

# TRACEABILITY FOR AGRI-PRODUCTS IN KOREA

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## ABSTRACT

*In order to provide prompt response to problems on food products, Korea has implemented legal measures for introducing traceability for agri-products, and trial programs are under way. The current agri-product traceability program in Korea is in its initial stage with most information focused on production and packing, and it is expected to take a significant amount of time until a comprehensive traceability chain is implemented for production, distribution, processing and sale of agricultural products. Producer and consumer surveys conducted, however, indicate positive acceptance of traceability. A full-fledged program is expected to commence in January 2006.*

Key words: GAP, traceability, cultivation protocol, information system

## INTRODUCTION

With the unfortunate series of events, including the mad-cow disease (BSE or bovine spongiform encephalopathy), the foot-and-mouth disease, agrochemical residues in fruits and vegetables, heavy metal incidents and the recent distribution of GMOs (genetically modified organisms), agri-products are causing major declines in consumption of food products not only in Korea but also all over the world, negatively impacting on related industries. As a means of guaranteeing reliability and wholesomeness against such incidents in the food industry, there are active research and system development efforts under way regarding traceability. The Korean Ministry of Agriculture and Forest (MAF) has decided to introduce the traceability system as a policy and is conducting a trial program for Korean cattle, fruits, vegetables, staple foods and specialty crops. This paper discusses the current status and the future direction of traceability in Korea.

## CURRENT STATUS OF TRACEABILITY FOR AGRI-PRODUCTS

### Concept of Traceability

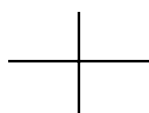
The term "traceability" was first used in Korea in 2002. Although there are some disparities,

the definition was officially established in the Agricultural Products Quality Control Act (in Item 3, Clause 4, Section 2) in 2005, defining it as "recording and maintaining information from the production to the sales stages so that when problems arise in reliability of the corresponding agricultural product, the causes can be traced and necessary measures can be taken."

### Traceability Policy

The MAF has been conducting a trial traceability program for nine Korean cattle farmer organizations (Yangpyung Gaegun Korean Cattle, etc.) since October 2004, and the program is expected to go into full effect from 2009.

As for agri-products, the Agricultural Products Quality Control Act was amended on 30 June 2005 to introduce a full-fledged traceability program starting January 2006. A farming household wanting to implement the traceability program must first register with the National Agricultural Products Quality Management Service (NAQS). Traceability is mandatory for the GAP (good agricultural practice) agri-products, which will be officially introduced in 2006. In addition to GAP products, eco-friendly and other general agri-products produced by farming households are also covered. NAQS is responsible for



registering and supervising the agri-products traceability program (Tables 1 and 2). GAP is expected to be a certification program whereas traceability will be based on registration.

### Trial Program Administered by RDA

**Establishing bases for traceability.** Trial traceability programs have been conducted since 2004 to establish a basis for improving recording capabilities of farming households and implementing traceability. In 2004, the trial program covered 32 products (18 vegetables, 11 fruits, rice, Korean cattle and other products) in 18 regions, including Yeosu, Gyeonggi-Do. In 2005, the trial programs expanded to include 36 products (14 vegetables, 11 fruits, 4 western vegetables, rice and other products) in 30 regions, including Namyangju.

**Making information available on the Internet.** In 2004, RDA began the trial operation of the information system that provides information on the production stage. Included in the trial program were 22 items of vegetables, fruits and food/specialty crops; 25 producer associations; and 317 farming households. Information regarding the producer, cultivation and out-shipment was provided. Once cultivation and out-shipment information was put in and the labels were placed, the consumers were able to

access the information based on the label number.

**Rice traceability program.** This program (2004) involved 63 farming households and 193 hectares of farming areas in Cheolwon/Dongsong, Gangwon-Do, and Yeosu, Gyeonggi-Do. The participants were chosen mainly based on memberships of associations with certifications such as organic, non-chemical and minimum chemical agri-products. The production technology and record maintenance guidance were administered by the CADT (City Agricultural Development & Technology Center), procurement and processing of the rice were carried out by the RPC (Rice Processing Center) of the corresponding region, and the products were sold by major discount retail outlets.

An example of a major traceability program in Korea is the Cheolwon Rice Complex, which consists of 41 participating farming households with organic and non-chemical certifications in an area of 140 hectares. In order to prevent the rice from mixing with other grades and facilitate traceability, the complex was expanded, the cultivated crop was restricted to a single species and the cultivation method was unified.

The production technology and record maintenance guidance were administered by the

Table 1. Key features of traceability

Category	Key Features
Administrator	MAF, NAQS
Major information provided	Production stage: producer, ship-out Processing stage: ship-in, processing, ship-out, etc. Sale stage: ship-in, ship-out, etc.
When information is provided	Request from consumer, incident occurrence
Participants	Producer, processor, distributor, etc.
Applicable scope	All stages from production to sales
Legal basis	Agricultural Products Quality Control Act

Table 2. Information required for traceability registration

Production Stage	Distribution Stage	Sales Stage
- Product item	- Description of postharvest management	- Name of sales company
- Name of producer	- Business registration number	- Business registration number
- Address, phone number	- Address, phone number	- Address, phone number
- Region of cultivation, etc.		

Cheolwon CADT, and a prior agreement was signed between the producers and the Cheolwon RPC regarding the sales of the cultivated rice. After procuring the rice, the Cheolwon RPC processed and sold the rice according to each farming household. In 2005, the cultivation was simplified to a single species, the regions and the area were expanded to 337 hectares in Gangwon-Do to facilitate traceability (Fig 1).

In 2005, the RDA designated 1,622 hectares of rice fields as trial complexes for producing the high-quality “Top Rice.” The participating regions are Hwasung, Gyunggi, Jincheon, Chungbuk, Dangjin, Chungnam and Gangjin, Jeonnam totaling 1,245 hectares in area.

At the production stage, work and record maintenance are carried out cooperatively. Unification of the species reduces efforts for traceability, and recordkeeping and its disclosure are conducted under the technical supervision of ADT.

At the processing stage, strict postharvest management such as timely harvest, drying and low-temperature storage is implemented and rice quality information, including head rice proportion, protein level and foreign substances, is provided. Information regarding processing and storage is prepared collectively in a complex, supervised by RPC. At the distribution and sales stages, promotion and sales activities are cooperatively conducted to develop a high-quality brand and earn the trust of consumers. Information on all

stages from production to processing and distribution is given.

Expected benefits include consumer awareness on the importance of safe agri-products and increased brand value based on enhanced trust of consumers. However, there are difficulties in the farming households in their efforts to maintain records and provide information. Other problems include insufficient means of classified procurement and processing facilities required for implementing rice traceability, as well as insufficient low-temperature facilities for storing and shipping out high-quality rice.

**Agri-product traceability implementation system.** RDA provides the basic research and distribution means for the traceability model, guidelines, standardization and radio frequency identification (RFID) applications. It also constructs the agri-product traceability system and the portal service. In collaboration with the CADTs, each provincial ARES (Agricultural Research & Extension Service) is responsible for providing training and promoting the system to farmers.

CADTs provide consulting services on traceability guidelines and consultations for the farming households. Producers record and input information for agri-product traceability, verify accuracy of their own information and offer recall services to the consumers. Finally, the farming households are responsible for carrying out strict cultivation and record maintenance and conducting strict quality testing (Figs. 2 and 3).

### Units and Costs of Traceability

Although traceability can be implemented by individual farming households as well as producer associations such as the NACF (National Agricultural Cooperation Federation) and distributors, the tracing and tracking unit is closely related to the financial burden and the amount of labor. For a small tracing and tracking unit, the cost burden and the amount of effort increase. However, an advantage is that when an incident occurs, the particular product can be traced to a smaller unit. While it is advisable to produce a label or barcode for displaying traceability in smaller units such as a farming household, species and cultivation method, there are increasing burdens in terms



Fig. 1. Cheolwon rice package.

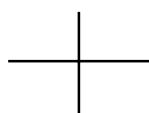




Fig 2. Trial GAP program.



Fig 3. GAP log book.

of cost and labor. In the case of Korea, cost-saving is realized by implementing traceability in units of producer associations with the assumption that each association exercises identical cultivation methods. In addition, information to consumers is provided over various channels such as printed materials, Internet and mobile phone.

### Technology for Conveying Product Information

Paper labels and one-dimensional barcodes are mostly used for displaying traceability in Korea. While paper labels cheap and that they can be printed without expensive equipment, they can be altered and counterfeited by third parties. In order to overcome such problems, new traceability models are being developed such as the RFID technology.

### Response from Distributors and International Traceability

**Response from major discount chains.** There are costs and efforts involved with recording, inputting and identifying the traceability information. In some instances, distributors and producers work together to implement their own traceability systems. In such cases, the producers can distinguish their products and the distributors can expect increased sales based on trust earned from consumers. Distributors are especially keen on traceability regarding agri-products and beef. Traceability programs are expanding to include environment-friendly and GAP agri-products, and more people are checking information using PCs over the Internet.

### Possibility of international traceability.

There are imported fruits and vegetables being sold in major discount chains in Korea. There may be agro-chemical residues and foreign substances on imported agri-products, making consumers increasingly uneasy about such products. When such a claim is made on an imported agri-product, since selective discarding or effective tracing is not feasible, the entire stock is discarded. However, with the recent developments in information technology (IT), which allows Internet access from farming households, it is now possible to implement an international traceability system to enhance the reliability of agri-products. If such a system is constructed, safe agri-products can be produced and distributed internationally. In order to do so, it is essential to share cultivation and distribution information of the producer in the exporting country.

### DEVELOPMENT AND OPERATION OF AGRI-PRODUCT TRACEABILITY SYSTEM

As there are increasing needs for traceability, a pilot system is under trial considering the circumstances in Korean agricultural practices. The system is initially being tested for vegetables and agricultural food products. Problems that surface during the trial operation will be resolved for developing the system. Although traceability will ultimately offer tracing from farm to table, the current focus is on information at the production stage. This chapter deals with design considerations, major characteristics and operation aspects of the traceability system.

## System Overview

**Technical aspect.** Major considerations included the information flow system among the participants and uniformity in the product-handling unit. Other factors incorporated into system design were information provided to consumers, participating farm households' cultivation methods, management and information level, production and shipping-out method and distribution mechanism. In the preparation of future technologies such as one- and two-dimensional barcodes and RFID, the technical compatibility with information systems currently used by the distributors was also considered.

**Economic aspect.** Since detailed traceability systems involve higher cost and effort, the additional cost and labor must be determined according to the goal and objective of the implementing parties. Paper labels and one-dimensional barcode were selected as means of conveying information in order to minimize additional costs. Moreover, also considered were other factors such as cultivation methods used by the participating farm households (environment-friendly eco-products, GAP, standard products, etc.) and if equipment such as label printers was available.

## System Characteristics

The traceability system can be accessed at <http://www.ATRACE.net>. The information is inputted by the producers and packinghouses, and the information is made available to the consumers and distributors free of charge.

Information on about 1,400 products (food/specialty crops, fruits, vegetables, etc.), other than processed foods and livestock products, is offered, and the system is simplified to facilitate the farmers and producer associations. The tracing and tracking unit is the product unit purchased by the final consumers (small packages, box packages), and label printers can be used to reduce additional costs to the farmers.

## Major Features

When a farming household registers the producer, item, cultivation method and period, and the packinghouse inputs the collection and shipping-out information for the corresponding product, a product number is assigned. A Label indicating the product number is placed on the product at the packinghouse prior to shipment. The consumer purchasing the product can access the system and use the product number to view detailed information regarding the producer, cultivation method, collection and shipment (Figs. 4 and 5).

Figure 4 displays the initial system screen, which allows consumers to view detailed information regarding cultivation and distribution. Consumers can search for information based not only on product numbers, but also on cultivation regions, producers and items. Basic information on production and shipment is provided, and the consumer can also view detailed information and work log. The current system mainly provides information for production, collection and shipment stages, and the system needs to



Fig. 4. Initial system screen.

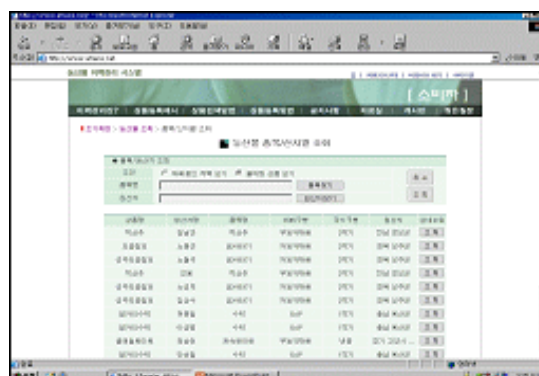


Fig. 5. List of participating farm households.



be developed to offer traceability for the entire food chain that includes the distribution stages.

## PRODUCER AND CONSUMER AWARENESS OF TRACEABILITY

### Producer Awareness

In terms of the farming area, 58.6% of the farming households participating in the trial program had 1 hectare or less; 23% had 1–1.6 hectares, and 18.4% had at least 1.7 hectares. Of the participants, 86.2% had PCs and 83.9% had Internet access. As for the frequency of inputting production information, 51.4% said once every 6–7 days and 16.2% said every 2–3 days. Information keyed in is administered by the NACF, producer associations and CADTs. Verification of the information provided is performed by the NACF, producer associations, farming households and CADTs.

Moreover, 84.0% of the participants placed the traceability labels on the boxes and 16.0% on the small plastic packages, increasing the cost of traceability.

On the economic benefits of traceability, one, it increased the sales, although in varying degrees according to the item and season. Of the respondents, 82.8% said that their sales increased, while 17.2% said there was no change. Two, it simplified the distribution channel. Transitions are taking place from wholesalers to direct channels to major discount chains. Of the participating farmers, 59.4% said that they were satisfied with the outcome of traceability, and 81.1% said that traceability was necessary. In terms of improvement areas, they pointed out promotion to consumers, training for farming households and improvement in the record maintenance system.

### Consumer Awareness

Correct understanding and genuine interest of consumers are essential for successfully introducing and implementing traceability programs. In order to assess consumer awareness for the trial traceability program, 503 consumers who purchased traceability agri-products were surveyed on 8–12 May 2004 at major discount retail chains, and the results were as follows:

**Motivation for purchase.** Of the respondents, 65.1% said that “assurance” was the motivation for purchase, indicating a high level of expectation, followed by “curiosity” at 15.4% and “recommendation” at 12.6%. These figures indicate consumer expectations that can be used in future policies for food safety management. In addition, it turned out that motivation for purchase was statistically significant with age. Consumers 50 years or older displayed a high percentage for “assurance,” and “curiosity” played a significant role for those below 30 and between 30–39. There was a low percentage of consumers who said that “price” was a motivation for making purchases (Table 3).

**Desired information.** According to the traceability guideline released by the MAF in 2004, information required at the production stage includes the producer’s personal data, origin, item, shipment date, quantity, ship-out lot data, materials used (species, fertilizers, agro-chemicals, etc.), production lot number, contract and quality management records. In terms of the information that the consumers would like to verify in traceability, 23.0% said quality “certifications such as environment-friendly products”; 17.6% said “materials used such as fertilizers and agro-chemicals”; and 14.7% said “species/producer/producing region” (Table 4).

Table 3. Motivation for purchasing agri-products

Unit: Respondents (%)

Age group	Assurance	Curiosity	Adequate Price	Recommendation	Advertisement	Other
Below 30	168 (71.5)	31 (13.2)	13 (5.5)	21 (8.9)	-	2 (0.9)
30–49	94 (50.3)	43 (23.0)	6 (3.2)	36 (19.3)	3 (1.6)	5 (2.7)
50 and above	64 (81.0)	3 (3.8)	4 (5.1)	6 (7.6)	1 (1.3)	1 (1.3)
Total	326 (65.1)	77 (15.4)	23 (4.6)	63 (12.6)	4 (0.8)	8 (1.6)

( $\chi^2 = 43.330$ ,  $p = 0.000$ )

In terms of information regarding fertilizers and agro-chemicals, 34.7% said that they would like to know the name of the chemicals; 33.5% said the number of usage; and 12.8% said the remnant agro-chemical inspection certificate. The results revealed statistically significant disparities according to age (Table 5).

**Intention of paying extra.** There are costs involved in maintaining records and implementing the traceability system, and the participating producers have expectations of higher retail prices. A survey was taken to assess their intention of paying extra for traceability products, and the results are displayed in Table 6. Of the respondents, 65.6% said that they were willing to pay 10-20% more and 18.2% said that they were willing to pay 21-30% extra for traceability products.

Although there were no statistically significant disparities between intention to pay extra and demographic factors such as income, educational background and age, those with higher incomes displayed active willingness to pay more for traceability products.

**Verification of traceability indication and information.** Introduction of traceability involves indication on agri-products in one format or another. An overwhelming 98.2% of the respondents said that such indication was helpful when making a purchase (Table 7); 29.2% said “determinate”; 61.2% said “helpful”; and 8.8% said “somewhat helpful.” The overall score was 4.2 out of 5.0, displaying a high degree of usefulness as well as statistically significant disparities.

As for the means of verifying traceability information, the respondents said “record label” (42.6%); “indication on package” (25.0%); and

Table 4. Information desired by consumers

Unit: Respondents (%)

Category	Respondents (%)
Species/Producer/Producing region	74 (14.7)
Certifications such as environment-friendly products	116 (23.0)
Materials used such as fertilizers and agro-chemicals	89 (17.6)
Work log for cultivation method	35 (7.0)
Harvest and shipment information	39 (7.8)
Safety management such as distribution channel and storage facility	63 (12.5)
Taste/Weight/Grade	68 (13.6)
Others	1 (0.2)
No response	18 (3.6)
Total	503 (100.0)

Table 5. Agro-chemical information desired by consumers

Unit: Respondents (%)

Age Group	Name of fertilizer & agro-chemicals	Number of usage	Usage date	Applica-tion	Manufac-turer	Applica-tion method	Agro-chemi-cal remnant	Harmful-ness to human	Chemical classifica-tion	Others
Below 30	65 (27.7)	80 (34.0)	12 (5.1)	20 (8.5)	6 (2.6)	1 (0.4)	35 (14.9)	14 (6.0)	2 (0.9)	-
30-49	78 (41.7)	68 (36.4)	6 (3.2)	5 (2.7)	4 (2.1)	3 (1.6)	15 (8.0)	4 (2.1)	3 (1.6)	1 (0.5)
50 and above	31 (39.2)	20 (25.3)	2 (2.5)	2 (2.5)	3 (3.8)	-	14 (17.7)	6 (7.6)	1 (1.3)	-
Total	174 (34.7)	168 (33.5)	20 (4.0)	27 (5.4)	13 (2.6)	4 (0.8)	64 (12.8)	24 (4.8)	6 (1.2)	1 (0.2)

( $\chi^2 = 33.66$ ,  $p = 0.014$ )



Table 6. Consumers' intention to pay extra

Unit: Respondents (%)

Monthly Income	10–20%	21–30%	31–40%	41% or more	Irrelevant
2.5 million won or less	57 (58.8)	17 (17.5)	8 (8.2)	4 (4.1)	11 (11.3)
2.5–3.5 million won	122 (68.2)	30 (16.8)	8 (4.5)	2 (1.1)	17 (9.5)
3.5 million won or more	149 (66.5)	44 (19.6)	7 (3.1)	3 (1.3)	21 (9.4)
Total	328 (65.6)	91 (18.2)	23 (4.6)	9 (1.8)	49 (9.8)

Table 7. Usefulness of display label

Unit: Respondents (%)

Age Group	Determinate	Helpful	Somewhat helpful	Irrelevant	Not helpful
Below 30	67 (28.6)	137 (58.5)	25 (10.7)	4 (1.7)	1 (0.4)
30–49	33 (17.6)	134 (71.7)	16 (8.6)	4 (2.1)	-
50 and above	41 (51.9)	35 (44.3)	3 (3.8)	-	-
Total	141 (28.2)	306 (61.2)	44 (8.8)	8 (1.6)	1 (0.2)

 $(\chi^2 = 36.39, p = 0.000)$ 

Table 8. Need for dedicated retail outlet

Unit: Respondents (%)

Monthly income	Very helpful	Somewhat helpful	No difference	Not helpful	Absolutely not helpful
2.5 million won or less	35 (36.1)	51 (52.6)	8 (8.2)	2 (2.1)	1 (1.0)
2.5–3.5 million won	70 (38.9)	99 (55.0)	10 (5.6)	1 (0.6)	-
3.5 million won or more	93 (41.5)	118 (52.7)	12 (5.4)	1 (0.4)	-
Total	198 (39.5)	268 (53.5)	30 (6.0)	4 (0.8)	1 (0.2)

“simple printed material” (11.6%), implying that consumers preferred simple and easy verification methods. A low percentage preferred the Internet (10.0%) and mobile phone (0.2%). These figures indicate that there is a need to consider effective and accessible channels of providing information.

**Dedicated outlet and means of providing information.** As indicated in Table 8, the respondents deemed that a retail space dedicated to traceability agri-products would be helpful, indicating the need to establish such outlets and be reflected in future policies (4.3 on the scale of 5.0).

Establishing a dedicated retail outlet is helpful toward prompt traceability through classified sales of traceability agri-products. Therefore, timely tracing paths must be secured in the distribution stages based on providing dedicated sales spaces and prohibiting display

with other products. Although 70.1% said that installing computers in stores for searching traceability information would be useful, there is a practical difficulty of having to secure space in the retail outlets (3.9 on the scale of 5.0).

In terms of the place for verifying traceability information, most consumers (88.6%) said that they preferred the retail site, reflecting the fact that they would like to access the information prior to making purchases.

**Importance of traceability.** As indicated in Table 9, respondents were aware of the importance of traceability, with 47.9% saying “very important” and 44.7% saying “somewhat important.” These figures indicate that the consumers are well aware of the importance of traceability. Moreover, there were statistically significant correlations with educational background (4.4 on the scale of 5.0).

Table 9. Importance of traceability

Unit: Respondents (%)

Education	Very important	Somewhat important	Neutral	Not important	Absolutely not important
Junior high or less	107 (45.7)	110 (47.0)	16 (6.8)	-	1 (0.4)
High school	115 (47.3)	109 (44.9)	16 (6.6)	3 (1.2)	-
University	17 (77.3)	4 (18.2)	-	1 (4.5)	-
Total	239 (47.9)	223 (44.7)	32 (6.4)	4 (0.8)	1 (0.2)

 $(\chi^2 = 16.84, p = 0.032)$ 

Table 10. Most important factor of traceability

Unit: Respondents (%)

Education	Timely and accurate information update	Certification by reliable organization	Simple means of accessing information	Traceability label	Other
Junior high or less	47 (20.2)	130 (55.8)	38 (16.3)	18 (7.7)	-
High school	50 (20.6)	129 (53.1)	43 (17.7)	20 (8.2)	1 (0.4)
University	2 (9.1)	16 (72.7)	2 (9.1)	2 (9.1)	-
Total	99 (19.9)	275 (55.2)	83 (16.7)	40 (8.0)	1 (0.2)

In terms of the most important factor of traceability, 55.2% said “certification by a reliable organization,” indicating their keenness on reliability (Table 10). Other responses included “timely and accurate information update” (19.9%) and “simple means of accessing information” (16.7%).

## SUMMARY AND CONCLUSION

This paper presented the analyses of trends in traceability in Korea, development of the pilot system and the results as well as surveys on consumer awareness. Based on these findings, future tasks and direction of development can be summarized as follows:

### Implementation of Operating System and Cost Burden

In order to successfully implement the traceability system, participants at the production, shipment, processing and sales stages must cooperate closely. At the production stage, producers’ associations and agricultural organizations closely related to

maintaining and providing information should take the initiative. Moreover, active participation and cooperation from distributors and manufacturers of process food products are essential. Parties responsible for collecting and providing information to the consumers are also important. Since it is necessary to minimize costs involved in maintaining traceability information for the farming households, additional policy support is required for establishing the foundation.

### Securing Reliability and Displaying Information

Securing objective reliability for the information provided is more important than anything in implementing the traceability program. In order to do so, it is advisable for the administrator to regularly inspect the cultivation methods and agro-chemical use of participating households. For farmers not familiar with providing information over the Internet, the administrator can collect and input information on cultivation and agro-chemical usage to create a database. Since merely displaying the



data most sensitive to the consumers-agro-chemical name and amount used-is not sufficient for the consumers to make rational decisions, there must be efforts to establish a method for verifying and indicating adequacy according to the level of agro-chemicals used.

### **Policy Improvement**

Sincere policies are required for implementing the traceability program in a timely manner. Although there are basic legal measures in place in Korea, detailed regulations are still being prepared. Therefore, there must be solid policies for preventing false records, placing traceability labels, establishing distinguished sales from general products and providing certifications from trusted organizations.

### **Data Recording and Management**

The basis of traceability is accurate and convenient input and management of the production information from the producers. Therefore, there must be technical development in automated data collection and management to reduce the burden to the farmers. Furthermore, since there will be costs involved in the distribution and sales stages for managing the substantial amount of data, there should be measures to respond to these issues.

### **Liaison with Related Technologies**

Technical elements that support traceability diversely extend from agriculture to distribution and IT. Such technologies must organically integrate to complete a traceability system. In the future, developments in technologies such as one- and two-dimensional barcodes and RFID must take place in line with agricultural applications, and there must be industry standardizations for the information introduced to each product. Moreover, there are responses required for setting standards for international trades of agri-products.

The current agri-product traceability program in Korea is in its initial stage with most information focused on production and packing, and it is expected to take a significant amount of time until a comprehensive

traceability chain is implemented for production, distribution, processing and sale of agricultural products. However, according to the developments in IT, traceability will be distributed in a more efficient and effective manner with its role becoming increasingly important in terms of securing food safety. In turn, there are systematic and active research and development activities taking place in Korea for practical and efficient tracing and tracking of agri-products.

In order to respond to such domestic and international changes and needs, a pilot system has been developed and is under operation. Although it is currently focused on production and shipment stages, the system needs to be developed to enable tracing and tracking of the entire food chain in the future.

Moreover, the current system must be supplemented and developed based on the findings of the producer and consumer awareness surveys to implement a complete traceability system.

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