of the Muju Banditbul Cooperative Joint Business Corporation

held in October 2012. In November, the establishment promotion committee for the corporation was formed. And after holding the inaugural general meeting, requesting permission for the establishment, and being granted approval of the business plan and articles of incorporation in December, the corporation finally embarked on its business the following year in March 2013.

To capitalize the corporation, a total of KRW 1.2 billion was invested, comprising KRW 800 million (KRW 400 million from each cooperative) at the time of establishment and an additional KRW 400 million (KRW 200 million from each cooperative) in 2013. Under the leadership of the CEO, the corporation's organization consists of the General Affairs Planning Team (general business management and accounting/settlement), the Producer Management Team (farm and commercialization management), and the Marketing Team (sales management). The employees include the CEO (from the Muju Agricultural Cooperative) and the Executive Director of Economy (from the Gucheon-dong Agricultural Cooperative), and three employees recruited by the corporation. Decision-making is made by the Muju-gun Integrated Marketing Council, which consists of the county (administration), presidents of the regional agricultural cooperatives, and representatives of producers (farms) of each crop type. This council is also the recipient of the government subsidies for the producer distribution system revitalization project.

Table 1 shows the roles of each participating agent in the cooperative joint business corporation. The farms are in charge of the entire production process, and the participating agricultural cooperatives take charge of selection and commercialization, and farm management. The corporation is responsible for the entire sales process, which includes securing sales outlets; commercializing products by determining the price and weight per unit, and packaging materials; and communicating the requirements from the sales outlets and the market information to the participating agricultural cooperatives and farms. This operational system shows the transfer of

Table 1. Division of roles by participating agent in the Muju Banditbul Cooperative Joint Business Corporation

Division	Responsibility	Description
Farm	Production	Cultivation and production of agricultural products
Participating agricultural cooperatives	Commercialization	Selection and commercialization of products, management of farms
Cooperative joint business corporation	Sales	Securing sales outlets and pricing, determining weight per unit and packaging materials, and communicating market information

Note: Extracted from the internal data of the Muju Banditbul Cooperative Joint Business Corporation.

the sales business that was implemented by the participating agricultural cooperatives to the corporation.

Business items are divided into “strategic items” and “items to foster” in consideration of their respective cultivation area and production volume. The strategic item category comprises apples, grapes, and peaches, which are produced in the largest volumes. Classified as items to foster are tomatoes, strawberries, napa cabbage, and potatoes that are in the introduction stage or cultivated over relatively small areas.

#### IV. Joint Sales Business by the Cooperative Joint Business Corporation and Its Operational Characteristics

##### 1. Participation of the Two Regional Agricultural Cooperatives at the Initial Stage

At the initial stage, the two participating agricultural cooperatives showed a large difference in the degree of participation in the joint sales business implemented by the cooperative joint business corporation. Table 2 shows the sales amounts of the corporation and the participating agricultural cooperatives and their proportions.

The Gucheon-dong Agricultural Cooperative showed project participation of KRW 1.7 billion (30.8%) in 2013 and KRW 1.8 billion (23.3%) in 2014. And, because the cooperative had major

Table 2. Sales amounts of the Muju Banditbul Corporation and the participating agricultural cooperatives (2013-2016)

(Unit: KRW 100 million, %)

Division	Corporate Sales ①	Gucheon-dong Cooperative		Muju Cooperative	
		Sales to the corporation ②	Proportion	Sales to the corporation ③	Proportion
			②/①		③/①
2013	5,683	1,753	30.8	3,930	69.2
2014	8,002	1,861	23.3	6,134	76.7
2015	11,698	4,684	40.0	7,014	60.0
2016	13,353	6,538	49.0	6,815	51.0

Note: Extracted from the internal data of the Muju Banditbul Cooperative Joint Business Corporation.



sales outlets at that time, it had already established a trusting relationship even before participating in the corporate business. Also, as it was before producer distribution facilities were introduced, only items co-selected from the simplified sorting facilities were sold to the corporation on consignment. The sorting cost and 2% of the sales commission generated during the co-selection and shipping process were recognized as a new cost increase, preventing farmers' participation in the corporate business. In particular, as the corporation did not accept apples sorted by farms for consignment sales while apples occupied the largest part of the whole production, farmers showed a very low level of participation in the corporate business at the initial stage.

On the other hand, the Muju Agricultural Cooperative had started to operate an APC earlier than the Gucheon-dong Agricultural Cooperative, and had formed a co-selection and shipment organization in 2009. As a result, it showed a better understanding of the corporate business as well as more active participation in it than the Gucheon-dong Cooperative. Out of the initial sales of KRW 3.9 billion, apples (approx. KRW 2.1 billion) and peaches (approx. KRW 700 million) that were co-selected from the APC accounted for the largest shares. And in 2014, the sales of these crops increased to KRW 6.1 billion in total. Under these circumstances, the corporation's joint business began, and with the introduction of the APC system and consignment sales of crops other than co-selected crops, the participation of the Gucheon-dong Cooperative increased in 2015. As a result, the total sales of the corporation increased from KRW 5.6 billion in 2013 to KRW 13.3 billion in 2016. In addition, the participation rates of the two participating cooperatives reached a similar level in 2016, with the Gucheon-dong Cooperative accounting for 49% of the total corporate sales (KRW 6.5 billion) and the Muju Cooperative 51% (KRW 6.8 billion).

## 2. APC Operation and Its Prospects

Agricultural products handled by the corporation are processed in the APCs managed by the participating agricultural cooperatives and sold as co-selected products. Table 3 shows the status of the collection and shipment facilities managed by each agricultural cooperative. A total of six APCs are operated by the participating agricultural cooperatives, including simplified sorting facilities. The Muju Agricultural Cooperative had been operating simplified sorting facilities since the late 1990s. And in 2007, they were commissioned by the county to operate the Muju-eup APC (processing 1,232 tons per year) and began handling apples, grapes, and peaches. In 2012, the Muju Agricultural Cooperative established the Anseong-myeon Eco-friendly APC

(processing 2,528 tons per year) as part of the government's wide area eco-friendly complex development project and started handling apples, tomatoes, and eco-friendly agricultural products. The Gucheon-dong Agricultural Cooperative implemented simplified sorting at the Mupung-myeon Economic Business Center, but closed it after the opening of an APC. In 2016, the cooperative was entrusted to operate the Mupung-myeon APC (processing 2,640 tons per year), which had been established by the county in 2009 and operated by the Mupung Apple Agricultural Association Corporation. The cooperative introduced sorting machines, improved facilities, and started handling apples, onions, and corn at this APC. Also, with support from North Jeolla Province, it opened the Seolcheon-myeon APC (processing 1,048 tons per year) in 2016 and started handling grapes and peaches.

Table 3. Status of collection and shipment facilities by agricultural cooperative in Muju County (2017)

(Unit: m<sup>2</sup>, ton, KRW 100 million)

Agricultural Cooperative	Facility	Year of installation	Facility details		Business expenses	Handled items	Remarks
			Scale (Building)	Capacity			
Muju Cooperative	Jeoksang-myeon Tomato Cultivation Teams' Simplified Sorting Facility	1996	330		290	Tomatoes	Simplified sorting facility
	Anseong-myeon Apple Cultivation Teams' Simplified Sorting Facility	1997	307		224	Apples	Simplified sorting facility
	Muju-eup APC	2007	2,625	1,232	2,500	Apples, grapes, peaches, napa cabbage	County-owned
	Anseong-myeon Eco-friendly APC	2012	2,078	2,528	2,650	Apples, tomatoes, eco-friendly products	
Gucheon-dong Cooperative	Mupung-myeon APC	2009	2,245	2,640	3,810	Apples, onions, corn	County-owned
	Seolcheon-myeon APC	2016	1,481	952	1,048	Grapes, peaches	

Note: 1 Extracted from Muju-gun Horticultural Industry Comprehensive Plan.

2. Capacity based on the number of tons processed per year.

Each agricultural cooperative is responsible for the operation of these APCs with a clear boundary between the covered territories by each cooperative. Farmers can change the APC they use from one to another according to the types of handled crops within the area covered by their cooperative. Fig. 2 shows the location and handled items of each APC. Within the area covered by the Gucheon-dong Agricultural Cooperative, there is a clear division between the types of items handled by each APC, with the Mupung-myeon APC handling only apples and the Seolcheon-myeon only grapes and peaches. Since the Muju Agricultural Cooperative allows all APCs to handle apples, farmers can freely change the APC they use, and the cooperative sometimes helps farmers choose an APC in consideration of the storage capacity and sorting amount. Other crops are handled by their dedicated APCs: grapes and peaches by the Muju-eup APC, and tomatoes by the Anseong-myeon APC. When it is required to handle a crop beyond the boundary between the cooperatives due to low production in an area, the corporation induces the cooperative with higher production to exclusively handle the crop to upscale the entire production and promote sales after co-selection.

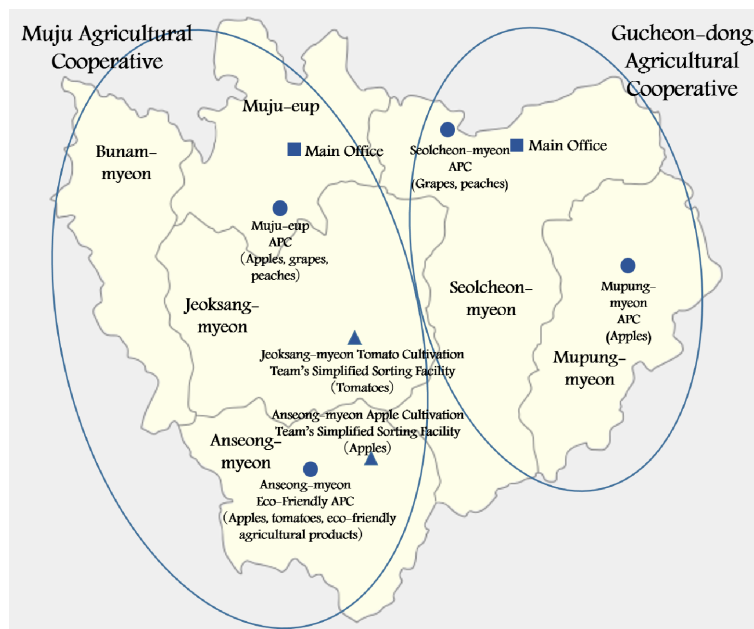


Fig. 2. Location and handled items of APCs managed by each cooperative.

Table 4 shows the sales of co-selected products from each participating agricultural cooperative. Sales through the corporation after co-election at APCs increased from 92.8% (KRW 5.2 billion) of the total sales at the beginning of the business to 67.5% (KRW 9 billion) in 2016.

From the initial years of the business to 2016, co-selected products accounted for more than 65% of the total sales.

Table 4. Sales of co-selected products from each participating cooperative in the Muju Banditbul Corporation (2013-2016)

(Unit: KRW 100 million, %)

Division	Corporate sales	Co-selected Product Sales			
		Gucheon-dong Cooperative	Muju Cooperative	Total	Proportion
2013	5,683	1,590	3,683	5,273	92.8
2014	8,002	1,849	3,645	5,494	68.7
2015	11,698	2,284	6,326	8,610	73.6
2016	13,353	3,629	5,386	9,015	67.5

Note: Extracted from the internal data of the Muju Banditbul Cooperative Joint Business Corporation.

Table 5. Processing status of strategic items at APCs and co-selection rates (2016)

(Unit: tons, %)

Item	Total production in the county ①	APC				Corporation	
		Capacity ②	Processed volume ③	Processing rate ③/①	Operational rate ③/②	Co-selected volume ④	Proportion ④/③
Apple	10,830	5,150	3,701	34.2	71.9	2,829	76.4
Grape	1,344	600	363	27.0	60.5	177	48.8
Peach	1,808	700	427	23.6	61.0	309	72.4
Total	13,982	6,450	4,491	32.1	69.6	3,315	73.8

Note: Extracted from the internal data of the Muju Banditbul Cooperative Joint Business Corporation.

Table 5 displays the status of strategic crops processed in each APC in 2016 and the proportions of co-selected products of the total corporate sales. The total apple production amounted to 10,830 tons, of which 3,701 tons (34.2%) passed through APCs. Out of these apples, 2,829 tons (76.4%) were sold through the corporation. In the case of grapes, the total production was 1,344 tons, of which 363 tons (27.0%) passed through APCs. Out of these grapes, 177 tons (48.8%) were sold through the corporation. The reason that a smaller proportion of the grapes is sent to APCs is that the production of many varieties is individually selected by each farm and then collected for joint sales and pooling. As for peaches, the total production

amounted to 1,808 tons, of which 427 tons (23.6%) passed through APCs. Of these peaches selected at APCs, 309 tons (72.4%) are sold through the corporation. The APC operation rates are 71.9% for apples, 61.0% for peaches, and 60.5% for grapes.

With the operation of APCs, corporate sales of co-selected products excluding grapes increased, and the shipment of these products enhanced the corporation's market competitiveness. It is necessary to increase the operational rates of APCs, which were 60% or more as of 2016, by raising the APC processed volume of agricultural products produced in the county. This will lead to an increase in co-selected volume, which will, again, increase the total corporate sales.

### 3. Development of Co-Selection Organizations and the Implementation of the Shipment Right Entrustment System

The farms participating in the corporation include both farms that have joined the co-selection organizations and those that have entrusted their shipment rights to either of the two agricultural cooperatives. At the beginning of the business, there were 10 co-selection organizations for seven items, namely apples (2 organizations), grapes (2 organizations), peaches (2 organizations), strawberries, tomatoes, blueberries, and potatoes, where 295 farms participated.

Table 6 shows the number of farms participating in the corporate business and their cultivation area in 2017. Out of 2,088 farm households in the county, 1,070 (51.2%) are participating in the business. These participating farms are divided into 745 (69.6%) farms that have joined co-selection organizations and 325 farms (30.3%) that have not. The item with the highest corporate business participation rate is tomatoes (81.3%), followed by grapes (80.3%), blueberries (79.1%), apples (61.9%), and peaches (59.4%). In the case of watermelons and strawberries, since they were introduced relatively recently and have been cultivated for a short period in the region, all producers participate in the corporate business.

The cultivation area of participating farms is 615 ha, which accounts for 53.3% of the county's total cultivation area (1,154 ha). Out of 615 ha, 416 ha (67.6%) is under cultivation by the farms participating in co-selection, while the remaining 199 ha (32.4%) is under cultivation by general farms. Apple cultivation occupies the largest part of the total cultivation area, which amounts to 741 ha (64.2%). Out of the total apple cultivation area, 447 ha (60.3%) is under the corporation's joint business system. A total of 11 co-selection and shipment organizations are in operation in the county, with two organizations each for apple, grape, and peach cultivation, operated by each participating agricultural cooperative. In the case of the co-selection organizations for apples, the organization under the Muju Cooperative is led by the cooperative and

Table 6. Participating farms in the Muju Banditbul Cooperative Joint Business Corporation and their cultivation area (2017)

(Unit: household, %, ha, organization)

Item	Participating farms			No. of farms in Muju	Participation rate	Cultivation area of participating farms			Cultivation area in Muju	Cultivation area rate	Co-selection organization	
	Co-selection	General	Subtotal			Co-selection	General	Subtotal				
Strategic items	Apple	406	186	592	956	61.9	304	143	447	741	60.3	2
	Grape	141	43	184	229	80.3	56	17	73	91	80.2	2
	Peach	50	57	107	180	59.4	15	17	32	59	54.2	2
	Tomato	13	26	39	48	81.3	3	5	8	10	80.0	1
	Subtotal	610	312	922	1,413	65.3	378	182	560	901	62.2	7
Items to foster	Cheonma	42	4	46	300	15.3	7	1	8	50	16.0	1
	Strawberry	7	-	7	7	100.0	2	-	2	2	100.0	1
	Napa cabbage	-	5	5	173	2.9	-	15	15	142	10.6	-
	Potato	-	4	4	90	4.4	-	1	1	23	4.3	-
	Blueberry	72	-	72	91	79.1	25	-	25	32	78.1	1
	Watermelon	14	-	14	14	100.0	4	-	4	4	100.0	1
	Subtotal	135	13	148	675	21.9	38	17	55	253	21.7	4
Total	745	325	1,070	2,088	51.2	416	199	615	1,154	53.3	11	

Note: Extracted from the internal data of the Muju Banditbul Cooperative Joint Business Corporation.

applies only light penalties for contract violation. The other organization, which is under the Gucheon-dong Cooperative, operates autonomously, but imposes relatively severe penalties for breach of contract, including expulsion.

At the initial state of the business, participation of general farms was needed to expand the business. To attract more general farms, the corporation introduced the shipment right entrustment system. However, a low participation level was reported in spite of the effort. Faced with difficulty in securing products for joint sales, the corporation was in desperate need for more active participation from general farms. Accordingly, from 2014, the corporation, together with the participating agricultural cooperatives, implemented the shipment right entrustment system for general farms. Table 7 presents general product sales through the corporate business and their proportions. The implementation of the shipment right entrustment system led to the increased sales of general products from KRW 40 million (7.2%) in 2013 to KRW 1.2 billion (15.9%) in 2014, KRW 3 billion (26.4%) in 2015, and to KRW 4.3 billion (32.5%) in 2016.

Table 7. General product sales through the Muju Banditbul Cooperative Joint Business Corporation (2013-2016)

(Unit: KRW 1 million, %)

Division	2013	2014	2015	2016
General Products	410	1,274	3,088	4,338
Total sales	5,683	8,002	11,698	13,354
Proportion	7.2	15.9	26.4	32.5

Note: Extracted from the internal data of the Muju Banditbul Cooperative Joint Business Corporation.

The number of co-selection organizations increased from 10 (295 farms) to 11 (745 farms) after the launch of the corporate business. The joint sales through the corporation and the introduction of APCs led to the increase in the sales volume of co-selected products, which again brought about the enhancement of the product quality.

#### 4. Distribution Channels through the Corporation and Status of Sales Outlets

Fig. 3 shows the distribution channels through the corporation for agricultural products produced in Muju County in 2016 and the sales amount through each channel. The total production of agricultural products in the county is equivalent to KRW 46.9 billion. The two regional agricultural cooperatives distribute products worth KRW 18.9 billion (40.3%) while farmhouses distribute the remainder of the KRW 28 billion (59.7%) through direct transactions, lump sum transactions, individual shipments, processing, storage, etc. The sales of the regional agricultural cooperatives are the sum of the sales of the Muju Cooperative and the Gucheon-dong Agricultural Cooperatives, which account for approximately KRW 9.4 billion each (20.2% and 20.1%, respectively). The sales consigned to the corporation by the two cooperatives total KRW 13.3 billion (28.5%), with KRW 6.8 billion (14.5%) by the Muju Cooperative and KRW 6.5 billion (13.9%) from the Gucheon-dong Cooperative. The sales from direct transactions without consignment to the corporation total KRW 5.5 billion (11.8%), of which KRW 1.6 billion (8.3%) is from wholesale markets and KRW 3.8 billion from large supermarkets or other large-scale buyers (3.4%). The sales of the corporation include KRW 5.4 billion (11.5%) from transactions with wholesale markets through general auctions, and fixed-price and private sales, KRW 5.5 billion (11.8%) from the NACF distribution channel (Hanaro Club), KRW 1 billion (2.3%) from other large supermarkets, and KRW 1.3 billion (2.8%) from exports and other transactions. The joint sales through the corporation account for 28.5% of the sales of agricul-

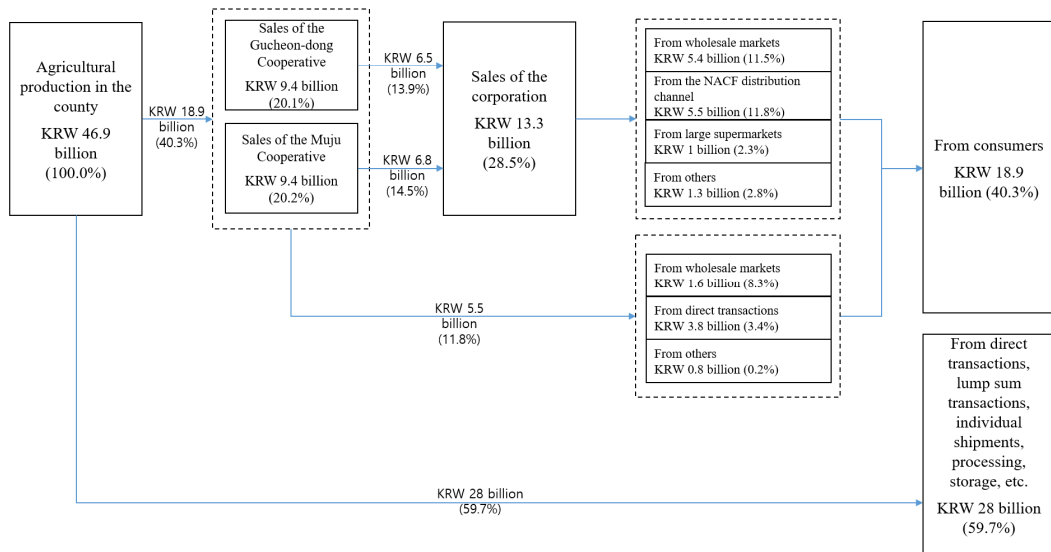


Fig 3. Distribution channels through the corporation for agricultural products produced in Muju County (2016).

tural production in the county and 70.6% of the sales of the participating cooperatives.

Table 8 shows the sales outlets trading with the corporation and their proportions of the total sales. Out of the corporation's 2013 sales of KRW 5.6 billion, KRW 2.6 billion was from the NACF distribution channel (46.1%), KRW 1 billion (19.1%) from wholesale markets, and KRW 1 billion (18.8%) was from supermarkets. Of the total sales in 2014, KRW 2.8 billion (36.0%) was from the NACF distribution channel, KRW 2.3 billion (29.8%) from wholesale markets, and KRW 800 million (10.8%) was from large supermarkets. In 2015, the sales from wholesale markets, the NACF distribution channel, and large supermarkets were KRW 3.5 billion (30.6%), KRW 3.3 billion (28.5%), and KRW 1 billion (9.2%), respectively. In 2016, the sales from wholesale markets, the NACF distribution channel, and large supermarkets amounted to KRW 5.5 billion (41.6%), KRW 5.4 billion (40.5%), and KRW 1 billion (8.1%), respectively. More than 65% of the total sales through the corporation come from wholesale markets and the NACF distribution channel, which indicates that it has secured stable sales outlets through route sales. In particular, the sales from wholesale markets rose from KRW 1 billion to KRW 5.4 billion, which is a result of the increased participation of general farmers in the joint sales business. The sales from the NACF distribution channel also increased from KRW 2.6 billion to KRW 5.5 billion, and this can be attributed to the qualitative growth of the corporation that resulted in increased demand and the corporation's efforts to optimize route sales. It has maintained stable



transactions with large supermarkets at the scale of KRW 1 billion since the beginning of the business. Other sales occur mainly from exports and transactions with catering companies.

Table 8. Sales outlet trading with the Muju Banditbul Cooperative Joint Business Corporation (2013-2016)

(Unit: KRW 1 million, %)

Division	Wholesale markets	NACF distribution channel	Large supermarkets	Processing	Other	Total
2013	1,083 (19.1)	2,620 (46.1)	1,067 (18.8)	278 (4.9)	635 (11.2)	5,683 (100.0)
2014	2,382 (29.8)	2,882 (36.0)	866 (10.8)	27 (0.3)	1,845 (23.1)	8,002 (100.0)
2015	3,575 (30.6)	3,338 (28.5)	1,075 (9.2)	744 (6.4)	2,966 (25.4)	11,698 (100.0)
2016	5,412 (40.5)	5,550 (41.6)	1,078 (8.1)	- -	1,313 (9.8)	13,353 (100.0)

Note: Extracted from the internal data of the Muju Banditbul Cooperative Joint Business Corporation.

## 5. Price Advantage of Co-Selected Apples

The area under apple cultivation in Mupung-myeon, as previously mentioned, occupies up 52% (357ha) of the total cultivation area of Muju County. The sales of apples in Mupung-myeon consist mainly of the sales of general products by farm households, the sales of products co-selected at the NACF's simplified sorting facilities, and lump sum sales. With the opening of the Mupung-myeon APC in 2016, the number of farms participating in co-selection and co-selected volume increased. The amount of co-selected products more than doubled from 1,262 tons in 2015 to 2,829 tons in 2016 through the corporate business. This was the result of the increased participation of apple-growing farmers in Mupung-myeon in the co-selection system.

Against this background, the sales of apples, which is the most important item in the corporate business, increased from 54.6% in 2013 to 63.2% in 2016. Table 9 compares the prices of the corporation's co-selected apples and general apples based on a unit price per kilogram. At the beginning of the business, the unit price per kilogram of co-selected apples was KRW 3,400. In 2014, the unit price of co-selected apples (KRW 4,300) was 101% higher than that of general apples (KRW 2,100). In 2015, the unit price of co-selected apples (KRW 4,300) was 70% higher than that of general apples (KRW 2,500). In 2016, in contrast to the previous

years, the unit price of co-selected apples (KRW 2,200) was 13% lower than that of general apples (KRW 2,500). There were several reasons for this particular price reversal in 2016: the nationwide good apple harvest that year that caused apple prices to drop; the sharp rise in the volume of co-selected apples through the operation of the Mupung APC that the Gucheon-dong Agricultural Cooperative began in the year; and the inclusion of the apples of compromised quality due to the hail damage in July of the same year in the co-selection process. These reasons altogether resulted in a drop in the overall quality grade and price of co-selected apples. On the other hand, some farmhouses individually shipped high-quality apples without passing through the co-selection process under the shipment right entrustment system. And, as these apples were highly priced in the wholesale market, the price reversal between co-selected and general apples occurred.

Table 9. Sales performances and unit prices per kilogram of the corporation's co-selected apples and general apples

(Unit: ton, KRW 1 million, KRW 1)

Division	Co-Selected Products			General Products			Index value to 100 (set as general products)	Total	
	Processed volume	Sales	Unit price per kg	Processed volume	Sales	Unit price per kg		Processed volume	Sales
2013	918	3,102	3,379	-	-	-	-	918	3,102
2014	824	3,556	4,316	202	433	2,143	201	1,026	3,989
2015	1,262	5,434	4,306	674	1,712	2,540	170	1,936	7,146
2016	2,829	6,241	2,206	872	2,200	2,523	87	3,701	8,441

Note: Extracted from the internal data of the Muju Banditbul Cooperative Joint Business Corporation.

As for apples, which account for a large portion of the total corporate sales, co-selected products showed merit in terms of unit price per kilogram compared to general products. However, there is a need for a set of standards to account for unexpected situations such as a fall in market prices due to a good harvest and hail due to inclement weather. Standards that address such considerations should be included in addition to those for risk management and co-selection. This is a task that should be managed jointly and organically by the participating agricultural cooperatives and farm households under the leadership of the corporation.

## 6. Expansion of Corporate Business through the Introduction of a New Crop

After 2015, local farmers started cultivating watermelons and were faced with challenges such as securing sales outlets and negotiating prices received by producers. In response, the corporation planned a watermelon cultivation project and held a briefing session for participating farmers in 2016. In the planning process of the project, participating farms were recruited on the condition that the cultivation area be located at 400 meters above sea level or higher and tunnel cultivation under rain shelters be implemented. A co-selection organization for watermelons was thus formed. In 2017, watermelon cultivation was initiated on a trial basis over 66,000 square meters of farmland, to harvest only about 60% of the expected volume.

In order to respond to the difficulties in harvesting and transporting products due to the aging of local farmers and labor shortage, the corporation took several measures. They entrusted the work to a private contractor, selected harvested watermelons by using sorting machines borrowed from the adjacent Jinan County Cooperative Joint Business Corporation (located 30 minutes by car) and the Jeongeup Cooperative Joint Business Corporation (1 hour and 40 minutes by car), and completed the packaging and commercialization process. Premium-grade watermelons were shipped to a large discount store chain (Lotte Mart), and standard-grade watermelons were shipped to wholesale markets. The corporation achieved a total sales of KRW 160 million, with KRW 130 million from the large supermarkets and KRW 30 million from the wholesale markets.

For the differentiation of products, the corporation selected the variety of watermelons that can be cultivated in the highlands at the project planning stage. To expand the project, the corporation decided to increase the cultivation area and foster watermelon cultivation starting in 2018 in consultation with Muju County. The corporation was quick to recognize the limitations that existing farms would face when introducing and distributing new crops. Accordingly, it took the lead in the entire business process from planning to sales. This would allow farmhouses to focus only on cultivating and harvesting, and the participating agricultural cooperatives to focus only on managing the farmhouses. This process revitalized the participation of farms that had not been involved in the corporation's joint sales business and enabled the diversification of business items. It also served as an opportunity for the corporation to demonstrate the potential for expanding the joint business. In addition, the diversification of products led to the establishment of conditions where the corporation could gain an edge in negotiations with buyers.

## V. Conclusions

The two regional agricultural cooperatives in Muju County transferred their respective sales business to the Muju Banditbul Cooperative Joint Business Corporation which was established in 2013. From the beginning of the business, the two cooperatives showed a significant difference in the degree of their participation. As the business proceeded, these participating cooperatives introduced APCs, which led to the creation of co-selection organizations and increased participation of general farms. The share of route sales in total sales increased, and apples that had occupied the largest portion of the total volume of handled products gained an advantage in terms of price through the co-selection process. In addition, the corporation introduced new crops and demonstrated the potential for expanding the cultivation of these crops.

In the initial stage of the joint sales business, the marked disparity in the level of business participation between the two agricultural cooperatives posed a problem. However, this difference was settled through the participation of general farms and the introduction and operation of APCs. The operation of APCs also contributed to increasing the participation of farms, improving the market competitiveness of agricultural products processed at these centers, and securing stable sales outlets. In Muju County, which is a major apple producer in Korea, the corporation improved both the quantity and quality of the products, which led to the increase in sales volume and revenue. In addition, by expanding the joint sales business, the corporation demonstrated its potential for functioning as the main body of the business.

This study analyzed the process of establishing the Muju Banditbul Cooperative Joint Business Corporation and its performance over the four years after its founding. The study is limited as it is difficult to make generalized statements based on the achievements recorded over this short period of time. Therefore, it is suggested that follow-up studies reconstruct the present study to analyze the performance of the corporation for a longer period of 10 years or more. This would enable the characteristics of the corporation and its business to be generalized more concretely.

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