

RESEARCH INTEREST

LINKING FOOD INDUSTRY AND AGRICULTURE:
THE CASE OF FRUIT-JUICE INDUSTRY AND
KOREAN FOOD FRANCHISE

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Keywords

food industry, fruit-juice industry, Korean food franchise industry, agriculture, linkages

Abstract

In Korea, the portion of food industry has increased, while the portion of agriculture keeps decreasing. The alliance between agriculture and food industry results in the synergy between both industries as well as higher farmers' income. The goal of this study is to analyze the current status of the linkages between two food industries (fruit-juice industry and Korean-style meal franchise industry) and agriculture, and then to present the ways to strengthen the linkages. The discussion in this paper will be a policy baseline aiming for synergy between both industries, which is of a special concern to the next regime.

I. Introduction

Food industry, which includes food processing industry and food service industry, is quite relevant to agriculture. As the second or third industry, food industry consumes agricultural products from agriculture, and increases the value added of fresh food in a food system. The growth of food industry offers the opportunity for farmers to get more income from their agricultural products.

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In Korea, the importance of food industry has increased. The portion of value added of food industry in agro-food industry increased from 38.7% in 1991 to 47.9% in 2003. Food industry showed a small amount of decrease in the portion of value added of food industry in the whole agricultural industry, from 6.5% in 1991 to 5.4% in 2003, while the portion of value added of agricultural industry dramatically decreased from 6.8% in 1991 to 3.5% in 2003.

In the 1990s, Korean researchers started studies analyzing Korean food industry, usually discussing the status of Korean food industry in the view of macroeconomics. A few studies focusing on the linkages between agriculture and food industry were performed in the early 2000s. Lee et al. (2001) analyzed Korean policies for food industry and the relationship between food industry and agriculture, and Hwang et al. (2005) discussed the status of usage of agricultural products for food processing industry and food service industry. Kim et al. (2003) and Choi et al. (2004) presented the strategies to stimulate the consumption of agricultural products through the globalization of Korean-style meal industry. Previous research usually concerns the overall discussion about the linkages between agriculture and food industry, but fails to analyze the specific relationship between food industry and agriculture "from farm to table."

The main goal of the paper is to analyze the current status of linkages of agriculture and food industry, and to suggest the strategies to enhance the alliance between agriculture and food industry. For more specific discussion, the paper focuses on analyzing the linkages between two food industries (fruit-juice industry and Korean-style meal franchise industry) and agriculture.

II. Overview of Food Industry in Korea

Even though the definition and range of food industry are not thoroughly concurred yet, the common definition of food industry is "industry including food processing, storing, marketing, cooking, and others." The range of food industry includes food processing industry, food marketing industry, and food service industry. (Lee et al. (2001) and Hwang et al. (2005)) Food industry plays an important role in the Korean economy through linkages with other industries. Food industry, in particular, creates more additional values of agricultural products and induces the growth of agriculture, which might be called as the for-

ward linkage effect of food industry.

Recent statistics show a dramatic growth of food industry in Korea. Table 1 presents number of enterprises, sales, and sales per enterprise of food processing industry and food service industry. The number of enterprises in food processing industry in 2004 was 1.7 times larger than in 1994, while the number of enterprises in food service industry was doubled. Sales in both industries were also increased. Sales in food processing industry increased from 15 trillion won in 1990 to 48 trillion won, while sales in food service industry increased from 18 trillion won in 1990 to 48 trillion won in 2004. One thing remarkable is that the scale of enterprises in both industries also increased, which were shown through statistics in sales per enterprise. A larger size of enterprises in food industry present a more potential for intensive and effective alliance of food industry and agriculture, which will be discussed later.

TABLE 1. Number of enterprises, sales, sales per enterprise of food processing industry and food service industry

unit: enterprise, billion won

Year	Number of enterprises		Sales		Sales per enterprise	
	Food processing industry ¹⁾	Food service industry ²⁾	Food processing industry ¹⁾	Food service industry ²⁾	Food processing industry ¹⁾	Food service industry ²⁾
1990	4,654	298,196	14,711	18,329	3.16	0.06
2000	6,421	570,576	37,200	35,472	5.79	0.06
2001	6,985	505,241	39,699	33,088	5.68	0.07
2002	7,550	595,791	42,649	38,020	5.65	0.06
2003	7,940	605,614	43,642	40,460	5.50	0.07
2004	8,051	600,233	47,767	48,370	5.93	0.08

Source 1) Korea National Statistical Office

2) Kim et al. (2007)

The retail food marketing industry showed a constant growth. In Table 2, the number of discount stores in 2006 was 2 times larger than in 2000, and sales also increased from 10 trillion won in 2000 to 25 trillion won in 2006. Sales per store slightly increased, which is different from food processing industry and food service industry.

TABLE 2. Number of stores, sales, sales per store of discount stores

unit: store, billion won

Year	Number of stores ¹⁾	Sales	Sales per store
2000	163	10,497	64
2001	198	13,801	70
2002	232	17,400	75
2003	250	19,500	78
2004	276	21,500	78
2005	307	23,486	77
2006	342	25,411 (expected)	74

Note: 1) Including stores in foreign countries (11 stores)

Source: Korea Chainstores Association

Even though the number of enterprises and sales in the food industry in Korea have increased, the linkages between the food industry and agriculture are not very strengthened. In Table 3, the ratio of foreign agricultural products processed for the food industry to total supply of foreign agricultural products is 2 or 3 times larger than the ratio of domestic agricultural products processed for food industry to total supply of domestic agricultural products. Table 3 also shows that the share of foreign agricultural products increased 32% from 1990 to 2003, while the share of domestic agricultural products increased 20%.

TABLE 3. Share of agricultural products processed for food industry

unit: billion won, %

Year	Total agricultural products processed		Domestic agricultural products processed		Foreign agricultural products processed	
	Value	Share	Value	Share	Value	Share
1990	2,765	12.5	2,311	11.4	454	26.4
1995	4,034	11.9	3,103	10.2	931	27.0
2000	5,925	15.0	4,812	13.5	1,113	29.8
2003	8,312	18.0	5,620	14.3	2,692	38.9

Source: Choi et al. (2007)

III. Analysis of the Linkages between Food Industry and Agriculture

1. Overview of industry

1.1. Fruit-juice industry

The total sales of Korean non-alcohol beverages, which include soda, fruit juice, and other beverages, increased to 3 trillion won in 2006. The market of fruit juice also expanded and the sales of total fruit juice was 869 billion won in 2006. It is interesting that sales of 100% pure fruit juice decreased 14% and sales of pureed fruit-juice increased 50%. These changes in sales show that the preference of consumers for fruit juice started to move from “conventional” fruit juice to a “new type” of fruit juice. This change in trend is more intensive among young consumers, such as students.

TABLE 4. Sales of non-alcohol beverages

unit: billion won, %

		Sales								% change (1999~2006)
		1999	2000	2001	2002	2003	2004	2005	2006	
Soda		1,020	1,100	1,171	1,221	1,111	1,162	1,091	1,021	0.1
Fruit juice	100%	370	390	404	397	344	349	355	319	-13.8
	50%	30	20	30	93	151	201	186	143	376.7
	Pureed	150	280	448	370	410	407	327	368	145.3
	Others	70	60	53	55	56	56	51	39	-44.3
	total	620	750	935	915	961	1,013	919	869	40.2
Other beverages		820	1,050	1,230	1,307	1,272	1,460	1,405	1,472	79.0
Total		2,460	2,900	3,336	3,443	3,344	3,635	3,415	3,362	36.7

Source: Food News

In Korea, fruit-juice manufacturers may be categorized into a public and a private group. The public group includes manufacturers owned by NACF (National Agricultural Cooperative Federation) and local governments. In the

public group, there were six manufacturers owned by NACF and one manufacturer owned by JDC (Jeju Special Self-Governing Province Development Corp.), which consumes domestic fruit for fruit-juice production. Nine private manufactures, including Lotte Chilsung, Haitai, and Coca-Cola, use domestic and foreign fruit or foreign fruit only as inputs for fruit-juice production.

1.2. Korean-style meal franchise industry

The Korean-style meal industry is the largest industry in the Korean food service industry. Table 5 shows that there are 278 thousand Korean-style meal restaurants, which is 86% of the total number of general restaurants. Korean-style meal restaurants employed 717 thousand people in 2004. The number of employees per Korean-style meal restaurants is 2.6 people, which is smaller than the average number of employees per general restaurant.

TABLE 5. Numbers of restaurants and employees in food service industry (2004)
unit: restaurant, people, %

		Number of Restaurants		Number of employees	
Pub or bar		138,475	-	324,300	-
Restaurant for tea & cake		39,666	-	93,740	-
Other restaurant		98,115	-	239,122	-
General restaurant	Korean-style meal	278,313	85.9	717,114	79.8
	Chinese-style meal	24,280	7.5	72,799	8.1
	Japanese-style meal	4,994	1.5	24,428	2.7
	Western-style meal	12,677	3.9	55,238	6.1
	Cafeteria	3,119	1.0	25,700	2.9
	Others	594	0.2	3,567	0.4
	Total	323,977	100.0	898,846	100.0
Total		600,233	-	1,556,008	-

Source: Korea National Statistical Office

Recently, franchising works as a trigger for the growth of Korean-style meal industry. In 2006, there were more than 120 newly opened Korean-style meal franchises in Korea. Table 6 introduces six major Korean-style meal

franchises. The total sales of these franchises increased 67% from 363 billion won in 2005 to 603 billion won in 2007.

TABLE 6. Sales and number of restaurants of major Korean-style meal franchises (2006)

unit: billion won, restaurant

Brand	Sales	Number of restaurants
Nolboo	90	640
Won & won	45	251
Keun Deul F&B	87	150
Ebadom	42	60
Donday	20	252
Bonjuk	185	690

Note: Sales of Keun Deul F&B and Bonjuk include sales of franchised restaurants.
 Source: Kim et al. (2007)

2. Linkages between food industry and agriculture

In order to analyze the linkages between food industries (fruit-juice industry and Korean-style meal franchise industry) and agriculture, we studied three groups which are main bodies in the linkages: enterprises of food industries, food consumers, and farmers.

In order to analyze the linkages between enterprises and agriculture, we conducted a survey on 17 fruit-juice manufactures and 40 Korean-style meal franchise companies, and the survey results from 11 fruit-juice manufactures and 34 Korean-style meal franchise companies were used for discussion.

We also conducted a survey on 500 consumers, and the survey results of from 475 consumers were used to analyze the consumers' evaluation of fruit juice and Korean-style meals using domestic agricultural products as inputs.

For the discussions on the supply system of domestic agricultural products from farms to fruit-juice manufactures and Korean-style meal franchise companies, we interviewed 32 farmers.

2.1. Efforts of enterprises for alliance

Table 7 presents the ratio of domestic agricultural products consumed by fruit-juice manufacturers or Korean-style meal franchise enterprises.² Among the fruit, the ratios of apples and grapes are 49% and 46%, respectively. The ratio of mandarin is higher than other fruit because the brand power of “Jeju mandarin” still works in the Korean fruit-juice market and the quality of domestic mandarins is higher. Since public fruit-juice manufacturers use only domestic fruit for producing juice, the actual ratios of domestic fruit consumed by private fruit-juice manufacturers are lower than the average shown in Table 7.

The ratios of domestic raw materials used by Korean-style meal franchise enterprises range from 38% to 77%. The ratio of domestic beef is the lowest, because the gap of price between domestic beef and foreign beef is very large and frozen beef is easy to store during a long period of transportation.

TABLE 7. Raw materials for food industry

unit: %

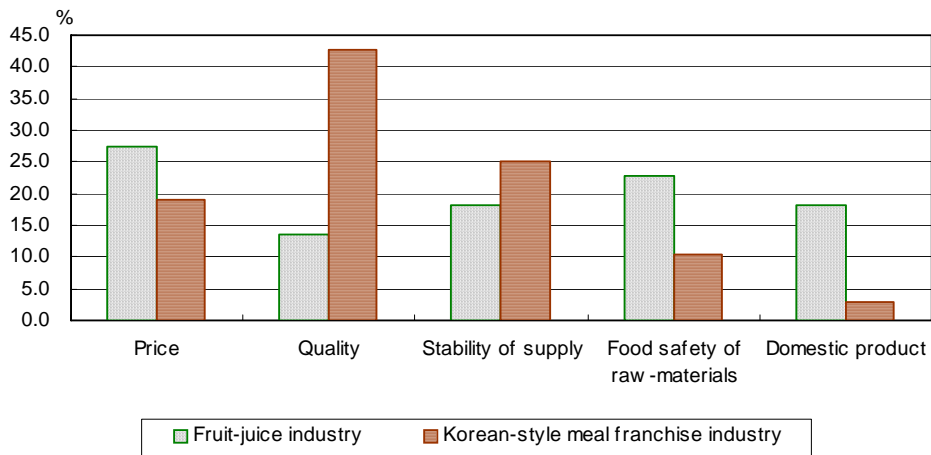
Food Industry	Raw materials	Ratio of domestic raw materials	
Fruit-juice industry	Apple	48.6	
	Mandarin	89.5	
	Grape	45.5	
Korean-style meal franchise industry	Meat	Beef	37.7
		Pork	53.6
		Chicken	72.5
		Duck	77.4
		Average	60.3
	Vegetable & spice	74.3	
	Grain	76.3	
	Marine products	69.5	

² Since the ratios in Table 7 are calculated based on the survey results, the actual ratio may be smaller.

Figure 1 shows the main concerns fruit-juice manufacturers and Korean-style meal franchise enterprises have when they buy raw materials. Fruit-juice manufacturers focus on price and food safety of fruit, while Korean-style meal franchise enterprises think that quality and stability of supply are important criteria.

Whether raw materials are domestic or not is not very critical for selecting raw materials. Korean-style meal franchise enterprises rarely show a concern for the origin of raw materials. This survey result shows that emotional campaigns, such as “Our agricultural products are the best for us,” will not be easily accepted by the food industry sector.

FIGURE 1. Main concerns for purchasing raw materials



Note: Survey respondents were asked to choose two.

Fruit-juice manufacturers and Korean-style meal franchise enterprises show a different pattern of purchasing domestic raw-materials. As shown in Table 8, fruit-juice manufacturers usually purchase domestic fruit from farmers or farmers’ corporations, while Korean-style meal franchise enterprises buy their raw materials from vendors. The percentage of farmers or farmer’s corporations and local NACF is over 74% in the fruit-juice industry, but less than 9% in the Korean-style meal franchise industry. This difference may result from the different size of enterprises. Generally, the size of manufacturers in the fruit-juice industry is larger than enterprises in the Korean-style meal franchise industry. Enterprises without enough size tend to buy their raw materials at markets or through vendors, instead of “directly” purchasing at the farm level.

TABLE 8. Source for purchasing domestic raw-materials

	unit: %	
	Fruit-juice industry	Korean-style meal franchise industry
Farmer or farmers' corp.	45.7	14.7
Local NACF	28.5	5.9
Direct production	2.7	-
Whole or retail market	-	23.5
Discount store	-	1.5
Traditional market	-	2.9
Vendor	23.1	51.5
Total	100.0	100.0

The methods of alliance between food enterprises and farms are also different among food industries. In Table 9, the portion of procurement, which is usually conducted by the local NACF, is over 45% in the fruit-juice industry. However, Korean-style meal franchise enterprises usually buy domestic raw materials through direct contracting with farmers or farmers' corporations.

TABLE 9. Methods of alliance with farm

	unit: %	
	Fruit-juice industry	Korean-style meal franchise industry
Mainly purchasing	27.3	13.3
Direct contracting	27.3	53.3
Direct producing	0.0	6.8
Affiliating	0.0	13.3
Procurement	45.4	-
Others	-	13.3
Total	100.0	100.0

Table 10 presents obstacles which prevent enterprises from strengthening linkages with farms. Fruit-juice manufacturers replied that low usage of domestic fruit, which have a much higher price than foreign fruit, is the largest

barrier to alliance.

The difficulty of getting information or know-how for alliance is not a big problem for fruit-juice manufacturers, but it is the largest issue to be solved by Korean-style meal enterprises. This difference results from the structural difference between the fruit-juice industry and the Korean-style meal franchise industry. As discussed in Table 8, the fruit for juice production are collected through procurement by the local NACF or public fruit-juice manufacturers, and most private manufacturers buy fruit mainly for juice processing. However, Korean-style meal enterprises, which are smaller in size, directly search farmers or farmers' corporations and collect raw materials.

TABLE 10. Factors disturbing alliance with farm

unit: %

	Fruit-juice industry	Korean-style meal franchise industry
Difficulty in getting information or know-how for alliance	18.2	50.0
Little benefit from alliance	22.7	34.0
Low consumption of domestic raw materials	36.4	8.0
Others	22.7	8.0
Total	100.0	100.0

2.2. Consumers' evaluation

Figure 2 shows the main concerns of food consumers when they buy fruit juice or Korean-style meals. In Korea, food consumers focus on quality and food safety of fruit juice, while quality and price are major concerns in choosing Korean-style meals.

Similar to the case of fruit-juice manufacturers and Korean-style meal franchise enterprises, the question as to whether raw materials are domestic or not is not very important. Food safety and brand are more important when consumers select fruit-juice products rather than Korean-style meals.

FIGURE 2. Main concerns for purchasing food

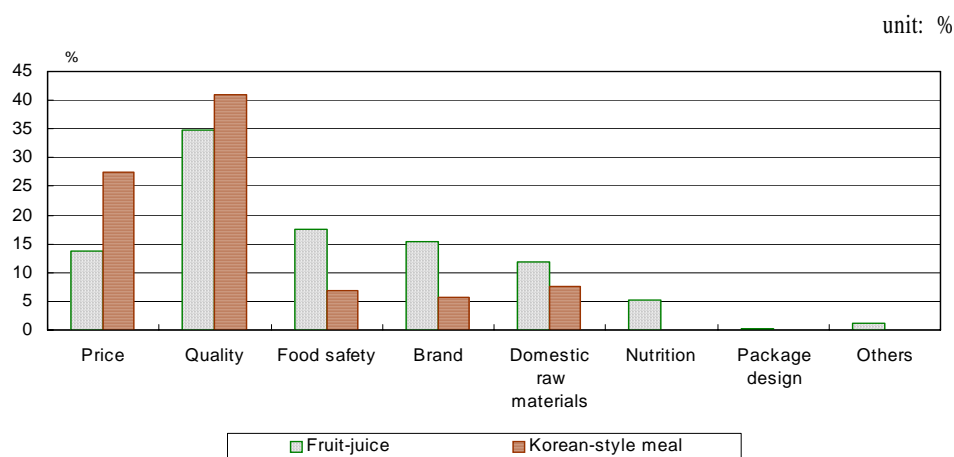


Table 11 shows a consumers' evaluation of fruit juice and Korean-style meals produced with domestic raw materials or foreign raw materials. According to the survey results, the fruit juice produced with domestic fruit have strengths in quality and food safety, while the fruit juice produced with foreign fruit have advantages in price and package design.

In the case of Korean-style meals, the meals cooked with domestic raw materials have strengths in most selection criteria except price. This result supports the consumers' belief that "Korean-style meals should be cooked with Korean raw materials."

Table 12 presents reasons why consumers prefer fruit juice or Korean-style meals produced with domestic raw materials. The most important reason is that consumers believe that fruit juice or Korean-style meals produced with domestic materials guarantee more food safety. Thus, food safety might be the key to the promotion of domestic food. As for the second most important reason, "better for health" and "better quality" are chosen for fruit juice and Korean-style meals, respectively.

We measured WTP (willingness-to-pay) of fruit juice and Korean-style meals with various raw materials. When the virtual price of fruit juice and a Korean-style meal produced with foreign materials is 100, WTP of fruit juice or Korean-style meals produced with organic and/or domestic raw materials is higher. Thus, this result shows the price premium of organic and/or domestic food, which can be considered for developing a pricing strategy.

TABLE 11. Consumers' evaluation of domestic and foreign food

unit: %

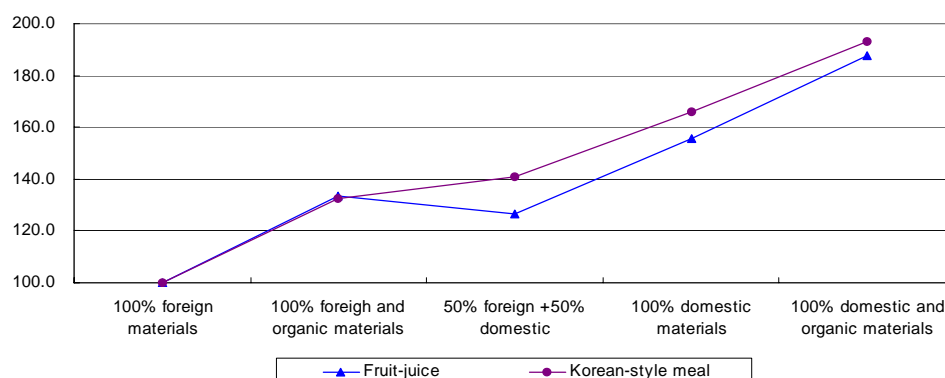
		Fruit juice	Korean-style meal
Price	Domestic food is better	21.3	38.2
	Both are same	41.5	27.4
	Foreign food is better	37.2	34.4
	Total	100.0	100.0
Quality	Domestic food is better	48.7	79.9
	Both are same	40.2	18.3
	Foreign food is better	11.1	1.8
	Total	100.0	100.0
Food safety	Domestic food is better	78.3	85.5
	Both are same	19.7	14.1
	Foreign food is better	2.0	0.4
	Total	100.0	100.0
Brand	Domestic food is better	35.4	50.7
	Both are same	43.3	42.7
	Foreign food is better	21.3	6.6
	Total	100.0	100.0
Nutrition	Domestic food is better	49.9	73.6
	Both are same	48.9	26.2
	Foreign food is better	1.2	0.2
	Total	100.0	100.0
Package design	Domestic food is better	9.5	29.4
	Both are same	57.7	61.3
	Foreign food is better	32.8	9.3
	Total	100.0	100.0

TABLE 12. Reasons for preferring food produced with domestic raw materials

unit: %

	Fruit juice	Korean-style meal
Better quality	9.3	31.0
More food safety	54.3	47.2
Help for Korean farmer	7.9	5.7
Better for health	28.1	15.3
Others	0.5	0.9
Total	100.0	100.0

FIGURE 3. WTP of food with various raw materials



One thing interesting is that WTP of food produced with 50% foreign materials and 50% domestic materials is similar or lower than WTP of food produced with 100% foreign and organic materials. Thus, producing fruit juice or Korean-style meals with domestic and foreign raw materials may not be a good strategy to attract consumers in the food market.

Table 13 presents the frequency of consumers' check of the origin of raw materials of fruit juice and Korean-style meals. In Table 13, more than a half of consumers sometimes or rarely check the origin of raw materials of Korean-style meals. This low frequency of checking might result from the difficulty in checking the origin of raw materials at restaurants. According to the results of the survey, consumers usually try to check the origin by asking servers and reviewing the menu or posters, but they don't always trust them. However, consumers easily check the origin of fruit used for fruit juice through the label and they usually trust information on the label.

TABLE 13. Frequency of checking the origin of raw materials

	Fruit juice	Korean-style meal
Always	21.3	7.4
Often	33.4	24.1
Sometimes	34.6	32.2
Rarely	9.7	28.6
Never	0.8	7.0
No reply	0.2	0.6
Total	100.0	100.0

unit: %

2.3. Supply from farm

1) Farmers supplying soybeans or ducks to Korean-style meal franchise enterprises

For the supply of soybeans or ducks to Korean-style meal franchise enterprises, farmers make direct contracts through document. Since most farmers have personal relationships with the owners of Korean-style meal franchise enterprises, they show their trust in contracts.

In the Korean-style meal franchise industry, enterprises have a more powerful bargaining power and they usually lead contracting efforts. However, there have been few cases of unfair contracting in this industry. Unlike farmers contracting with fruit-juice manufacturers, farmers contracting with franchise enterprises rarely cancel a contract. However, the small size of enterprises possibly results in a business crisis, which is one of the most worrisome concerns of farmers.

Some farmers complain about too strict quality control of raw materials, but they are satisfied with higher farm price of raw materials. Farmers require technical and financial support to produce high-quality raw materials.

2) Farmers supplying apples or mandarins to fruit-juice manufactures

Farmers usually supply apples or mandarins to fruit-juice manufactures through procurement. In particular, local NACF or public fruit-juice manufacturers generally collect or buy fruit from farmers. Since private fruit-juice manufacturers buy their raw materials mostly from public fruit-juice manufacturers, they rarely have a relationship with farmers.

Apple or mandarin farmers have a stronger bargaining power, which results from the characteristics of NACF in Korea. When there is an oversupply of fruit for fruit-juice production, farmers claim that fruit-juice manufacturers should buy fruit as much as possible at high prices. However, they usually refuse selling their fruit to fruit-juice manufacturers in the opposite case.

Since farmers want to sell all the unsold apples or mandarins from the market to fruit-juice manufacturers, some apples or mandarins bought by the manufacturers are of too low quality to use for fruit-juice processing. Thus, some experts suggest that about 10% of the total apples or mandarins that are

currently consumed by fruit-juice manufacturers should be junked instead of using them for juice production.

IV. Strategy for Enhancing the Alliance of Food Industry and Agriculture

1. Development of the networking system for alliance

The survey results reveal that many food enterprises complain the difficulty of getting information or know-how for alliance. As discussed in Table 10, the shortage of information for alliance, in particular, is the largest problem to Korean-style meal franchise enterprises.

In order to solve this problem, establishment of a supporting center for an alliance between food industry and agriculture can be considered. This supporting center, which may be established by a local government or the farmers' cooperation NACF, collects and manages qualified farmers and food enterprises as members of a pool for alliance. The center will introduce qualified business partners to farmers or food enterprises, and coordinate business linkages between them. The specific roles of the center can be benchmarked from the "committee for local food industry" or the "coordinator" in Japan. Specifically, the coordinator takes care of farmers selling their products to food enterprises by giving advice on cultivation and harvesting periods and by introducing suitable food enterprises.

As another solution, the current system of alliance between the food industry and agriculture needs to be innovated for efficiency and stability. First of all, the current procurement system of public fruit-juice manufactures should be changed to a new system which enables manufactures to be more flexible to the market situation. If the manufactures in a public group keep buying fruit with the current committee price and quantity, they will have a high possibility to experience a serious financial crisis, which means the "loss of a major selling spot for fruit farmers." The price and quantity of fruit for fruit-juice processing need to be more flexible for manufacturers.

In the case of the Korean-style meal franchise industry, a public program that insures farmers against a sudden cancellation of a contract with fran-

chise enterprises can be introduced. Since the size of a Korean-style meal franchise enterprise is small, the risk of bankruptcy causing the cancellation of a whole contract with farmers is relatively high. An insurance program funded by contractors as well as the public sector will lessen this risk and promote the alliance through contracting.

2. Differentiation of domestic food products

One of the best ways to strengthen the alliance between food enterprises and farmers is to increase the demand for food products made with domestic raw materials. In order to increase the demand for domestic food products, differentiation might be a key. As shown in Table 11, domestic food products generally are better than foreign products except price. In particular, quality and food safety are the strengths of domestic food products. Various differentiation strategies are required to emphasize these advantages. Generic advertising programs funded by farmers and enterprises need to be expanded. Recently, several generic advertising programs for Korean-beef and other Korean food are attracting consumers.

The indication system of product origin is also important for differentiation. The indication system for domestic food products increases consumers' trust, which makes them to buy more high-priced domestic food products. In particular, the indication system should be expanded to cover more Korean-style meal restaurants. The current indication system of beef origin forces Korean BBQ restaurants with an area of 300m² to indicate the origin of beef, but the number of these restaurants is about 1% of total restaurants. Even though the government has a plan to expand the indication system, this system should regulate as many restaurants as possible. In addition, a strong monitoring system to check whether restaurants correctly provide information on the origin of raw materials will be required to enable consumers to trust the indication system of origin. For example, a program making consumers participate in the system as monitors can be considered.

As for farmers' role, farmers should continuously endeavor to increase the quality and food safety of agricultural products. Until now, the quality and food safety of domestic raw materials have been usually better than foreign raw materials. However, the gap in the quality and food safety is becoming smaller.

The quality of some Chinese agricultural products, in particular, has become similar to domestic products. One of the good ways to increase the quality and food safety is to induce farmers to actively participate in GAP or traceability programs. These programs will increase consumers' trust on domestic raw materials and stimulate farmers to put more efforts in producing better and safer agricultural products.

3. Reduction of price gap

The major reason why food enterprises are reluctant to buy domestic agricultural products as raw materials is their high price. In order to reduce the price gap between domestic and foreign raw materials, it is necessary to reduce the price of domestic raw materials by eliminating the middle markets. This is because any reduction of production cost at the farm level is limited in Korea.

Food enterprises need to make their business size large enough to directly purchase agricultural products without middle-markets. The small size of business forced the enterprises to buy raw materials through vendors or merchants in the market. The organization among the enterprises may be considered as a possible strategy for the direct purchase of domestic agricultural products. For example, a number of small supermarkets in Korea established a joint purchase system to increase the efficiency of the buying system, which offers a lower cost of purchase.

Farmers also should endeavor to form an organization to sell their products. The organization would provide farmers with a more bargaining power against food enterprises and more opportunities to sell products. Recently, the local NACF and farmers' cooperations have tried a joint selling of agricultural products.

Another effort to reduce the price gap can be made through food processing. For example, mandarin-juice manufacturers are developing a technology to use mandarin residuals because the cost of dumping them is very high. One possible way is to process the residuals for animal feed or fertilizer. If this technology becomes commercially successful, mandarin-juice manufacturers can offer a lower price to juice manufacturers and a higher price to farmers.

4. Public infrastructure for alliance

The government may offer better public infrastructure to food enterprises maintaining an alliance with farms. The results of the survey on fruit-juice manufacturers and Korean-style meal franchise enterprises showed that technological support to develop new or better food products is the second most preferred choice after financial support. Besides, most Korean-style meal franchise enterprises require technological support to develop a new menu because their business size is not large enough to invest in R&D activities. Therefore, public research institutes, including KFRI (Korea Food Research Institute), might develop and offer food processing know-how and technologies to food enterprises maintaining an alliance with farms, or jointly develop new food products with public funds.

The government may also support the setting up of a system to control food safety. Even though most food manufacturers and restaurants are required to keep food products safe and certified, through such means as the HACCP (Hazard Analysis and Critical Control Points), the necessary cost is a large financial burden to food enterprises. It will be an effective incentive for the government to offer a public support priority to food enterprises maintaining an alliance with farms.

V. Conclusion

This paper provides a blueprint of the alliance between food industries (fruit-juice industry and Korean-style meal franchise industry) and agriculture. The results of the survey analyses show that food products produced with domestic raw materials still have some advantage in the Korean food market, but this advantage is challenged by foreign food products. Now, the emotional campaigns, such as “Our agricultural products are the best for us,” is no more attractive to food enterprises as well as food consumers.

Various strategies are suggested to enhance the alliance between the food industry and agriculture in this paper. First of all, development of a networking system for the alliance is required. In particular, “the supporting center for the alliance between the food industry and agriculture” might be established

to provide information or know-how about the alliance and coordinate the business linkages. Second, it is necessary to make more effort to differentiate domestic food products from foreign food products. The efficient methods are the generic promotion appealing the advantage of food products produced with domestic raw materials and the origin indication system increasing consumers' trust on domestic food products. Third, the price gap between domestic food products and foreign food products should be reduced. One of the most possible ways is to decrease the cost of purchasing raw materials by eliminating the middle markets or by decreasing the processing cost of food products. Fourth, the government needs to consider reinforcing the public infrastructure for the enhancement of the alliance.

In Korea, as the portion of the food industry has increased and there is the synergy between the food industry and agriculture, the enhancement of the alliance between both sectors becomes very important. The shape of linkages between the industry and agriculture and strategies to strengthen the alliance presented in this paper may be the baseline for further discussion and policy development.

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