KOREA NATIONAL FOOD CLUSTER

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COVER STORY

Korea National Food Cluster at the Moment

The Six Supporting Facilities at a Glance / Korea National Food Cluster's Temporary Research Centers, Advance Base for the Development of Products with High Added Value / Special Interview of Lee Ju-myeong (Director General for Food Industry Policy at the Ministry of Agriculture, Food and Rural Affairs)

EXPERT COLUMN

Rising Expectations for the Korea National Food Cluster, Martin Hall (Director of Science at Campden BRI) Convergence of the Export-Oriented Korea National Food Cluster and the Food Service Industry Choi Gyu-wan (Professor at Kyung Hee University)









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CONTENTS

04 COVER STORY

Korea National Food Cluster at the Moment

The Six Supporting Facilities at a Glance / Korea National Food Cluster's Temporary Research Centers, Advance Base for the Development of Products with High Added Value / Integrated Support Measures to Reinforce the Competitiveness of Ventures and Startups in the Food Sector / Designated as the Foreign Investment Zone Subject to Tax Reduction and Exemption / Special Interview of Lee Ju-myeong (Director General for Food Industry Policy at the Ministry of Agriculture, Food and Rural Affairs) "The Korea National Food Cluster Is the World's First Government-Led Industrial Complex Dedicated to Food"

12 EXPERT COLUMN I

Rising Expectations for the Korea National Food Cluster / Martin Hall (Director of Science at Campden BRI)

13 GLOBAL REPORT

Reporters from the US, China and Singapore Visit the Korea National Food Cluster

16 EXPERT COLUMN II

Convergence of the Export-Oriented Korea National Food Cluster and the Food Service Industry / Choi Gyu-wan (Professor at Kyung Hee University)

17 Let's Grow and Prosper

Together with the Korea National Food Cluster!

Wonkwang University / Gold of Prague / GC FOOD / Hanok Food / Neocremar / Daeyeong Specialized Transportation / The Special House F&B / Haru Morning

22 VISITING MOVED - IN CORPORATIONS

BTC – Prepared to Accelerate Growth as a Resident Company of the Korea National Food Cluster!

24 POWER INTERVIEW I

The Korea National Food Cluster is the embodiment of academic-industrial-research cooperation / Director Choi Hi-jong of the Agency for Korea National Food Cluster

26 POWER INTERVIEW II

Will the Korea National Food Cluster Be the Motive Mover of the Nation's Food Industry? / Professor MunJeong-hun of Seoul National University

28 FOOD TREND

A Glimpse into a Future Kitchen – A Robot Chef Busy at Work!

30 FOODPOLIS HOT NEWS

A Preview of the 5th International Food Cluster Forum Throwing Light on R&D Technology for Food Product Commercialization

32 FOODPILIS NEWS BRIEFS

CREDITS

Publisher Ministry of Agriculture, Food and Rural Affairs Minister Lee Dong-phil www.foodpolis.kr





Korea National Food Cluster The Path to Success in the Global Food Market



Lee Dong-phil Minister of Agriculture, Food and Rural Affairs

Somothil dee

There is an old saying in Korea: Fall brings opulence, and the autumn sky sheds luster. I am pleased to bring new tidings aplenty through the Korea National Food Cluster Newsletter at this beautiful time of the year, which is associated with richness and abundance.

Many world-renowned companies are taking note of the food industry as the new engine for continued future growth. The Prada Group – a luxury fashion house known for the high-end brand Prada – recently advanced into the food business in a major way by taking over a long-established pastry shop, while France's LVMH – the parent company of Louis Vuitton – also made a similar move.

The food industry has unlimited growth potential. In the future, the advancement of a nation is likely to hinge upon its performance in the food industry. Korea has emerged as the gateway to markets across the globe by concluding FTAs with as many as 52 countries. In particular, the recently signed Korea-China FTA will present opportunities on an unprecedented scale to the resident companies of the Korea National Food Cluster.

The creation of the Korea National Food Cluster is currently underway in an aim to build an R&D-centered, export-oriented network of agrifood companies. The facilities to support the resident companies, including the Functional Food Evaluation Center, Food Quality and Safety Center, Food Packaging Center, Food Venture Center and Pilot Plant, will be completed by June 2016, and the industrial complex will be completed by the end of 2016. The Korea National Food Cluster is expected to make significant contributions to advancing the co-prosperity of the agricultural and food industries by promoting the development and export of high-value-added products made from local farm produce. It is also expected to bolster the local economy by creating new jobs.

Your support for and attention to the Korea National Food Cluster – an advance base for agrifood manufacturers from across the world – will be much appreciated. I sincerely hope more and more food companies from Korea and beyond will join the cluster and take part in our quest for excellence. Thank you.

FEATURE STORY IN 2015 KOREANATIONAL FOOD CLUSTER AT THE MOMENT

01. Food Packaging Center

02. Food Quality and Safety Center

03. Food Functionality Evaluation Center

The Six Supporting Facilities at a Glance

01. Food Packaging Center

The Food Packaging Center will provide the Total Food Packaging Solution (TFPS) service designed to perform chemical and physical testing on the logistics environment. It will help add greater value to agrifood products manufactured for export through its one-stop packaging service. The center plans to join hands with organizations equipped with pilot plants across the nation to help the cluster's companies easily obtain the information about and the opportunities to secure the needed devices that are not available in the Korea National Food Cluster.

02. Food Quality and Safety Center

The Food Quality and Safety Center

will be equipped with the KOLAS-grade food hygiene testing facility that provides food safety testing and analyzing services to cater to the different needs of the resident companies from self-led quality tests to special tests needed for export. It will also provide support for R&D aimed at improving the flavor, scent, texture, and other aspects of food to suit consumers' tastes. It will offer technological support for companies to achieve food quality improvement and ensure food safety.

03. Food Functionality Evaluation Center

The Food Functionality Evaluation Center will offer infrastructure that enables companies to systematically conduct research on functional food material standardization, research on effectiveness evaluations, and safety evaluations. The center, powered by its academic-industrial network that encompasses both local and overseas organizations, will serve to coordinate the development of functional foods with high added value and accelerate the commercialization of these products.

04. Pilot Plants

The Pilot plant for GMP-marked functional foods will be established, with facilities for the small-quantity production of the different test products of the

FOODPOLIS, 2015

The Korea National Food Cluster, currently under construction in Wanggung-myeon, Iksan-si, Jeollabuk-do, is slowly taking shape with about a year left until its scheduled completion. With approximately 58 percent of the supporting facilities within the cluster completed, the efforts to attract prospective resident companies and build diverse business networks are being made in earnest. Many overseas press organizations have visited the site and expressed their high expectations, while academic circles and food businesses have also expressed enthusiasm about the cluster. The Korea National Food Cluster – the world's first government-led industrial complex dedicated to food – is about to take an ambitious leap forward towards becoming an R&D-centered, export-oriented cluster equipped with expansive global networks and Korea's resources. Its high-caliber manpower and world-class system, including the six supporting facilities and temporary research centers, are expected to help the resident companies increase their global competitiveness and expand channels for agrifood exports. Furthermore, the recently approved designation of the Foreign Investment Zone within the cluster is working to reinforce the cluster's drive to attract overseas food companies. Here are the details of the six supporting facilities and major functions of the Korea National Food Cluster, which clearly set the cluster apart from similar sites.

06. Agency for Korea National Food Cluster

04. Pilot Plants

resident companies, facilities for the commissioned processing, and facilities for process standardization experiments to help the resident companies roll out their products into the market. The plant will have a standard line (for general processed foods) and a special line (for GMP-marked functional foods), and the special line will be equipped with some of the industry's most advanced, forward-looking devices.

05. Incubating Center

428

The Food Venture Center is designed to serve as a production facility that can be lent at an affordable price to small and medium-sized companies (SMEs) that have technology and innovative ideas but lack capital. It will help them benefit from reduced initial investments and operating expenses; focus their resources on honing their competitive edge; and eventually grow into established businesses. To this end, a rental factory dedicated to food manufacturers will be built, housing 52 rooms for research and production activities of the resident companies. Also, the center will provide support for the companies to attain food-related certification (HACCP, GMP, etc.).

06. Agency for Korea National Food Cluster

The Agency for Korea National Food Cluster will be charged with the supervision and management of the cluster and will be responsible for creating the industrial complex, attracting prospective resident companies, supporting the participating companies, and conducting PR activities. It will operate various programs to reinforce the participating companies' competence, including support for R&D, support for exports, the cultivation of food specialists, and management consultation for SMEs. The agency will be in charge of promoting the investments of local and overseas corporations and research institutes and publicizing the cluster. The agency will additionally oversee the submission of applications for government certification and licensing (for the establishment of a production facility, etc.) through its one-stop administrative service.

05. Incubating Center

Korea National Food Cluster's Temporary Research Centers Advance Base for the Development of Products with High Added Value

The Korea National Food Cluster has put into operation temporary research centers to provide necessary support for resident companies before the completion of the supporting facilities. The temporary research centers, present at the two locations of Wonkwang University and the Iksan Campus of Chonbuk National University, engage in diverse activities, including the development of demand for joint R&D projects involving prospective resident companies and other research institutes. The major tasks of the temporary research centers encompass support for functionality evaluations, food quality and safety, and food packaging, as well as assistance through the International Joint R&D Program. Here is an overview of the temporary research centers drawing close attention from local and international food companies and press organizations.

Support for Food Functionality Evaluations

The temporary research center on the campus of Wonkwang University, responsible for supporting material standardization and functionality evaluations for the development of functional foods, stretches across an area measuring 336 square meters. It conducts various research projects for product development in collaboration with businesses, especially SMEs that often lack sufficient research staff and infrastructure. For instance, the center is pushing ahead with a project to develop new products with high added value by using locally produced aronia berries, known for their outstanding anti-aging, vision-improving, and anti-cancer effects. The newly developed products, which take full advantage of aronia berries' sweet and sour flavor as well as the unique nutrients richly contained within, are expected to grow into hot sellers both in Korea and beyond and help raise incomes of rural communities.

#01. Mujin Food, a manufacturer of a variety of banchan (small dishes served along cooked rice in Korean cuisine, such as salted and fermented foods) using local agricultural produce, has imported the pickle-manufacturing technology of Olive Pickle of the US with the help of the temporary research centers. Mujin Food is currently making preparations to export as azuke (Japanese pickles) and dongchimi (Korean radish water kimchi) to Japan and the US.

#02. Neocremar, a manufacturer of functional sugars, recently succeeded in developing a new oligosaccharide product effective in improving geriatric constipation, but could not find any export market due to its inability to identify all the ingredients contained in its product. Neocrema could successfully standardize its production process, conduct effectiveness evaluations through animal testing, and identify all the ingredients contained in its product thanks to research equipment and staff provided by the temporary research center. Neocrema is now preparing to make its first shipment to Japan.

#03. Cheonil Food and Daedu Food are conducting research to clarify the causes of the off-flavor of their products, including doenjang (fermented soybean paste), and to find packaging methods that can remove the causes, jointly with the cluster's Food Packaging Center. The two companies are contributing to the increased sales of Korean food across the globe by studying packaging technology that prevents the browning of traditional condiments (doenjang, etc.) during distribution and that enables the development of microwavable instant food products.



Food Quality and Safety · Food Packaging

The temporary research center involved in the food quality and safety, food packaging quality and safety, and food packaging divisions is located on the Iksan Campus of Chonbuk University, occupying an area of 425 square meters. The food quality and safety division executes symbolic quality analyses of different products based on a combination of subjective sensory evaluations and scientific instrumental analyses. The food packaging division provides support for the planning of packaging materials by conducting research on the components and material properties of each package for improved quality and an expanded shelf life.

Classification	R&D of the temporary research centers			
	Supports symbolic product quality analyses based on a combination of subjective sensory evaluations and scientific instrumental analyses			
Quality and safety division	Extraction of aromatic components	Instrumental analyses of aromatic components	Adjustment of aromatic components	
Food packaging division		m packaging materials necessary for esearch on components and materia Optimum material planning		

The quality and safety division and food packaging division

International Joint R&D Program

The International Joint R&D Program is designed to support the technology development efforts of food companies, research institutes, and academic institutions in Korea and beyond in an aim to introduce cutting-edge technologies to Korea and build global networks. Up to 500 million KRW is provided for the duration of three years for each project. Presently, three projects are in progress: IT convergence research, research on the globalization of hansik (Korean food), and research on the development of products with high added value that target global consumers.

The temporary research centers plan to provide advance support for companies scheduled to move into the cluster for R&D related to the development of functional foods, food quality and safety, and food packaging until late June of next year when the supporting facilities will be completed. The centers will put into action a specialized one-stop service system to facilitate the operation of the resident companies and help them effectively respond to difficulties. They also plan to actively assist the Korea-based resident companies to hone their competitive edge to win in the international arena by joining hands with prestigious research institutes such as NIZO and TNO of Food Valley NL, a globally recognized food cluster of the Netherlands. The temporary research centers will present ample opportunities for food companies facing R&D difficulties, due to a lack of infrastructure, to make leaps forward.

Title	Worldwide commercialization of and model development for laying the industrial- ization foundation for bio and healthcare products		
Participating research organizations	Clinical Trial Center for Functional Foods at Chonbuk National University Hospital (supervisor), I Thech Lab Inc. (Japanese research institute). TTC Co. Ltd. (Japanese CRO), Chebigen, Healthcare Claims & Management (CRO), TTC Korea (CRO), Korea Conformity Laboratories		
Objectives	This research aims to add greater value to a functional food product comprised of vegetable worms and ginseng cultures produced by a local SME and to help it win in the global market. This food product is being marketed in China at present but has failed to create high added value due to a lack of scientific proof regarding its effectiveness.		
Solutions	 To perform effectiveness evaluations, safety evaluations, and clinical tests both locally and internation To strengthen the product's presence in Japan and China after earning certification as a function food from the Ministry of Food and Drug Safety 		

Integrated Support Measures to Reinforce the Competitiveness of Ventures and Startups in the Food Sector

The Korea National Food Cluster plans to establish a onestop service system that provides assistance for the resident companies to move into the Food Venture Center as well as much-needed support for food ventures and startups lacking technology, capital, education programs, and marketing channels. Here are the details about the cluster's support measures.

Coming Up with Venture and Startup Support Policy

As of July 2015, the number of venture companies in the food sector totals 873, including beverage manufacturers. This figure represents only 2.9 percent of the nation's total venture companies. Once recognized as a venture company, various tax benefits and financial aid packages are provided. However, most food startups lack technology that meets the requirements of the existing venture certification system, thus experiencing more difficulties in terms of survival and growth. Also, while investment in initial-stage R&D is easily secured, investment in R&BD needed for the commercialization of developed products still remains insufficient. Therefore, many companies struggle to transfer and trade technologies already developed. It is critical that the harsh reality faced by food venture companies is considered seriously to come up with wide-ranging support measures, including the establishment of infrastructure to support food ventures and startups and the establishment of a one-stop support system for venture certification.

Providing One-Stop Support from Education to Consulting

In order to promote food ventures and startups, supportive policies are needed in the four areas of "facility", "consulting", "education", and "technology". First, ventures and startups in the food sector should be able to move into the Food Venture Center at low costs and receive necessary support for the production of test products before attempting the mass-production of such products to minimize market entry risks. Second, they should be able to receive consultation for follow-up marketing strategies based on the results of test product sales analyses. Third, venture startup education for those wishing to found a venture should be provided. To this end, the cluster plans to open and operate both a basic startup course and an intensive course for food education at the same time. One-stop support for food ventures and startups, including a consulting service for venture certification, must be provided to help them achieve continued growth. The cluster recognizes the need for consulting services regarding certification (such as HACCP and GMP), product packaging, and the overall business operation, and thus came

up with necessary measures. As for "technology", food ventures are in need of R&BD support for the development of technology necessary for product commercialization. More opportunities to conduct joint research projects should be given, and an R&BD process based on marketability should be introduced step by step. Lastly, a mutually beneficial platform needs to be built, upon which venture companies can be encouraged to develop necessary technology and the Korea National Food Cluster can push ahead with R&BD support strategies tailored to meet the individual needs of the participating companies.

Recruiting Resident Companies for the Food Venture Center

The plan is to complete the selection of participating food startups and resident companies next year and to initiate support for the selected resident companies in 2017. The Screening Contest for the Resident Companies of the Food Venture Center is scheduled to take place at the time of the completion of the Food Venture Center in 2016. Qualifying candidates include entrepreneurs-to-be and less-than-fiveyear-old startups. The determination, technological prowess, and marketability of each candidate will be evaluated based on the applications turned in, followed by the presentation evaluation. The Food Venture College will also be launched for the contestants, helping them fortify their competitiveness and keep abreast with the latest industrial trends through an intensive incubation course. Throughout the duration of this education, part of the Food Venture Center will be provided as a space for discussions and studies related to the creation of innovative products. The contestants will also be able to tour around the four R&D-oriented supporting facilities (Functional Food Evaluation Center, Food Quality and Safety Center, Food Packaging Center, and Pilot Plant) and take part in research projects. Those companies that make the final cut will be given the chance to move into the Food Venture Center.

Pushing the Ecosystem for Food Ventures and Startups Forward

We plan to help startups survive and thrive through our diverse startup support programs and education courses, such as the Food Venture College. Our goal is to increase the percentage of companies with venture certification among the cluster's resident companies to as high as 20 percent.

Designated as the Foreign Investment Zone Subject to Tax Reduction and Exemption

FIZ

The area measuring 116,000 square meters, out of the entire lot dedicated to industrial use (1,399,000 square meters) within the cluster, has been designated as the Foreign Investment Zone. This designation has provided momentum for the cluster to rise as a world-renowned industrial complex specializing in food. A total of six overseas corporations, including Gold of Prague of the Czech Republic, have decided to move into this zone so far. The following are some of the open secrets of the popularity of the FIZ.

Why Investors Are Flocking to the Korea National Food Cluster's FIZ

The six food and beverage manufacturers registered as foreign investors with Foodpolis, including Prague's Gold, are preparing to move into the Korea National Food Cluster's FIZ one by one. Based on the number of corporations registered, the area amounting to 116,000 square meters was designated as a FIZ. The cluster plans to attract more companies backed by foreign investments and expand this area up to 450,000 square meters. Since diverse incentives such as tax and land lease reduction and exemption are offered to companies moving into the FIZ; an increasing number of foreign investors are expected to take part in the future.

Benefit I. Affordable Land Leases and Tax Benefits

First of all, companies with investments from foreign investors can rent land at affordable prices. Land in the FIZ is

Overseas Corporations Registered as Foreign Investors with Foodpolis				
Country	Company	Details		
Czech Republic	Gold of Prague	This manufacturer of traditional Czech beer plans to build a brewery that com- bines the brewing heritage of the Czech Republic and state-of-the-art technology.		
US	Hampton Grains	This company, equipped with its own farm, specializes in the production and processing of grains (wheat, bean, com, and soybean) into flour and cooking oil products.		
	Well Spring	This globally recognized food company has 300 branches in 26 countries. It pro- duces frozen yogurt powder, green tea, mixed grain powder, dried fruit, and dried vegetables.		
China	Clever Mama	This food company has grown drastical- ly since its inception in 2009, recording sales of over 100 billion KRW in just five years. It manufactures pudding products containing real fruit juice, jellies, and a wal- nut-flavored beverage.		
	Weihai Unisplendour Biotechnology Development	This company manufactures processed foods (functional foods) containing fig. Its representative product is fig wine, which is being exported to Southeast Asia.		
Kenya	Gold Rock International	This company is a coffee manufacturer staffed by 200 employees, recording an- nual sales of 20 billion KRW (as of 2013). It produces, distributes, and processes coffee beans grown in Kenya.		

jointly purchased by the central government and local government bodies (the city of Iksan and Jeollabuk-do) and leased to companies with investments from foreign investors at affordable prices. Land leases are exempted up to 75 percent or 100 percent in accordance with investment conditions. In addition, diverse tax benefits are given. For companies in the manufacturing sector that invest ten million USD or more and companies in the logistics sector that invest five million USD or more, the national taxes (corporate tax and income tax) are exempted for up to five years (100 percent for the first three years and 50 percent for the next two years), while the local taxes (acquisition tax and property tax) are exempted for up to 15 years (100 percent).

Benefit II. Diverse Subsidies

Diverse subsidies are provided, including subsidies for employment and education.

Exemption of Land Leases

For a 100-percent exemption, companies must be engaged in industrial support services and advanced technology and must have received investments equal to one million USD or more from foreign investors.

For a 75-percent exemption, companies must be making substantial contributions to the expansion of social overhead capital and the improvement of the industrial structure or the financial independence of a local government body; must be selected by the Minister of Trade, Industry and Energy based on the review of the Foreign Investment Committee; and must have received investments equal to five million USD or more from foreign investors.

Subsidies

Classification		Details		
Employment subsidy	Jeolla- buk-do	If the number of full-time employees exceeds 20 by newly hiring local residents, one million KRW per head for all excess employees will be given for up to six months with a ceiling of one billion KRW per company.		
	Iksan	If the number of full-time employees exceeds 20 by newly hiring local residents, 500,000 KRW per head for all excess employees will be given for up to six months with a ceiling of 200 million KRW per company.		
Education and training subsidy	Jeolla- buk-do	If the number of full-time employees exceeds 20 by newly hiring local residents, 100,000- 500,000 KRW per head for all excess employ- ees will be given for up to six months with a ceiling of 500 million KRW per company.		
	Iksan	If the number of full-time employees exceeds 20 by newly hiring local residents, 500,000 KRW per head for all excess employees will be given for up to six months with a ceiling of 200 million KRW per company.		

* Sources : Municipal Ordinance on the Promotion of Business Relocations to and Investment in Jeollabuk-do / Enforcement Rule of the Municipal Ordinance on the Promotion of Business Relocations to and Investment in Jeollabuk-do / Municipal Ordinance on the Promotion of Investment in Iksan / Enforcement Rule of the Municipal Ordinance on the Promotion of Investment in Iksan

Special Interview of Lee Ju-myeong

The Korea National Food Cluster Is the World's First Government–Led Industrial Complex Dedicated to Food

The Korea National Food Cluster, which is being created in Iksan, Jeollabuk-do, is becoming a focal point for local and overseas press organizations, Director General Lee Ju-myeong at the Ministry of Agriculture, Food and Rural Affairs had an interview with the Chinese press in October and elaborated on the background of the cluster and the support programs to be provided to the resident companies.

What are the points that set the Korea National Food Cluster apart from similar sites?

Most of the industrial complexes in Korea encompass companies of different sectors. Generally, an industrial complex picks out a site, prepares the ground, and parcels out the lots to companies. The Korea National Food Cluster boasts optimum conditions for business operations, which include R&D facilities, a customs clearance system, a recruitment support system, and a database for agricultural products used as raw ingredients. Furthermore, the foreign companies moving into the FIZ can enjoy a variety of incentives and benefits.



Are foreign companies subject to the benefits provided by the R&D centers?

This system supports both local and foreign companies. Not all resident companies of the Korea National Food Cluster can be equipped with an in-house R&D system. That is why we are trying to reinforce our R&D platform and extensively provide much-needed support to our resident companies.

What did you present as the strengths of the Korea National Food Cluster to attract investors and businesses?

Most local companies are investing in the Korea National Food Cluster in an aim to strengthen their R&D competence and advance into overseas food markets, especially those of Northeast Asian countries. The cluster is not a mere industrial complex; it offers supporting facilities and research equipment essential for food companies to foster competitiveness in R&D. In fact, those companies that concluded the parceling-out contract with the cluster are preparing to join hands with the R&D team of the cluster for the development of new functional foods. Also, President Park Geun-hye herself attended the groundbreaking ceremony of the cluster in November last year and demonstrated the government's determination to focus on the creation of the cluster, thereby earning greater trust from the companies. The cluster is expected to play an instrumental role as the hub of exports for the rapidly growing Northeast Asian food market. In particular, Chinese companies view it to be more

advantageous to invest in the cluster as they can utilize the power of "Made in Korea" when they manufacture products in Korea and re-export them to China. The six corporations registered as foreign investors with Foodpolis have emphasized that they selected the cluster due to expectations of networking and creating synergy with the other resident companies, easy access to the Chinese market, and the innovative R&D system provided on site.

What are your strategies to attract more resident companies throughout the future?

As for local companies, we are planning to engage in all-directional investment promotions (including publicity about our support programs for R&D, exports, and customs clearance) targeting both up-and-coming and established businesses. Also, one-on-one investment presentations will be organized by the Ministry of Agriculture, Food and Rural Affairs, conferences for executives of prospective investors will be staged, and investment presentations will be made for students enrolled in the course for the CEOs of food companies at local universities. We will continue to hold regional investment presentations in association with the Korea Chamber of Commerce and Industry as an effort to beef up our investment promotions targeting SMEs in the local food sector. As for overseas promotions, we plan to expand our promotional activities for Chinese and Singaporean companies that have a higher probability of actually carrying out investments in Korea.

Current Status and Vision of the Korea National Food Cluster Project

The Korea National Food Cluster is scheduled to be completed by 2016 in its entirety. The three R&D centers and the other three supporting facilities will be completed during the first half of 2016, and industrial facilities by the yearend. The cluster is the world's first government-led industrial complex dedicated to food. It is expected to serve a focal role in the continuously growing global food market. Korea is situated in a prime location close to China, Japan, and Southeast Asia, making it easier for companies to export to these countries. The cluster is also conveniently located with access to two ports of Gunsanhang Port and Saemangeumhang Port, both of which are only 30 minutes away from the site.

Rising Expectations for the Korea National Food Cluster



Martin Hall (Director of Science at Campden BRI)

World-renowned specialist in convergent food science
 Expert in agricultural, chemical, and biochemical areas
 Supervises hygiene and food quality and safety
 Sits on the Government Chemist Advisory Group
 Formerly served as a member of the European OEITFL Technical and Legislation Committee

* Campden BRI of the UK

Campden BRI, boasting over 400 researchers and 2,000 member companies, is acclaimed as one of the world's top two food research institutes along with NIZO of the Netherlands.

Equipped with Campden BRI's Stateof-the-Art R&D System

In order for the food industry to meet the standards of today's discerning consumers and to ensure sustained commercial development, it needs to remain on the cutting edge of scientific innovation based on R&D. The UKbased Campden BRI has over 2,000 member companies across the world; it develops and applies technology and commercial solutions for the food and beverage sector based on its solid partnerships with food companies. Campden BRI is providing support for SMEs and multinational companies to overcome managerial challenges, to pioneer new markets by achieving processing and packaging innovations, and to grow on a continual basis.

The HACCP System and Extensive R&D

HACCP (Hazard Analysis Critical Control Points) is a food safety management system originally developed by the space industry to minimize food contamination and the possibility of food poisoning in the state of weightlessness. HAC-CP addresses food safety through extensive R&D on how hazards intrude the food supply chain and how they can be removed and controlled. Recently, a new notion of TACCP spun off from HACCP, with the "T" standing for "threat." TACCP was devised to protect the supply chain against hazards deliberately brought in. A series of diverse product and processing innovations have been achieved over the past several years, and such innovations were made possible thanks to cutting-edge R&D techniques.

Nurturing the Korea National Food Cluster into the National Hub of R&D

The Korea National Food Cluster consists of the Functional Food Evaluation Center, Food Quality and Safety Center, Food Packaging Center, and Pilot Plant. The first three R&D centers testify to the government's determination to build a hub for the food industry in Northeast Asia. These R&D centers are designed to complement one another and create synergy with the Pilot Plant. They will focus on conducting research projects that are tailored to the needs of companies and consumers to ensure the safety and the premium quality of local food, to develop health-boosting food products that can appeal to consumers, and to come up with innovative packaging methods.

The Korea National Food Cluster, key players in Korea's food industry, consumers, and raw ingredients are inseparable. They form a cycle often described as "farm to table" or "an integrated food chain." Each element in this cycle closely interacts with the others. The production method of raw ingredients determines the traits and features of each ingredient. The traits and features of each ingredient determine the processing method, which in turn affects the quality, packaging method, and sales method for the finished product. In order to achieve an integrated food chain in the most desired form, it is crucial to build a close cooperative network of the R&D centers within the cluster and other stakeholders such as the Rural Development Administration, Korea Food Research Institute, universities, and private research institutes.

Outlook of the Korea National Food Cluster

The Korea National Food Cluster is a bold, forward-looking step taken by the Korean govemment based on the foundation of innovative research and technology. The creation of the cluster is expected to further heighten the credibility and reputation of Korea' s food industry and food science across the world. The cluster will undoubtedly grow into the Northeast Asian center of food production and marketing powered by the FTAs concluded between Korea and many countries and Korea' s continued efforts to attract foreign investors.

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22

Reporters from the

Visit the Korea National Food Cluster

The Korea National Food Cluster is gamering attention based on the Northeast Asia's food market's ability to continuously demonstrate rapid growth. Groups of reporters from leading food and beverage magazines of the US, China, and Singapore recently visited the cluster to cover the competitiveness and vision of Korea's food industry in depth. They exhibited interest in the current status of and benefits given by the cluster after touring around the construction site in Iksan, Jeollabuk-do where the PR Center and other supporting facilities are being created, as well as the state-of-the-art temporary research centers.

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US reporters are confident about the future of the Korea National Food Cluster and Korea's food industry

"We came to find out more about the present and future of Korea's food industry," said the reporters from the US on October 19 before they embarked on a tour around the Korea National Food Cluster. They first dropped by the temporary research center at Wonkwang University and were introduced to its R&D projects, technological convergence, and business support in detail. Kim Ji-hyeon, the team head at the center, explained that the cluster consists of the Food Quality and Safety Center, Functional Food Evaluation Center, and Food Packaging Center and elaborated on each center. The Food Quality and Safety Center will be equipped with a KOLAS-grade food hygiene testing facility that provides food safety testing and analysis services to cater to the different needs of the resident companies from self-led quality tests to special tests needed for export. The Functional Food Evaluation Center will offer infrastructure that enables companies to systematically conduct research on functional food material standardization, effectiveness evaluations, and safety evaluations. The Food Packaging Center will provide the Total Food Packaging Solution (TFPS) service designed to perform chemical and physical testing on the logistics environment and add to the global competitiveness of those companies striving to advance into

overseas markets.

The reporters were then led to the PR Center and to the construction site. They were given the chance to go up to the observatory that provides a panoramic view of the entire site and hear about future development plans. They showed great interest in the scale of the FIZ and benefits such as land lease exemption and reduction given for five decades. The reporters then moved to Sempio Foods Company's laboratory that concentrates on the development and application of fermentation technology and sampled some fermented food products. They expressed their wish to pay another visit to the cluster after its completion and emphasized that the future of Korea's food industry appears bright.

Chinese reporters are captured by the charms of the Korea National Food Cluster

The Chinese reporters of China Economic Net and Tang Yan Zhu visited Korea on September 22 to cover the Korea National Food Cluster project aiming to build a world-class industrial complex dedicated to food. On the first day, the reporters visited the 2015 Korea Food Trend Fair at the aT Center in Yangjae-dong. What captured the hearts of these reporters most among the many events, such as the Live Cooking Exhibition, Cooking Exhibition Contest, Carv-

I am thrilled that the Food Valley of Europe is being re-created and is about to be experienced in Korea. This is inspiring for the entire Asian food industry.



WELCOME FOREIGN JOURNALISTS

1. Richard Whitehead - Editor of Food Navigator dedicated to the analysis of Asia's food markets

 Dave Fusaro – Editor of Food Processing boasting the highest number of subscribers among food and beverage magazines in the US
 Denice Cabel – Editor of Asia Food Journal, a bimonthly magazine that is published in China and Southeast Asian countries including Thailand, Malaysia, and Indonesia and boasts a readership of over 10,000

4. Du Chang Yong – Deputy Managing Editor of China Economic Net, an online media dedicated to business and economic news
 5. Duan Yu Feng – Managing Editor of Tang Yan Zhu, a food and beverage magazine boasting a circulation of 80,000 in China

ing Contest, and Baking and Sugar/Chocolate Arts Contest, was the Traditional Alcoholic Beverage Exhibition. They were particularly drawn to makgeolli (turbid rice wine) and stressed that the fermented alcoholic beverages of Korea are gaining much popularity on the back of Korean TV dramas. The reporters then moved to the PR Center and looked around its exhibition rooms, observatory, and conference rooms. They were also greatly impressed with the cluster's incentives for companies with investments from foreign investors, including low-cost land leases and tax benefits. After taking a look at the entire construction site via the observatory, the Chinese reporters said, "The outlook of the cluster has become even brighter thanks to the conclusion of the Korea-China FTA."

Singaporean press reaffirms the Korea National Food Cluster's advantages

Denice Cabel, Editor of Asia Food Journal of Singapore, visited Korea on October 7 to cover the developments of the Korea National Food Cluster. Cabel departed for Iksan, Jeollabuk-do early in the morning and first stopped at the Functional Food Evaluation Center located on the Iksan Campus of Chonbuk University. Cabel was given a chance to talk with the R&D Team and check what sets the cluster apart from similar sites. Manager Lee Hyeon-sun of the R&D Team said, "The Functional Food Evaluation Center is designed to support food companies with its leading-edge infrastructure and research equipment and conduct necessary research projects for them. At the moment, a total of three teams are involved in seven projects." Cabel gave high evaluations to the state-of-the-art R&D equipment and projects personalized for each company. He also visited BTC, one of the companies scheduled to move into the cluster, and asked about its motives for deciding to enter into a parceling-out contract and the benefits accompanying the contract. Lastly, he mentioned that the cluster would serve as momentum for Asia to become the pivot of the global food market.

Convergence of the Export-Oriented Korea National Food Cluster and the Food Service Industry



Choi Gyu-wan (Professor at Kyung Hee University)

The government-led Korea National Food Cluster will go into high gear from 2016 onwards. The food industry is believed to hold the key to the future growth of a nation at a time when the entire world is struggling to find the next-generation prime mover for sustained growth. The world can be divided into three major regions: the Asia-Pacific Region, the EU Region, and the American Region. The food market of the Asia-Pacific Region is projected to demonstrate the most rapid growth and the largest scale by 2020 compared to the other two regions. China and Japan, both of which are located near Korea, rank among the world's largest food consumers.

The competitiveness of Korea's food market is still insufficient to vie with major players in the international arena. It is strategically important for Korea to focus on all directions in the food value chain, including processing, manufacturing, and service, and thus create greater added value. The answer lies in collaboration between the food service sector and the food sector. In order to prevent the cluster from degenerating into a mere manufacturing-centered complex filled with factories, an integrated food value chain must be properly set up to embrace both front and rear industries. The food service industry, in particular, should be studied carefully in this context. Food is consumed not only at home but also at restaurants and eateries. In other words, the quality and quantity of restaurants can serve as indicators of where a nation's food industry stands.

The limitations of the domestic food market can be overcome through exports of restaurant brands. In order to increase their exports, priority should be given to reinforcing the foundation of the local food service industry. The Korea National Food Cluster is endowed with much responsibility to advance the accomplishment of these goals. In particular, exports of hansik and Korean restaurant brands should be at the top of the list of convergence tasks to be handled by the cluster. As of late 2014, the number of food service providers that have succeeded in stepping into overseas markets stood at 120 (138 brands). The number of outlets established by these food service providers reached 3,726, which is a 37-percent increase from 2,717 in 2013. This upward trend has continued throughout 2015. According to an inter-industry analysis, exports of agrifoods incurred by the globalization of hansik in 2012 brought about an economic spillover effect of 2.2 trillion KRW. This is equivalent to exporting 45,000 automobiles.

In summary, the cluster is mainly charged with two roles regarding the convergence of the food industry and food service industry. First, it should accurately identify the needs and demands of food service providers in Korea and beyond and develop products or connect food manufacturers and food service providers accordingly. This entails the tasks of supplying and developing processed foods and providing support for the development of home meal replacements. The cluster is also required to provide support for the development of food products to be consumed at home. Second, the cluster should keep abreast of the latest eat-out trends, both local and global, and deliver that information to food companies. In fact, a variety of food products are developed and marketed in accordance with the changes of the eat-out patterns of consumers. It is crucial for food and R&D companies to be in the know regarding the latest developments and major players in the global food service market. Many food companies aspire to obtain information about overseas eat-out markets and to communicate with local and international food service providers to pioneer new sales channels. Food service providers are also in need of R&D to develop and expand their menus and ingredients. The cluster should be able to function as a link between such companies and help them create synergy. The need for this convergence is expected to grow further once the globalization project of hansik is put on the track as planned and Korea-based restaurant brands begin to advance into overseas markets in earnest.

Lastly, the cluster must remain creative and flexible to reap success, with the R&D, processing, manufacturing, and service sectors all being efficiently coordinated. Many industrial complexes are presently in operation in Korea, but most are focused on manufacturing. The Korea National Food Cluster should serve as a vibrant market encompassing a value chain, rather than a mere manufacturing site. Therefore, its convergence with the food service industry should be given careful deliberation from the very beginning and be approached in an all-encompassing manner.

Let's Grow and Prosper Together with the Korea National Food Cluster!

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Inquiries about relocating to and forming business cooperation with the Korea National Food Cluster are pouring in from companies, with the completion of the cluster just around the corner. Here are some introductions to the companies that have joined the cluster's quest to become tomorrow's advance base for agrifood exports.

NEW PARTNERS

Wonkwang University Gold of Prague GC FOOD Hanok Food Neocremar Ltd. Dae Yeongteukun The Special House F&B Harumorning



The Korea National Food Cluster and Wonkwang University concluded an MOU on September 11 to jointly foster food experts with global competitiveness and conduct R&D for the advancement of the nation's agricultural and food industries. Wonkwang University agreed to build an extensive system that facilitates cooperation with the cluster to nurture food specialists and push ahead with diverse research projects. Furthermore, the two sides will closely cooperate in sharing personnel, technology, and information, as well as pertinent facilities and equipment, while also turning the results of jointly conducted R&D projects into commercial success. President Kim Do-jong of Wonkwang University said, "We have already formulated the courses for the Food Venture and Startup School aimed at fostering experts who will be recruited by the Food Venture Center as an extension of our efforts to bolster exchange between the two sides. We will collaborate more closely with the cluster to generate positive results."Wonkwang University provides a wide range of international exchange programs based on its partnerships with 78 higher-education providers and research institutes in 22 countries. It is equipped with 16 colleges, nine graduate schools, and ten university-affiliated hospitals in five cities.



Gold of Prague, which accompanied the Czech prime minister on his visit to Korea in celebration of the 25th anniversary of the establishment of diplomatic ties between Korea and the Czech Republic, signed an MOU that stipulates the creation of a beer production facility within the Korea National Food Cluster on February 25. Gold of Prague recently registered as a foreign investor with Foodpolis to advance into the Korean market in earnest and announced that it "has been eyeing the strong growth of the beer markets in Korea and Northeast Asia and plans to manufacture and supply super-premium-grade products made of nothing but hops, malt, and water in compliance with the traditional Czech beer-brewing method."CEO Lukas Mikeska of Gold of Prague explained, "We decided to move into the Korea National Food Cluster because it is a government-led industrial complex dedicated to food and it is well-equipped with R&D systems. We thought it would be advantageous as we can network with the other resident companies and create synergy. The cluster is also located near two major ports, thus providing easy access to the Chinese market." Gold of Prague is seeking a Korea-based partner to take charge of the distribution and sales of its products. It also has plans to open up a pub for traditional Czech beer, in addition to a brewery, to reach a wider public once its sales move into high gear both through consumption in Korea and through exports.







GC FOOD Developing Innovative Aloe-Based Functional Foods in Collaboration with the Korea National Food Cluster

GC FOOD concluded an MOU to move into the Korea National Food Cluster on July 22. GC FOOD, Vietnam's largest aloe vera manufacturer, has exported aloe vera and chili to the US, Japan, Singapore, and Hong Kong since 2013. GC FOOD has stationed its employees in Korea for market research over the past two years to seek ways to utilize Korean food products that are becoming increasingly popular in Vietnam. It plans to engage in the development of functional foods with support from the cluster, in addition to the production and export of raw ingredients. CEO Nguyen Van Thu of GC FOOD said, "Korean food products are popular in Vietnam because of their reputation for safety, high quality, and their refined packaging."He added, "We are planning to develop new packages in cooperation with the Korea National Food Cluster's Food Packaging Center and export our products to Vietnam with the 'Made in Korea' label. The cluster's FIZ provides optimum business conditions, from affordable land leases to clean first-grade water and an eco-friendly waste water treatment system. We will focus on developing high-add-ed-value products based on coffee as well as aloe vera."

Hanok Food Pioneering the Global Market for Tteok-galbi with the Korea National Food Cluster's Support

Hanok Food signed an MOU to move into the Korea National Food Cluster on April 13 at the cluster's PR Center located in Iksan, Jeollabuk-do. Hanok Food, specializing in handmade tteok-galbi (grilled short rib patties), opened its first directly-operated store within Jeonju Hanok Village in October 2013. The store has obtained favorable responses from both local and international visitors. It manufactures premium-quality handmade tteok-galbi using pork produced in Jinan, Jeollabuk-do, which is widely recognized as a clean, unpolluted area. Hanok Food now operates eight outlets in Gimpo, Gunsan, Iksan, and Jeonju. CEO Gang Dong-hun of Hanok Food said, "We concluded the MOU with a plan to build a new processing factory within the Korea National Food Cluster. We have high expectations that the cluster's various support programs for functional food evaluations, food quality and safety, overseas marketing, and export improvement will help us advance into overseas markets and sell our tteok-galbi there more effectively."

Neocremar Small in Size, Strong in Technology

Neocremar signed an MOU to move into the Korea National Food Cluster on October 19. Since its inception in 1999, Neocremar has developed and manufactured functional products such as sugars for weight-loss and constipation-relief purposes, sugar alternatives, and high-potency sweeteners. It boasts the nation's highest brand awareness and technological prowess in the functional sugar sector. With Japan's demand for sugar alternatives for seniors drastically rising due to its aging population, Neocremar is currently making exports of approximately two billion KRW to Japan through more than 20 regular partners. Neocremar is a beneficiary of the wide-ranging benefits provided to the cluster's resident companies, from research equipment to staff. It recently succeeded in developing a new oligosaccharide product to help relieve constipation in the elderly through research conducted in association with the R&D centers of the cluster since 2014. It plans to build a new production facility within the cluster and roll out new products from 2017 onwards.

> Ltd. DaeYeongteukun Sharing Rich Knowhow for Safe and FastFood Transportation

Ltd. DaeYeongteukun signed an MOU to move into the Korea National Food Cluster on October 19. Ltd. DaeYeongteukun, established in 2013 and headquartered in Iksan and Gwangyang, is a transportation company dedicated to the imports and exports of agrifood products with 25 partners present at major ports, including Incheon and Busan. Its annual sales stand at about 4.6 billion KRW, and the number of transportation vehicles in operation has recently reached 50. CEO Bae Min-su of Ltd. DaeYeongteukun said, "We strongly wish to move into the area for logistics facilities within the cluster. We believe our rich knowhow in food transportation can be of great help to the cluster's resident companies making exports through major ports such as Gwangyang Port."





The Special House F&B Selecting the Korea National Food Cluster as the Optimum Site to Expand Its Production Capacity

The Special House F&B signed an MOU to move into the Korea National Food Cluster on October 19 in the conference room of the Ministry of Agriculture, Food and Rural Affairs. The Special House F&B is a manufacturer of foods made with oriental herbs and collagen. It applied for a patent for hamburger patties containing collagen in September 2015. These hamburger patties containing collagen are low in calories because saturated fat has been removed and no MSG (a synthetic flavoring matter) has been added. They can be safely consumed by all, including patients suffering from an atopic dermatitis. CEO Choi Seok-hwan of The Special House F&B emphasized, "We thought the cluster would be the optimum site to expand our production capacity. The Special House F&B manufactures products containing collagen and aronia berries using nothing but natural ingredients. We plan to develop more innovative products based on momentum provided as a resident company of the cluster."

> Harumoming Working to Expand the Packed Functional Food Market in Close Cooperation with the Korea National Food Cluster

Harumoming concluded an MOU to move into the Korea National Food Cluster on October 19 in the conference room of the Ministry of Agriculture, Food and Rural Affairs. Harumorning is a contracted food service provider that offers tailored packed meals based on its extensive menu of over 350 dishes and its patented heat and cold reserving pack. Established in 2007, Harumorning was selected as one of the Superstar Startups of Young Businesspeople in 2012 by the Jeollabuk-do Business Agency and came to retain 3,000 members in just eight years. It has recorded about three billion KRW in annual sales as of 2014. It is reputed for using a wide range of fresh ingredients thanks to long-term contracts with producers of napa cabbage, radish, and onion in Wanju. CEO Lee Sang-min of Harumorning asserted, "We will grow into a company responsible for feeding 30,000 people in five years by fully taking advantage of our status as the cluster's resident company." Prepared to Accelerate Growth as a Resident Company of the Korea National Food Cluster!

BTC

BTC became a new addition to the Korea National Food Cluster on October 5. BTC is the fifth Korea-based company to have signed the parceling-out agreement and decided to move into the cluster following Harim Corporation, Won Pharm, Joun Health, and AZ System. BTC, established in 2006, is a functional food manufacturer of fermented red ginseng, omega-3 fatty acids, and enzymatically modified green tea extract. It possesses patents on the red ginseng fermentation process and the process of extracting polysaccharides from green tea. It is considered to be a food company small in size yet large in growth potential according to market evaluations, with its sales steadily increasing not only in Korea but also in the US and Australia. Although some may find the notion of the food ingredient producer unfamiliar, it simply refers to a company that manufactures ingredients for functional foods commonly sold at markets, such as red ginseng extract and red ginseng pills. BTC is truly a small yet strong food company that produces ingredients used for over 200 finished products.

"I came to realize the many advantages that a food cluster can bring to a company after visiting the Netherlands' Food Valley NL.I saw the great growth potential of the Korea National Food Cluster and decided to join it."

CEO Kim Tae-yeong of BTC said, "We have continuously taken part in various events of the cluster, such as investment presentations, in an aim to reinforce our R&D competence and expand our production capacity over the past three years. BTC is currently an OEM, and we decided to move into the cluster in an aim to expand our production facilities and develop into a trusted functional food brand by capitalizing on the cluster's support facilities."BTC is involved in research on standardizing saponin extraction using locally sourced five-leaf gynostemma (or dolwoe in Korean), which is attracting greater attention as a next-generation ingredient for functional foods, in cooperation with the Research Development Team of the Agency for Korea National Food Cluster. Five-leaf gynostemma is a perennial cucurbitaceae vine wildly grown across the fields and mountains of Jejudo Island, Ulleungdo Island, and the southern part of Korea. It contains 20 types of saponin similar to the ginsenoside found in ginseng, as well as phosphorus, iron, calcium, magnesium, carotene, and tocopherol, BTC has succeeded in developing fermented red ginseng with an absorption rate over three times higher than existing products. BTC is bracing to make another leap forward and reinforce its presence in the global market by joining hands with the Korea National Food Cluster. The industry has high hopes that BTC will come up with groundbreaking products that will boost the health of consumers across the world.

What is the biggest issue facing BTC at the moment?

We are in the progress of developing a new product with improved bioabsorption. We are confident that we can earn the trust of consumers as our products are extracted, refined, and separated from natural ingredients only. Demand for functional foods continues to rise. To stay in line with such market trends, BTC is concentrating on R&D related to ingredients for functional foods.

Where does BTC stand in terms of its penetration into overseas markets?

Frankly, we are still in the fledgling stage. As such, our sales mainly come from the Korean market. We are currently conducting market research to make inroads into the US market. We also plan to enter the European market in 2016. In fact, we decided to move into the cluster because we are in need of support to advance into overseas markets.

How does BTC plan to grow further through its cooperation with the Korea National Food Cluster?

We will develop into an independent functional food brand by capitalizing on the Korea National Food Cluster's R&D facilities. The cluster is not merely an industrial complex but a provider of support facilities and equipment for functionality evaluation, food quality and safety, and food packaging, all of which are critical to succeed as a food company. We thought it would give us a head start in increasing our R&D competitiveness to take advantage of the cluster's support programs.



Director Choi Hi-jong of the Agency for Korea National Food Cluster

The Korea National Food Cluster is the embodiment of academic-industrialresearch cooperation

The success stories of the Napa Valley of the US, the Food Valley NL of the Netherlands, and the Emilia-Romagna Cluster of Italy are an inspiration for all food companies seeking new growth engines. Korea has also closely studied these examples in its efforts to secure a new growth engine in the agricultural industry and to establish a cornerstone for local food companies to better advance into the global market. As a result, Asia's largest food cluster, which is equipped with R&D, training, and production facilities and stretches across an area as large as Yeouido, will open to the public next year. With the completion of the cluster just around the corner, Director Choi Hi-jong of the Agency for Korea National Food Cluster expressed his strong confidence about ample opportunities to be brought about by the Korea National Food Cluster and the cluster's role as a stronghold of the food industry.

The construction of the Korea National Food Cluster is currently underway. What is a food cluster?

A food cluster brings together academic institutions, businesses, and research institutes pertinent to food within a close proximity and helps them exchange knowledge and information and achieve innovation in technology, product development, and marketing based on business partnerships. The Silicon Valley of the US and the Daedeok Valley of Korea are the leading examples of IT-centered clusters. The Korea National Food Cluster is dedicated to food. Its role models include the Netherlands' Food Valley NL and the Øresund Food Network jointly formed by Denmark and Sweden. Both have received high evaluations for establishing solid academic-industrial-research networks.

What is the background of the Korea National Food Cluster project?

Korea places much importance on food and considers the food

industry to be the nation's future growth engine. The food industry creates twice as many jobs as the manufacturing industry. We chose to build a food cluster to achieve continued growth throughout the future.

How big is the Korea National Food Cluster in comparison with similar sites overseas?

The cluster is designed to take up 2.32 million square meters in area, and this can be said to be substantially large considering that it is the first of its kind in Korea. However, it does not appear too big when compared to some of the most well-known food clusters in advanced nations. The radius of the Netherlands' Food Valley NL reaches 30 kilometers. At the time when the master plan for the Korea National Food Cluster was being drawn up in 2012, some experts argued that it should be made bigger over the long run. They finalized its current size by taking into account economic feasibility. Once the cluster begins to reap desired results and leads to an increase in demand in the food industry, it is likely to be expanded.

Has any overseas food cluster served as a benchmark?

I believe an industrial cluster should serve as an innovation-centered network. What must be learned from overseas food clusters is the network system, in addition to advanced knowledge and technology. If a cluster fails to function as a link between academic circles, businesses, and research institutes, it will lose its raison d'etre. Many overseas food clusters boast a tightly-knit academic-industrial-research network. I think we must benchmark those overseas food clusters that set standards in this respect.

Which countries are showing interest in the Korea National Food Cluster?

Many Asian countries, including China and Japan, are taking interest in the cluster. Korea provides easy access to most Asian countries and recently signed an FTA with China. As such, the Korea National Food Cluster offers many advantages for those companies seeking to advance into Asian markets, especially China. As Chinese and Japanese consumers are highly sensitive about food safety and quality, many food companies in China and Japan are seeking to manufacture food products with quality agricultural produce sourced in Korea and export them to their home countries.

What products do the resident companies mainly aim to manufacture?

They mostly focus on functional foods with high added value and food products made with local specialties based on tradition. The

resident companies aim to export their products to markets across the world using the cluster as their platform.

Is education on product designs and the use of the Pilot Plant provided to the resident companies?

The resident companies of the cluster include many startups. Therefore, education on product designs and marketing, as well as technical matters, will be provided. In addition, production facilities will be leased to startups. Startups can also parcel out their lot within the cluster and build their own factories when conditions permit.

What impact is the Korea National Food Cluster expected to bring to the nation's food industry?

It is expected to increase the consumption of local agricultural produce, diversify sales channels of agricultural produce, and raise the income of rural communities through the development of functional foods. Furthermore, it can help raise the global competitiveness of the nation's food industry by creating products with greater added value and contribute to exports of agrifoods. The food-themed park within the cluster can serve as the stage for local festivals and bolster the creation of a sixth industry. According to a report by the Korea Industrial Development Institute, the cluster is expected to record 15 trillion KRW in sales and three billion USD in exports. It is also expected to create 22,000 jobs by 2020 and thus contribute to expanding employment and boosting the local economy.

How does the Korea National Food Cluster plan to respond to the fast-changing global food industry?

In response to globalization activities such as the Korea-China FTA, we are planning to develop the nation's agricultural industry into a future growth engine centered on exports of high-added-value foods made with local produce and innovative products targeting global consumers. We will ensure that the nation's food industry stays competent by supporting its convergence with state-of-the-art technology and by providing the latest information on overseas markets and marketing techniques, thus serving as an advance base for food companies making inroads into the global market. The cluster will strive to build a solid R&D network encompassing its support facilities (Food Packaging Center, Food Quality and Safety Center, Functional Food Evaluation Center, etc.), government-run research organizations (Rural Development Administration, etc.), and food-related colleges and research institutes in Korea and beyond.

Will the Korea National Food Cluster Be the Motive Mover of the Nation's Food Industry?

Professor Mun Jeong-hun of Seoul National University

The Korea National Food Cluster will be fully completed in less than a year. News about back-to-back MOUs with the resident companies continues to flood in, and the cluster is taking the lead in widening the spectrum of academic-industrial-research cooperation. Amidst such an excitement about the cluster, the Report on the Study to Come Up with Measures for Reinforcing the Global Competitiveness of the Cluster was released on October 16. We talked with Professor Mun Jeong-hun of Seoul National University who took charge of the study and heard about how his research team came to reaffirm the importance and growth potential of the cluster by analyzing food clusters across the world.

Many companies are wondering what impact the Korea National Food Cluster will bring to the global food market and whether it will be competitive in the international arena. What are your thoughts on this?

The Korea National Food Cluster is clearly a latecomer. As a latecomer, it should remain keen on the moves of China. Korean food products are being well received in the Chinese market. To achieve continued growth, it is critical to build solid partnerships with China-based distributors and manufacturers. In other words, the cluster will stand a greater chance of winning by creating an enabling environment for the resident companies to partner with China-based distributors and manufacturers and manufacture products as an OEM or ODM, rather than directly targeting Chinese consumers.

The food clusters of Italy, Sweden, and the Netherlands were mentioned as objects of comparison. What did you find most impressive about them?

I was greatly impressed by a joint brand developed by a distributors' network within the Swedish food cluster. This brand. Smakap Skane (Taste of Skane), originally started as a small council organized in 2009 to revive local producers and markets and developed into a network of over 40 distributors. The cluster's agrifood producers can feature this brand on their products after gaining approval by the Distributors Committee. Also, the Restaurant of Future drew my attention among the many programs offered by the Food Valley NL of the Netherlands. It is a consumer behavior research facility introduced to study consumer behavior patterns related to food consumption and come up with products and services that cater to the needs of both the market and consumers. More than 20 cameras are installed inside the cafeteria of Wageningen Universityto observe consumers' responses towards agrifoods (consumers' movements, intake amounts and durations, facial expressions, etc.). We should benchmark such success cases

According to the study, Korea is one of the higher-ranking markets in terms of consumer orientation. What does consumer orientation mean and what positive social effects can be expected of a market with higher consumer orientation?

Consumer orientation refers to the focus of a corporation or society on consumer satisfaction. This is one of the most important variables regarding the market demand conditions in competitiveness evaluations. Market demand conditions are determined by the market size, the extent of market segmentation, the range of demands, the level of sophistication of consumers, the demand growth pattern, and the growth rate of the market. The market size may appear to be important in securing competitiveness, but the quality-related aspects, such as the level of sophistication of consumers, play a more instrumental role. High consumer orientation in the food industry signifies that the company is striving to provide more competitive products and services that cater to the needs of the most discerning consumers.

What would be the best way to ensure the competitiveness of the Korea National Food Cluster?

Various consultative bodies must be created and operated effectively within the cluster. Formal and informal consultative bodies can serve as a center to identify important issues and find solutions. These consultative bodies can ease regulations through talks with central and local governments, arrange joint purchases of necessary devices, and provide the platform for companies to conduct joint research projects with universities and research institutes. The competitiveness of the food industry hinges on the advancement of pertinent industries. It is critical to strengthen the link between the food industry and the industries closely related to the food industry, such as the food packaging industry and the logistics and transportation industry. Food packaging plays a pivotal role not only in the distribution stage but also the purchasing and consumption stages. Regarding the logistics and transportation industry, the cold-chain system that allows for real-time monitoring of temperatures should be put into action to ensure consistency in the product quality of the resident companies.

Two Strengths of the Korea National Food Cluster

POINT

Its growing purchasing power and - consumer orientation î

The Korean food market was found to be superior in the purchasing power and consumer orientation. The per-capita purchasing power and the percentage of food consumption in total household consumption expenditures in Korea were higher than Sweden and the Netherlands. In addition, consumer orientation, which is about the readiness and enthusiasm of corporations and society to meet consumer expectations, was higher than Italy and the Netherlands. Purchasing power (of each nation)
 Consumer Orientation

Conditions



2 The success of the food industry stimulating the nation's growth

The indicators that show the influence of the food industry on the nation's economy turned out to be higher than those of Sweden and the Netherlands. According to the study, the well-nurtured food industry will be making significant contributions to the output of Korea's entire economy. For instance, the production inducement coefficient of Korea's food industry stands at 2.268, which surpasses the Netherlands (1.747) and Sweden (1.905).



(influence of the food industry)

A Glimpse into a Future Kitchen A Robot Chef Busy at Work!

Diverse internal and external factors, such as the prolonged weakness of the Japanese yen, the dramatic growth of the Chinese market, and the outbreak of MERS, have been adversely affecting the Korean economy. That is why the food industry, which has demonstrated steady growth over the past decade, is drawing roaring attention. Various attempts are being made to develop the food industry into Korea's next-generation growth engine. The Future Kitchen showcased at the 2015 Korea Food Fair was one of such attempts; it embodied our vision of a new culinary lifestyle not far in the future.



1. The robot chef, C-Ross, is slicing cucumbers at the 2015 Korea Food Fair. 2. The 3D food printer, grafted with information technology, is producing chocolates and jellies. This printer, capable of bringing diverse complicated designs into reality, has already been put to commercial use at bakeries and hypermarkets.

Robot Chef-Has It Actually Become a Reality?

"Now, shall we make a salad?" Two robot arms slice cucumbers with a knife, pour dressing over them, and present a bowl of salad in no time. This robot chef, whose appearance created a sensation at the 2015 Korea Food Fair, is called C-Ross and is expected to be actually put to use at homes in about ten years. The robot chef, designed to mimic the movements of famous real-life chefs recorded and then programmed into its artificial intelligence, is capable of pre-arranging vegetables, filleting raw fish, roasting meat, and making soups. Thus, it can be of substantial help to those preparing multiple dishes for a group of visitors at once during holiday seasons and to cafeterias required to mass-produce meals on a daily basis.

The London-based Moley Robotics recently succeeded in inventing the world's first robot chef. Moley Robotics' robot chef consists of two robot arms attached to the wall of the kitchen, which mimic the movements of human hands in an elaborate fashion. Thus, they can mimic cooking techniques and replicate different dishes. They can even operate the dishwasher and wipe the sink and cooktop. What is more surprising is that the robot can be connected to a smartphone application. The user enters the dish of his/her choice and sets the hour via the application, and the robot chef produces the chosen dish at the desired time. This robot is expected to be put to commercial use by 2017at the price of around 10,000 GBP (roughly 16 million KRW). More than 2,000 recipes and pertinent techniques will be programmed into the robot. The commercial model will be showcased for the first time at the upcoming Hanover Messe 2016.

A Mouthwateringly Delicious 3D Printer

In the near future, expect to be smacking your lips at 3D printers.

The nation's first 3D printer that rolls out chocolates began working successfully. Just activate the printer, draw the three-dimensional sketch of the chocolate, and voila! The printer will cough up the one-and-only kind of chocolate in just 20 minutes. For a coin-sized chocolate, it takes only five minutes. Although the printer has its limitations in terms of elaborateness due to the easily meltable nature of the ingredient, it still holds significance in that it is the world's only chocolate-making printer.

The Rise of Two Ss-Seniors and Singles

The market targeting seniors and one-person households is projected to drastically expand in the future. The senior-friendly product market is expected to grow from 39.3 trillion KRW this year to 72.8 trillion KRW by 2020. The most prospective sector in the food industry is silver food. Silver food is not merely food that is designed to be easily ingested and digested; it refers to high-quality food tailored to suit the taste and physical conditions of individual senior consumers. One-person households have already been identified as having a major influence on the food market. The number of one-person households in Korea this year stands at five million. This means that one out of every four households is a one-person household. To keep parallel with this trend, major players in the food industry are focusing their resources on the home meal replacement business. Large hypermarkets, such as Emart, Homeplus, and Lotte Mart, are competing fiercely against one another to develop and release home meal replacements under a private brand. Experts project that the growth of the home meal replacement market will continue for the time being.

A Preview of the 5th International Food Cluster Forum

Throwing Light on R&D Technology for Food Product Commercialization

The upward spiral of the food industry's growth has continued over the past decade. With companies actively seeking opportunities to advance into overseas markets and with the construction of the Korea National Food Cluster drawing to an end, the upcoming International Food Cluster Forum has become the talk of the town as the true ground for the exchange of global technology. The 5th International Food Cluster Forum, organized in collaboration with Germany's Fraunhofer Institute for Process Engineering and Packaging IVV, is raising expectations with its diverse programs, including special lectures customized for food companies, detailed introductions of the Korea National Food Cluster's R&D support for corporations, and one-on-one consultations for the participating companies.

History of the International Food Cluster Forum

1stforum (February 21, 2012)

Convergence of Food Industry – Ways to Achieve Co-Prosperity of Companies and the Cluster – Outlook and Future Path for Local and International Food Companies

2ndforum (November 14, 2012)

Ways to Facilitate the Commercialization of Agrifoods by the Food Development Centre – Ways to Support Innovative Measures of the Cluster – Medium and Long-Term Development Plans for the Cluster

(May 15, 2013) The R&D-Oriented Cluster and the Food Industry – Manpower, the Most Strategically Important Asset of Your Company – Current Global Presence of CJ CheilJedang's Food Business and Pertinent Strategies

3rdforum

4thforum (November 14, 2014)

Food R&D Innovations Closely Noted by the World – Consumers' Responses towards Food Packaging and Brand Strategies – Future Food Market and Prospective Hot-Sellers

2015 International Food Cluster Forum Offering Lectures Customized for Food Companies

The International Food Cluster Forum, which first kicked off in 2012, is making leaps and bounds year after year with high-quality programs. In the 5th forum this year, a series of special lectures customized for food companies and interesting events will take place mirroring the forum's increased awareness and the needs of the food industry. The 5th forum focuses on R&D technology for food product commercialization. The lecturers are also stellar; the forum invited the researchers from Germany's Fraunhofer Institute for Process Engineering and Packaging IVV, one of the world's top-ranking research institutes in the field.

One-on-One Consultations Following the Lectures on R&D Technology for Food Product Commercialization

The Korea National Food Cluster invited top experts in the area of R&D technology for food product commercialization for the upcoming forum and organized seven different lectures. One-on-one technology consultations between the experts and companies are scheduled to take place after the lectures. The lectures are noteworthy in that they are an extension of the cluster's efforts to support food companies' R&D activities based on its global network. The lectures consist of one keynote lecture and four technical lectures. The keynote lecture will be given by Director Horst-Christian Langowski of Germany's Fraunhofer Institute for Process Engineering and Packaging IVV under the subject of "The Importance of R&D for Food Prod-

uct Commercialization."The four technical lectures will be given by Christian Zacherl, Carolin Hauser, Klaus Noller, and Roland Franz, elaborating on R&D technology for food product commercialization regarding the three areas of functional foods, food packaging, and food quality and safety.

Themes of Lectures Selected in Accordance with Research on Technology Demand

The Korea National Food Cluster conducted a survey on the technology demand of food companies (from August 3 to September 28, 2015) using the list of technologies owned by the Fraunhofer Institute for Process Engineering and Packaging IVV and discovered demand on 478 technologies. The cluster categorized them into the three areas of functional foods, food quality and safety, and food packaging; screened the technologies that require immediate attention; and finalized the subjects for the technical lectures in consultation with the Fraunhofer Institute.

Germany's Fraunhofer Institute Joining Hands with the Korea National Food Cluster

The Fraunhofer Institute for Process Engineering and Packaging IVV, one of Germany's top four research institutes, engages in R&D related to the basic sciences, natural sciences, and applied sciences for all industrial sectors. It retains an R&D system centered on food product commercialization to develop easily applicable technologies regarding food ingredients, processed food development, food processing process development, food packaging material development, and the safety evaluations for food packages and packaging materials. The Korea National Food Cluster will conclude an MOU with the institute during the forum. The MOU is expected to advance the introduction of diverse cutting-edge technologies in food processing, functional food production, scent and flavor analysis, and food packaging. The terms and conditions of the MOU will include the establishment of the institute's branch within the cluster, joint research and technology development projects, and the launch of exchange and cooperation programs.

Expected Results of the International Food Cluster Forum

The 5th International Food Cluster Forum is expected to bring attention to the importance of providing support for R&D technology actually in demand and the establishment of an efficient support system. The cluster aims to achieve three goals through this forum. The first goal is to identify the R&D technologies actually needed by food companies on the business frontier and to design R&D technology guidance and consulting programs accordingly. The second goal is to accurately analyze the current status of food R&D technologies across the world, build and share a vision accordingly, and come up with cluster-specific strategies for R&D. The third goal is to encourage local organizations to increase exchange and cooperation with prestigious overseas research institutes and benchmark their advanced systems and success cases.

Panel









Dr. Horst-Christian Langowski Director (2007-present) / Professor at Technical University Munich

Subject

Success Factors for Innovating Products and Processing Technology in the Food Industry

Functional Foods

Dr. Christian Zacherl

Scientist and Business Field Manager for Food Processes and Products Developed technology for low-sodium, low-fat processed foods

Subject

Development of Healthy and Convenient Food Products with Innovative Technological Processes, Optimized for Maximal Taste / Tailormade Functional Ingredients for Foods – Extraction, Fractionation and Modification Techniques Applied on Raw Materials from Sustainable Resources

Food Quality and Safety

Dr. Carolin Hauser Scientist of the Department of the Retention of the Food Quality

Subject

Quality Enhancement and Shelf-Life Prolongation of Food / Decontamination Methods for Food and Food Packaging and Aseptic Filling Validation

Food Packaging

Dr. Klaus Noller Head of the Department of Packaging Material Developed high-barrier film material technology Subject Packaging – Enhanced Product



Dr. Roland Franz Head of the Department of Product Safety and Chemical Analysis Member of the Panel on Contact Materials, Enzymes and Flavourings (CEF) of the European Food Safety Authority (EFSA)

Subject

Food Contact Materials (FCM) – Chemical Migration, Compliance and Safety Assessment (nanoparticles, off-odours and off-smells, current state of legislation, etc.)

FOODPOLIS NEWS BRIEF



The Korea National Food Cluster participates in the 2015 International Food Ingredients Show from April 14 to April 17 at the aT Center

The Korea National Food Cluster set up and operated a promotional booth to attract investments at the International Food Ingredients Show, targeting food ingredient companies and local food companies. The Korean and English brochures of the cluster were distributed and a promotional video was played in the booth to promote the cluster's vision and objectives as well as to improve its public awareness. Also, a presentation on the background of the creation of the cluster and incentives for the resident companies was staged for prospective resident companies invited in advance.



The Korea National Food Cluster conducts investment promotion presentations in Nanning, Guangxi, China from September 17 to September 19

The Korea National Food Cluster staged presentations for public officials from Nanning and CEOs of food companies in Guangxi to help create a favorable investment environment in China. The cluster succeeded in building a network with prospective overseas investors and public organizations including KOTRA's Korea Business Centers in Guangzhou and Shenzhen, Nanning-based food companies, and the Weihai Municipal Commission of Commerce. The representatives of the cluster also attended the CA EXPO and worked to discover prospective investors among export-oriented companies.

The Korea National Food Cluster participates in Seoul Food 2015– International Food Industry Exhibition from May 12 to May 15 at KINTEX in Ilsan

The Korea National Food Cluster set up and operated a promotional booth jointly with those companies that concluded MOUs and that registered as foreign investors with Foodpolis (Gold of Prague, Clever Mama, and Gold Rock International). A beer tasting event showcasing the products of Gold of Prague was organized for local news reporters, and on-site working-level discussions were held with the representatives from foreign embassies in Korea and the delegations from the Portuguese Ministry of Agriculture, Forestry and Rural Development, the local autonomous body of Sacramento of the US, and the local government of Shizuoka Prefecture of Japan.



The Korea National Food Cluster sets up a promotional booth to attract investments at IFT from July 11 to July 14 in Chicago, Illinois

The Korea National Food Cluster operated a promotional booth to attract investments at this year's IFT Food EXPO, one of the largest food fairs held in the US, to discover prospective investors and promote investments into the cluster. The cluster networked and built firm partnerships with the state government of Wisconsin and the US Department of Agriculture through the EXPO.





The Korea National Food Cluster conducts investment promotion presentations in Guangzhou, Nanjing, and Shanghai in China from August 25 to August 28

The representatives of the Korea National Food Cluster took part in the investment presentation held in China by the Ministry of Trade, Industry and Energy and contributed to creating a favorable investment environment for Chinese companies. They also sought ways to promote business cooperation with the Nanjing Investment Promotion Commission, which is a government organization similar to Korea's KOTRA. The commission agreed to serve as a contact point between the cluster and Nanjing-based companies interested in investing in the Korean market.



The Korea National Food Cluster sets up a promotional booth to attract investments at the Korea Food Fair that took place from September 9 to September 12 at the aT Center

The Korea National Food Cluster actively reached out to the participating companies and government organizations of the Korea Food Fair. It set up its own promotional booth and visited the booths of the participating companies to promote the cluster and discover prospective investors. It also distributed brochures and souvenirs through the PR staff stationed on site.

The Korea National Food Cluster participates in the food fair staged at the China Import & Export Fair Pazhou Complex, Guangdong, China, from September 11 to September 14

The Korea National Food Cluster took part in Guangdong's largest health food fair, promoted the cluster, and met with a group of companies carefully screened from over 1,100 participating companies, including DAISUKI, MHML, Authenmole, CMFIGCO Ltd ., and YIHEALTH ORGANIC TEA. As most of these companies were interested in manufacturing their products in Korea and re-exporting them to China with the "Made in Korea" label for higher added value, the consultations for them were tailored to meet such needs. The investment presentation was attended by over 50 guests from the member companies of the Health Care Food Profession Association of Guangdong Province and local functional food manufacturers and was focused on delivering the overview of and incentives given by the cluster.



The Korea National Food Cluster participates in FOOMA JAPAN 2015 that took place from June 10 to June 15 at Tokyo Big Sight, Japan

The Korea National Food Cluster carried out a series of presentations on the current status and latest developments of the cluster for the participating companies of FOOMA Japan 2015. In addition, the cluster had one-on-one in-depth consultations with Kyoraku (currently manufacturing sauce containers through a technical alliance with Ottogi), SachiiMaru, Kinnouen, and DNP to accurately identify the needs of local companies and build a network.



FOODPOLIS NEWS



The Korea National Food Cluster discusses ways to promote the temporary research centers designed to support R&D of food companies

A seminar of experts to promote the cluster's temporary research centers took place on April 28 at Wonkwang University. The seminar was focused on introducing the future plan for the cluster's R&D activities; the mass spectrometer for food analyses; functional ingredient standardization and measures for setting the standards; and equipment owned by the cluster. Ways to reinforce cooperation of academic circles, industrial sectors, and research institutes related to food and support of the cluster were also discussed in depth.



The Korea National Food Cluster moves into high gear to support food companies

A seminar of experts, aimed at facilitating the on-site application of food packaging equipment supported by the Korea National Food Cluster, took place on September 18 at the Gwacheon Citizens Hall . The seminar was organized to develop demand for joint research projects involving the companies scheduled to move into the cluster and research institutes and to generate visible results for technology support provided by the cluster. The latest food packaging technology trends in Korea and beyond and success cases of utilizing equipment supported by the cluster were presented in front of over 50 experts from local food companies and research institutes.



The Ministry of Agriculture, Food and Rural Affairs holds a press conference for foreign news reporters in Korea

The Ministry of Agriculture, Food and Rural Affairs held a press conference for foreign news reporters stationed in Korea on October 28 to stir up greater interest from foreign food companies in the Korea National Food Cluster and attract more investments. The conference brought together over 30 reporters from some of the world's most renowned press organizations, including Reuters and The Financial Times of the UK, The New York Times of the US, and The Yomiuri Shimbun and The Mainichi Shimbun of Japan. After the presentation on the cluster was over, a flood of questions about benefits given to the resident companies and the current status of the cluster project poured in from the invited reporters, testifying to their interest in the cluster.



The Korea National Food Cluster sets up a promotional booth and stages a presentation at the food fair in Yantai, China The Korea National Food Cluster announced that it carried out full-scale promotional activities to attract investments in Yantai, China from June 5 to June 12by dispatching a team of experts dedicated to investment attraction in China. The team set up a promotional booth for the cluster at the 10th East Asia International Food Trade EXPO (June 5 to June 8), which is Yantai's largest food fair, and provided one-on-one consultations for the participating companies. Also, the team staged an investment presentation with over 60 guests invited from local food companies, local government bodies, and local press organizations.



The Ministry of Agriculture, Food and Rural Affairs holds an academic-industrial-research seminar for the Korea National Food Cluster

An academic-industrial-research seminar for the Korea National Food Cluster was held on April 30 at the Gwacheon Citizens Hall under the subject "Globalization Strategies of the Local Food Industry Utilizing Flavors."Director Jung Myung-kyo of the Haitai Research Laboratory disclosed the secret to the success of Honey Butter Chips, while Director Noh Hoe-jin of the Orion Food Safety Center talked about "The Importance of Quality Control Based on the Flavors of Food Products." Professor Hong Jae-hee of Kookmin University explained various research methods employed to develop kimchi agreeable to the taste of American consumers.



Gold of Prague registers as a foreign investor with Foodpolis to move into the Korea National Food Cluster

Gold of Prague, selected as the sixth overseas resident company of the Korea National Food Cluster, completed its registration as a foreign investor at KOTRA on May 15. Gold of Prague concluded an MOU with the cluster on February 25. It plans to build a beer brewery within the cluster and start rolling out beer in the second half of 2016.