THE ABSTRACTS OF KREI REPORTS

2006

Korea Rural Economic Institute

FOREWORD

The purpose of this book is to present abstracts or short summaries of the research reports which have been produced by the Korea Rural Economic Institute (KREI) during 2006.

In total, 101 reports are summarized and classified into eight categories; agribusiness, rural development, agricultural outlook, agricultural policy, forest policy, international agricultural trade, agricultural information and others.

The abstracts give you the overview of full texts. Most reports are available only in Korean language. We hope you get a glimpse of research results through this book.

When performing the researches, so many persons have kindly assisted the KREI researchers including farmers and officials all over the country. I would like to express my sincere gratitude to them as well as the KREI researchers.

Jung-Sup Choi, Ph.D.
President
Korea Rural Economic Institute

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AGRIBUSINESS RESEARCH 1

Prices and Substitution between Domestic and Imported Rice

As a result of the rice negotiation in 2004, a portion of MMA (minimum market access) imported rice should be distributed to the final consumers in Korea. Although there is an increasing interest about the effect of the imported rice on the Korean rice market, only a little research has been done related with this issue due to the lack of experience.

This report investigates the distribution channels of imported rice and the formation of their prices in the Korean rice market. Although available data is very limited, we drew three important implications based on market prices and survey data:

First, the price of medium-grain rice from the U.S. is lower than the price of short-grain rice from China, and the prices of a variety of imported rice are lower than the price of Korea's low-grade rice in the Korean market. This result implies that Korean consumers prefer short-grain rice over medium-grain rice, which is in conformity with the Japanese experience. Second, there is the possibility of imported rice having an impact on Korea's low-quality rice in the future, which also conforms to the Japanese experience and previous studies. Third, the premiums of Korean rice are higher than those suggested by previous studies. Compared to the U.S. medium-grain rice and Chinese short-grain rice, the average premiums are about 12,000 won and 8,000 won per 20kg respectively.

Researchers: Dong-Gyu Park(Ph.D.) and Gyu-Dae Cho(Ph.D.)
Report No: R530/Nov. 2006
E-mail: dgpark@krei.re.kr

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Consumers' Evaluation of Traditional Foods and Measures for Market Revitalization

The study is designed to understand the characteristics of the traditional food market and to propose government policies for improving traditional foods and marketing plans.

The findings indicate that the Ministry of Agriculture and Forestry should develop a legal foundation to enhance the commercialization and marketability of traditional foods. The ministry is also needed to support technical and R&D activities, carry out PR and training, and introduce a management system to meet the hygiene criteria for regular foods. In the long term, the hygiene and labeling specifications for regular foods should be applied to traditional foods, and it is necessary to develop a model such as HACCP for traditional foods.

When a certification system for traditional foods is introduced, the name and mark should be improved, and the scope of application should be limited to the cases where traditional foods were made with locally produced raw materials only and where specific traditional production methods are applied. As in the European Union, the specifications for traditional foods should be improved to articulate the production methods in detail. The follow-up management of certificates should be strengthened, and a proper labeling system should be created to deliver information on traditional foods to customers.

For Kimchi, new markets including those for school lunch and export should be explored, and price competitiveness should be secured by pursuing scale-ups and standardization. When it comes to traditional sauces, production methods are distinctive from each other. Consequently, the most effective method is to improve product quality and use high-quality raw materials. The traditional Korean cookies called Han-gwa is a favorite food, and top performing producers tend to dominate the market. For the market, the pursuit for fusion food production and the improvement of convenience in consumption, and other diversification strategies can be made and implemented. It is forecast to be better

to enhance the quality of raw materials and improve the package design. For Kimchi, it is needed to expand the size of businesses and develop co-brands. For traditional sauces, the creation of producer clusters and the use of production sites as tourism assets will be needed to differentiate the advertisements and products of the producers. For Han-gwa, it also needs to be transformed into a tourism asset, and the chances where consumers can experience the actual production should be created; and Han-gwa should be linked to the restaurant industry to create more demand.

When developing traditional foods, the overall taste and quality should be improved in a way that can boost customer preference and strengthen trust in products. The package should be improved as well to ensure the convenient consumption of traditional foods without damaging original tastes.

Researchers: Kyei-Im Lee(Ph.D.) and Min-Jeong Kim
Report No: R533/Nov. 2006
E-mail: lkilki@krei.re.kr

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Securing Agri-Food Safety at Local Production Level and Importing Stage

This study is designed to evaluate the agri-food safety management status at local production level and importing stage using the risk analysis system and to present the measures for securing food safety. The scope of the study is limited to fresh agricultural products, including vegetables and fruits, in the case of local agricultural products. As for imported agricultural products, processed foods such as commercially-produced kimchi are included. Regarding the safety management status of agricultural products at local production level, safety issues relating to exported agricultural products and the current status of agricultural products subject to Good Agricultural Practices (GAP) were analyzed. Meanwhile, a farm household survey was conducted for empirical analysis.

Based on the findings of the study, the following conclusions were drawn as necessary to secure agri-food safety at local production level and importing stage: First, safety monitoring should be strengthened at local production sites. To this end, guidance, monitoring, and prior examination processes should be reinforced to control the use of hazardous materials such as agricultural chemicals, heavy metals, and microorganisms at production sites. As for the exported items the residual tolerance level of which is low and the imported items which are consumed in large volumes, the application scope of the safety standards for hazardous materials such as heavy metals should be expanded as soon as possible. Second, food safety information of home and abroad should be shared among various organizations to enhance the level of information usability and prevent safety accidents. To build consumer trust, related information should be fully disclosed. Third, new food safety management systems including GAP and tracking systems should be stabilized in the early stage to secure agri-food safety from the production stage. To this end, constant establishment of related infrastructure is demanded. Fourth, systematic education on food safety should be provided to consumers

and agri-food producers to raise their awareness of agri-food safety and build a national consensus. Fifth, punishments need to be strictly imposed against violators of safety standards related with agri-food production, processing, and distribution to check repetitive violations.

To sum up, securing the safety of GAP and exported agricultural products, as well as imported agri-foods, requires the establishment of a hazardous materials guideline in the early stage; appropriate education and promotion to consumers and producers; the collection, analysis, sharing and distribution of food safety information of home and abroad; and stronger enforcement of punishments against violators. The solutions proposed above could be effective only when there are supporting government policies. In this context, prompt response of the government is foremost needed.

Since the GAP project is in pilot test, there are limits in evaluating the system. It seems that a full-scale evaluation will be needed for the project one or two years from now. When the Food Safety Agency is launched in the future, more studies will be needed to find out the proper segregation of roles and functional adjustment among the Food Safety Agency, the Ministry of Agriculture and Forestry, and local government agencies with regard to this issue.

Researchers: Ji-Hyeon Choi(Ph.D.) and Min-Jeong Kim
Report No: R529/Oct. 2006
E-mail: jihchoi@krei.re.kr

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An Economic Analysis on Livestock Disease

Although there are growing economic concerns on livestock disease, the research on this issue is limited. In this study, livestock disease data are combined with an economic method to build an economic model measuring and analyzing the economic effects of livestock diseases. To do so, the study developed a spreadsheet model and estimated direct economic losses of individual farms from various livestock diseases. Furthermore, the study analyzed changes in living standards through the shifts of meat demand and supply from serious livestock diseases.

According to the spreadsheet model, it is estimated that cattle growers' losses from livestock diseases, such as bovine tuberculosis, bovine brucellosis, and Johne's disease, can vary from 104 million won to 13,478 million won. Also, the losses of pig and poultry farms from such diseases as PRRS, PED, classical swine fever, AI, Newcastle disease, and pullorum disease are 26 million won for pig farms and 8 million for poultry farms.

The livestock life cycle model, which is developed in the study, estimated disease specific economic losses of farms. For example, the economic losses from PMWS and calf diarrhea are 75 million won and 28 million won, respectively.

In the study, a social welfare analysis showed that BSE, domestic AI, and bovine brucellosis caused economic losses of 385 billion won, 333 billion won, and 342 billion won, respectively.

The model developed in the study and the analysis results can be utilized for individual farmers, policy makers, and researchers on estimating the economic losses from livestock diseases and on formulating disease prevention policies.

Researchers: Joo-Ho Song(Ph.D.), Duk Huh(Ph.D.)
and Byung-Joon Woo(Ph.D.)
Report No: R519/Nov. 2006
E-mail: jhsong@krei.re.kr

Policy Issues and Strategies to Boost Biomass Utilization in Agricultural Sector

This is the first-year report of the two-year (2006-2007) research entitled "Policy Issues and Strategies to Boost Biomass Utilization in Agricultural Sector." The ultimate purpose of this study is to establish mid- and long-term policy directions and strategies to boost biomass utilization in agricultural sector and revitalize the stagnant rural economy.

The present study examined the current status and issues of biomass production and utilization in rural areas, as well as support institutions, and finally drew policy suggestions. The study was conducted with respect to three industry fields: agriculture, livestock, and forestry. The following is a brief summary of key goals for biomass utilization in the industry fields.

<Biomass in Agriculture>
○ To supply effective and efficient processing facilities
○ To reconstruct an effective and efficient collection system
○ To promote R&D and construct an extension system to adopt advanced technologies for biomass utilization

<Biomass in Livestock>
○ To improve an operations management system
○ To develop efficient livestock waste facilities
○ To increase the demand for livestock manure

<Biomass in Forestry>
○ To reduce collection and delivery costs
○ To make marketing system efficient
○ To develop biomass through technologies

Researchers: Chang-Yong Kang(Ph.D.), Hyun-Tae Park(Ph.D.), Yong-Kwang Shin(Ph.D.) and Kyung-Taek Min
Report No: R523/Nov. 2006
E-mail: cykang@krei.re.kr

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Impacts of the UNFCCC on Agricultural Sector

This study systematically analyzes the impacts of the United Nations Framework Convention on Climate Change (UNFCCC) on the agricultural sector.

Chapter 1 describes the need for the study and carries out a literature review. Chapter 2 provides an overview of global warming and the UNFCCC. The concepts of greenhouse effects and global warming, the impacts of global warming, the meaning and implementation mechanism of the UNFCCC, and recent discussion trends and future prospects of the UNFCCC are elaborated. Chapter 3 estimates the agricultural sector's greenhouse gas emission and sink volumes and presents a forecast. Chapter 4 analyzes the impacts of the UNFCCC on the agricultural sector using dynamic CGE and partial equilibrium models. Chapter 5 highlights the implications to consider based on the analysis of the effects. Lastly, Chapter 6 summarizes the study and reaches a conclusion.

Under the UNFCCC, mandatory reduction obligations will enter into force from the 2nd compliance period (2013-2017). The reduction volumes of greenhouse gases will vary depending on implementation conditions, but if five percent emission reduction (based on the 2000 level) is required from 2013, the crop sector is expected to see its emission volume drop below the permissible level and thereby will be able to sell emission credits. Nevertheless, the livestock sector is expected to see its greenhouse gas emissions exceed the permissible level and thereby will be required to reduce emissions. When the mandatory emission reduction is implemented, reduction obligations of 300,000 tCO2, 126,000 tCO2, and 56,000~59,000 tCO2 will be allocated to cattle, swine, and chicken farms respectively. Accordingly, 170,000 heads of cattle, 1.03 million heads of swine, and 45.7 million chickens need to be eliminated. If those numbers of animals are reduced, there will be a considerable burden on the livestock industry.

Under the Scenario 1, where greenhouse gas reduction is

pursued with the individual implementation of the UNFCCC, the reduction duty will be assigned to the livestock and non-farming sectors. As of 2013, the unit costs of reduction per tCO2 are estimated as follows: 2,369,500 won for swine; 2,352,000 won for poultry; 565,500 won for cattle; 450,100 won for beverage; 380,100 won for manufacturing and service; and 9,200 won for fossil fuel. In particular, the livestock sector should bear the highest level of economic burden, and the implementation of the UNFCCC could serve as a risk factor to the livestock sector.

Under the Scenario 2, where all industrial sectors participate in the greenhouse gas emission trading system, an emission credit is presumed to be traded at 33,300 won per tCO2 for all industries. In the case of cultivation and agribusiness sectors which have surplus emissions, these sectors can sell emission credits to the livestock and non-agricultural sectors and increase their incomes. Conversely, if the livestock and non-agricultural sectors participate in the emission trading system, instead of carrying out the greenhouse gas reduction on their own, they could significantly reduce the costs of greenhouse gas reduction by purchasing the emission credits. Then, this will drop the emission reduction costs.

In the Scenario 3, where the agricultural sector carries out the individual implementation and the non-agricultural sector applies the emission trading, the unit price of emission reduction applicable to the livestock sector will increase compared with the individual implementation. In the non-agricultural sector, the emission trading price is a bit higher compared with the emission trading across all industries except for fossil fuel. In particular, if the non-agricultural sectors do not participate in greenhouse gas emission trading, the emission price will rise. Therefore, the agricultural sector needs to participate in the emission trading since its participation will have a positive impact on reducing the gas reduction unit cost of the non-agricultural sector.

If the agricultural sector adopts the individual implementation approach, the cultivation sector with surplus emissions will not be able to sell emission credits and record income. But, if the cultivation sector can sell emission credits by participating in the emission trading, it will be able to earn 69.8 billion won by 2013.

It is inevitable that the livestock sector, in particular, will face heavier financial burdens of reducing greenhouse gas emissions. But, if it participates in the emission trading, the cost of greenhouse gas reduction can be considerably reduced. In this context, appropriate measures should be worked out. The agricultural sector's participation in the emission trading will have a positive impact on non-agricultural sectors by bringing down emission credit prices for all industries, and it will be worthwhile in the future.

In cases where greenhouse gas reduction policy measures require the imposition of carbon tax, the effects will vary depending on the tax rates (assuming the tax rate is 30 percent). But in the case of rice, the effect of tax rates on management cost and productivity will not be great. In the case of vegetables and flowers cultivated in greenhouses, the pressure from the rising management cost posed by carbon tax is expected to be high since they are highly dependent on fossil energy.

To prepare for the time when Korea is required to implement its greenhouse gas reduction duty, a more accurate and reliable greenhouse gas database system, which describes greenhouse gas emission and sink volumes, should be established. In addition, objective and reliable studies should be conducted continuously on the effects of the Kyoto Protocol on national and agricultural economies. More in-depth and systematic research is needed to develop plans and countermeasures for the mandatory reduction in consideration of the current economic situation.

Researchers: Chang-Gil Kim(Ph.D.), Tae-Young Kim
and Yong-Kwang Shin(Ph.D.)
Report No: R520/Nov. 2006
E-mail: changgil@krei.re.kr

Strategies of the Domestic Fruit Industry after the FTA and DDA Negotiations

This study aims to propose a practical approach regarding the basic principles of confrontation as well as action strategies for strengthening the competitiveness of the domestic fruit industry after the negotiations of WTO, DDA, and FTA.

According to the results of an analysis conducted in the study utilizing the Agricultural Simulation Model of the Korea Rural Economic Institute (KREI-ASMO, 2005) and under the assumption that FTAs completely and simultaneously remove the tariffs for the next ten years and that fruit imports begin from the 5th year of this non-tariff period under the current conditions, the amount of fruit production in the 10th year of this period will fall by up to 1.38 trillion won, a reduction of 43.4% from the fruit production amount of the basic year.

This result implies the vulnerability of the domestic fruit industry. Furthermore, a separate analysis of international competitiveness among major trading partners showed that even though domestic apples are superior to those of China and the U.S. in terms of quality, they are inferior in terms of price. In particular, the price edge of domestic apples is very low compared with that of China. In this sense, a promotional measure to raise the competitiveness is urgently needed to sustain and develop the domestic fruit industry.

Based on this analysis, the following seven strategies are proposed to reinforce the domestic fruit industry under open market conditions:

First, since it is inevitable to cope with the excessive supply of cheap foreign fruits under the open market, both maintaining appropriately-sized orchards with high productivity and reorganizing the production base by closing down ill-suited orchards are required. Also, more attention should be paid to productivity improvement through farm mechanization and labor reduction in preparation for the aging farms with less labor.

Second, more stricter quality and safety standards for fruits

are necessary. We should constantly stay superior in quality aspects and have a high ratio of top-grade products based on high-skilled labor and advanced technologies.

Third, government policy should be selective and focus on specialized leading farms with the potential to become more competitive. A technology dissemination system that helps the early dissemination of advanced technologies is also needed.

Fourth, production and distribution should be systemized and led by the APC. For the sustainable operation of the domestic fruit market, the APC should initiate the reshaping of fruit production for each item and voluntarily keep the balance of supply and demand.

Fifth, development and rearrangement of fruit production are required to maintain major export markets. Also, a processing industry that creates products with higher added values should be fostered.

Sixth, various distribution channels to match consumer's various demands should be ensured, and quality and safety control systems should be established systematically.

Lastly, we should constantly create demands for domestic fruits and develop various programs that promote consumer's access through continuous PR activities and sales promotions for high-quality and safe fruits.

Researchers: Moon-Ho Park(Ph.D.), Kyung-Phil Kim(Ph.D.) and Hye-Sung Han
Report No: R539/Nov. 2006
E-mail: mhpark@krei.re.kr

The Seasonal Cabbage Model

These seasonal models are consisted of spring, summer, and autumn cabbage models estimated by simulation.

The first step of the estimation process is to identify each behavioral parameter by Eviews. Chapter 3 provides estimation results, including R-squares, Durbin-Watson statistics, and t-statistics in each estimated equation. The definition of the variables, model names, and primary data sources are presented in Appendix 1, 2, and 3.

The second step of the process is to obtain predicted values from 2005 to 2015 by using estimated parameters and the Excel program. There are four different Excel sheets: data sheet, equation sheet, table sheet, and graph sheet.

The data sheet includes the data for areas, yields, productions, consumptions, wholesale prices, retail prices, import and export volumes, exchange rates, and customs duties on Chinese cabbage. The equation sheet consists of an acreage response function, yield function, import and export function, and price flexibility function. The table sheet has the data for estimation and the graph sheet includes the various graphs for outputs.

Chapter 4 provides the simulation results by Excel. Based on the expected tariff rate under the assumption of the success of DDA negotiation, the import and export volumes, domestic wholesale price, and retail price of Chinese cabbage are simulated and presented.

The model can also calculate the import and export volumes, domestic wholesale price, and retail price of Chinese cabbage when the domestic yield falls sharply because of weather and insect problems.

The main advantage of the presented model in comparison with other models is that it easily provides (desirable) simulation results when the situation changes. The weakness of the model is that it only covers three seasons rather than four seasons because of data limitations.

Researchers: Yean-Jung Kim(Ph.D.), Bae-Sung Kim(Ph.D.),
Seong-Hwan Song and Young-Gu Park
Report No: W28/May. 2006
E-mail: yjkim@krei.re.kr

Characteristics of Trade in Environment-Friendly Agricultural Products

Due to the government's environment-friendly (hereafter EF) agricultural policy and consumer's chase for safe food, the supply and demand of EF agricultural products continue to grow in Korea. But, EF agricultural products are generally in short supply and unreasonably priced under the high price system.

Against this background, this study aims to clarify the characteristics of trade in EF agricultural products and the differences between the EF and other agricultural products. The main results of this study are summarized as follows:

Firstly, farmers and consumers directly participate in the distribution, and major distributors participate in the market of EF agricultural products after the certification is ready. Because EF agricultural products are not traded in ways similar to those of other regular agricultural products, the price system is not built up in the agricultural wholesale market.

Secondly, the price of EF agricultural products is generally decided through the negotiation between producers and distributors. The price is based on the production cost plus the distribution cost and profit. Therefore, the price of EF agricultural products signifies that producers can reproduce EF agricultural products and maintain their livelihood.

Thirdly, the confidence of quality in EF agricultural products is achieved by the mutual agreement between farmers and consumers and the confidence system such as certification system, direct dealings, and exchange of opinions among farmers and consumers. The enhancement in the quality of EF agricultural products is based on the certification system. Moreover, farmers and consumers are promoting the quality enhancement not only through the EF certification system but also through the Internet and direct trade. This is the adjustment of quality through which farmers can be recognized and where concerned consumers can play an active role in seeking safe food.

Researcher: Eun-Mee Jeong(Ph.D.)
Report No: W32/Nov. 2006
E-mail: jeongem@krei.re.kr

Preliminary Study for Operating the Policy Evaluation Model Developed by the OECD

This study aims to review the general characteristics of the Policy Evaluation Model (PEM), which has been developed by the OECD to evaluate member countries' agricultural policies, and to provide the basic ideas and directions to operate the model in Korea. This study focuses especially on the effects of agricultural policies, such as those related with market price, the payments based on output and area, and input subsidies, on economic costs and concerned parties including taxpayers, consumers, farmers, input suppliers, and the government.

The PEM model consists of the production, consumption and trade of the aggregates of wheat, coarse grains, oilseeds, rice, milk, and beef in six OECD countries, which are Canada, the European Union, Japan, Mexico, Switzerland, and the United States. The commodity modules of the PEM model were developed according to a common structure. Policy experiments are carried out using a model linking individual modules through world price and trade effects.

In the publication 'Market Effects of Crop Support Measures,' the policy effects of q given amount of support provided via different support measures were compared to draw some conclusions about their relative marginal impacts on selected indicators. Market price support was used as a reference category of support to compare only the relative effects of various support measures across countries. The conclusion of the analysis was that the support based on the use of variable inputs was the most production and trade distorting. The market price support and output support were seen as somewhat less distorting. The payments based on the area planted and the payments based on historical entitlements were the least production and trade distorting and most efficient at transferring income.

Researcher: Myung-Hwan Sung(Ph.D.)
Report No: W31/Nov. 2006
E-mail: mhsung@krei.re.kr

A Study on Facility Improvement for the Revitalization of Changwon Agricultural Products Wholesale Market

Ten years have passed since the Changwon Agricultural Products Wholesale Market was established in 1995. Changwon's obsolete facilities are not competitive to cope with the changes in the agricultural marketing environment. There have been two opinions to solve this problem: the facility improvement at the present site and the transfer to another space in Changwon City.

The changes in the agricultural marketing environment were severe: emergence of various market facilities, increase in imported agricultural products, and changes in retail marketing. The Changwon market has the limitation to face the rapidly changing market environment. In addition to this, a survey of merchants and management staff in the Changwon market has found that they feel uncomfortable in the current facilities of the Changwon market.

So, the facility improvement of the Changwon market should be made in the near future as an exemplary model for public wholesale markets across the country to cope with the changes in the agricultural marketing environment.

This study aims to construct a facility improvement plan for the Changwon market and suggests the transfer of the Changwon market into a space suitable for meeting the needs of consumers and producers as a long-term improvement strategy.

Researchers: Myung-Ki Cho(Ph.D.) and Kyung-Chool Joe
Report No: C2006-15/Aug. 2006
E-mail: chomk@krei.re.kr

System Development for Raising Competitiveness in Rice Marketing

The sales on consignment must be activated to reduce the transaction cost and improve the quality of rice. A few conditions need to be satisfied for the activation of consignment sales. The 44.8% of rice farmers and 42.3% of RPC (Regional Processing Center) operators ask that the clearing price must be guaranteed. Also, the size of RPC must be enlarged to reduce the operating cost. It costs 2,000 won per 40kg pack of rice (i.e., milled rice) for the RPC producing 15,000 tons of rice per year. But the unit operating cost is three times higher for the RPC producing 4,500 tons of rice per year. Therefore, a more realistic way to enlarge the size is an alliance.

At the retail market, the ratio of higher-priced rice (over 55,000 won per 20kg) out of total sales is about 7%. The ratio of the rice priced above 50,000 won is 37%. This means that a marketing strategy seeking a higher price is not quite reasonable. Since the consumers regard eating quality and price as important factors, it is important to supply the information that consumers want. And the popular brand rice should be supplied.

The effects of drying temperature (35℃, 45℃, 55℃) on physical and chemical characteristics of rice showed that a higher amount of broken kernels was found in the rice dried at 55℃ than those dried at 35℃ or 45℃. The germination rate, color b value, and the eating quality of rice were affected by the storage temperature (10℃, 25℃) more than the drying temperatures of paddy. The germination rate of the rice stored especially at 25℃ decreased rapidly after five months of storage regardless of the drying temperature of paddy, while those rice stored at 10℃ were constant during a 12-month storage period.

The effects of a pilot-scale milling system on rice quality showed that higher in whiteness and broken kernels and lower in b value and head rice percentage were noted by the friction type than the abrasive type after the first pass. While no difference was found in the characteristics of kernels produced by friction

and abrasion types at 15～16%, kernel temperature was lower in the rice kernel produced by abrasion milling.

Based on the eating quality of the milled rice stored at room temperature, the seasonal periods for good eating quality of milled rice for winter, spring, and summer were suggested as 8 weeks, 6 weeks, and 4 weeks respectively. But, the eating quality of milled rice could be changed by packaging and marketing conditions, and the results carried out for one year is not enough to provide valid information to establish the seasonal periods.

A survey revealed that the important factors consumers consider are taste (44.0%), price (22.3%), and safety (18.1%). According to an analysis of willingness-to-pay, consumers do not quite discriminate the taste difference among the many brands of rice. But this is not the case for higher-quality rice. The market shares of rice sold at the price levels of 42,000 won, 48,000 won, and 55,000 won per 20kg are 70%, 20%, and 10%, respectively.

RPCs produce many kinds of rice brands, but there is no big quality difference among the brands since they are classified just by name and design. To get a good reputation, the quality should be superior and the supply must be stable. More than 20,000 tons should be supplied to maintain the reputation as a superior brand.

The market participants do not have enough information on the market situation, so it causes marketing confusion. It is necessary to provide information affecting the price; for example, demand, supply, stock, etc.

Researchers: Dong-Gyu Park(Ph.D.), Myung-Hwan Kim(Ph.D.), Kye-Im Lee(Ph.D.), Min-Jeong Kim, Hye-Young Kim and Jae-Hwan Kim
Report No: C2006-19/Jul. 2006
E-mail: dgpark@krei.re.kr

A Study on Livestock Insurance Programs in Korea

This study analyzes the current livestock insurance programs in Korea and suggests policy measures to reform the system. The pilot livestock insurance program was introduced in 1997 for cattle, and the coverage was extended to pigs and poultry in 2002. The National Agricultural Cooperative Federation (NACF) is the only insurer in the livestock insurance program, and the government subsidizes farmers by paying 50 percent of the insurance premium. Even though the livestock insurance system was rapidly adopted within a relatively short period, the system needs to be improved to reduce more farm management risks.

In 2005, the livestock insurance program participation rates were 2.7% for Korean native cattle, 11.9% for milk cows, 57.6% for pigs, and 32.8% for poultry. The main reasons for such a low participation rate especially for cattle were insufficient insurance coverage, high premium rates, the lack of competition in insurance marketing, and the lack of legal support.

This study suggests many policy options to enhance the participation rates. In view of the restricted government budget, policy options should be cost effective and consistent with other related policies. Some options can be implemented within a short period, while other options need substantial time before implementation. The following options can be adopted soon:

First, there is a need to allow commercial insurance companies to join the insurance program to encourage competition among insurers. But the participation of commercial insurance companies in the livestock insurance program has pros and cons. Therefore, it should be operated as a pilot program with only one commercial company allowed to participate for two to three years; and then it needs to decide whether to extend the pilot program to include all commercial insurance companies wanting to participate in the program.

Second, the government needs to increase the subsidy for cattle farmers to mitigate their insurance burden. Due to budget constraints, the subsidy rates for pig and poultry farmers could be lowered instead. Currently, the ratio of premium to income for

cattle is 1.2～1.7 times higher than those for pigs and poultry.

Third, the operating cost of the livestock insurance program should be fully paid by the government. Currently, the government pays 50 percent of the operating cost and the remaining 50 percent is paid by farmers as an additional premium. But in other natural disaster-related insurance programs, such as the Natural Disaster Insurance Program and the Crop Insurance Program, the government pays the full amount of the operating cost. If the operating cost of livestock insurance is fully paid by the government, the insurance premium to be paid by farmers will fall by 15 percent.

Fourth, the coverage for poultry should be extended to include some diseases and snow damages. Because these coverages need higher premium rates, they can be sold to the farmers who want to buy these plans.

Some options should be introduced with sufficient preparations: First, epidemic diseases are currently excluded from the livestock insurance coverage, but they should be included in the future. In addition, the government should become a reinsurer. Second, since the insured currently receive the indemnity only when the insured livestock are dead, there is a need to pay the medical cost when the insured cattle need veterinarian services. But it requires various measures before the adoption of the system. Third, the insurance system needs strong legislative support. Since there already exists a similar law, the Crop Insurance Law, it would be cost effective to combine the crop insurance law and the livestock insurance law into a single law named ‘Agricultural Insurance Law,’ rather than two related but separate laws. These options cannot be adopted in a short period, and they need years of thorough preparation for their successful implementation.

Recently, there are increasing concerns about the price fluctuation as it is an important factor causing the income instability of farmers. Some countries including the United States are implementing a revenue insurance program for livestock. Likewise, similar programs need to be introduced to Korean livestock farmers soon for the purpose of risk management.

Researchers: Joo-Ho Song(Ph.D.), Sung-Jin Im and Tae-Kyun Kim
Report No: C2006-6/Mar. 2006
E-mail: jhsong@krei.re.kr

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Research on Finding Export-Promising Agricultural Products and Establishing Export-Strategy for the Products

This research selects twelve export-promising agricultural products and analyzes the domestic production, consumption, marketing, and export and import of the products. In addition, this research examines the exportability and competitiveness of the products in terms of SWOT (strength, weakness, opportunity, and threat) and PCL analysis.

According to the research, most of the products selected have opportunities for export, in particular, to Japan, though Cymbidium and Phalaenopsis are competitive in China and the United States, respectively. In the long run, the high-quality markets in Russia, Southeast Asian countries, and Europe are also attractive.

Mushrooms and melons prove to have the highest competitiveness for export, though asparagus, brocoli, Cymbidium, and Phalaenopsis also have high potentials for export. Therefore, it is needed to establish short- and long-term export strategies specific to those products. For cut flowers and paprika, it is necessary to strengthen their promotion in the existing foreign markets and find new markets.

With respect to the strategies aimed at increasing the export of the products, this research suggests (i) to establish a one-stop service system for export and to introduce an export-helping management system, (ii) to introduce a matching fund for export or a ‘co-risk-bearing system’ to diversify risks, (iii) to increase the size of export complexes and to introduce export-oriented production, (iv) to raise the government support for horticulture, (v) to increase the investment on R&D for new varieties and quality improvement, (vi) to strengthen extension services for high-quality products, (vii) to introduce a ‘co-work system’ in the selection process and to adopt selection standards based on the Brix scale, (viii) to maintain the list and information of exporting companies, (ix) to secure local marketing channels in

China, and (x) to create and promote representative brands, such as Whimori.

Researchers: Byung-Ryul Kim(Ph.D.), Chang-Gon Jeon(Ph.D.) and Ki-Hwan Park(Ph.D.)
Report No: C2006-14/Apr. 2006
E-mail: brkim@krei.re.kr

The Effective Implementation of ISO 22000 (Food Safety Management System) in Korea

The main objective of this study is to suggest some directions for better implementing ISO 22000 in Korea. The International Organization for Standardization (ISO) has followed up its recent publication of ISO 22000, a set of international standards for a food safety management system with an implementation guidance.

A major benefit of ISO 22000 is that it provides a framework for organizations worldwide to implement the HACCP (Hazard Analysis and Critical Control Point) system for food hygiene in a harmonized way, which does not vary with the country or food product concerned. ISO 22000 specifies the requirements of a food safety management system that combines the following generally recognized key elements to ensure food safety along the food chain, up to the point of final consumption: interactive communication, system management, process control, HACCP principles, and prerequisite programs.

It is necessary to introduce ISO 22000 in harmonization with TBT (Technical Barriers to Trade) and implement the worldwide standards for food safety across food supply chains.

In order to implement ISO 22000 successfully, the following basic ideas should be prepared: constructing the related infrastructures such as a legal framework; raising experts in the fields of accreditation, certification, and training; and information networking. A survey showed that improving the credibility of certification and the public relations for ISO 22000 are crucial measures to ensure the soft landing of ISO 22000 in the near future.

Researchers: Ji-Hyeon Choi(Ph.D.) and Min-Jeong Kim
Report No: C2006-11/May. 2006
E-mail: jihchoi@krei.re.kr

Basic Construction Plan and Validity Evaluation of Facility Modernization Project: Noryangjin Fisheries Wholesale Market in Korea

The primary purpose of this research project is to understand the current status of marine product marketing and the physical distribution of Noryangjin Fisheries Wholesale Market (NFWM). Then, this project shows a way to make NFWM more competitive among the wholesale markets in Korea, and presents a basic construction plan for its facility modernization. This research project also evaluates economic, financial, and political validities of the facility modernization of NFWM and offers the best solution to modernize NFWM.

The detailed contents of this project are discussed as follows:

First of all, we analyze the current status of marine product marketing and facilities in NFWM. Based on these analyses, we develop a master plan to make NFWM more competitive among the wholesale markets in Korea. Secondly, we evaluate the validity of the facility modernization of NFWM. Then, we offer the best way to modernize the facilities in NFWM by comparing the two scenarios: (a) purchasing the land of Korea Agro-Fisheries Trade Corporation as a new ground for the modernization of NFWM and (b) using NFWM's own land for modernization. Thirdly, we measure the economic, financial, and political validities of NFWM's facility modernization. In this evaluation, we also consider the environmental effects of the facility modernization. Finally, we present a basic construction plan for the facility modernization and a management plan for NFWM.

Based on the results of this research, we conclude that the facilities in NFWM should be modernized as soon as possible through the purchasing of the land of Korea Agro-Fisheries Trade Corporation. The economic validity analysis (B/C analysis) and political validity analysis also support the above conclusion. The results of a financial analysis of the facility modernization in NFWM suggest that the government needs to support over 70%

of the construction cost.

Researchers: Byung-Ryul Kim(Ph.D.), Myong-Ki Cho(Ph.D.) and Kyung-Chool Joe
Report No: C2006-51/Oct. 2006
E-mail: brkim@krei.re.kr

Family Doctor's Consulting Report for New Vitality Project in Yeongyang County

The 'Participatory Government' has been implementing the New Vitality Project (NVP) for regional development since 2005 with a purpose to establish a base for long-term and endogenous self-support for the less developed regions. The NVP was introduced in the course of evaluating the one-sided, benefit-providing support policies that were lacking in substance in spite of the enormous amount of financial resources allocated to implement related projects.

Family Doctor (FD), a specialized consultant system, which was launched to achieve the substantiality of the NVP, plays the role of providing advice and consulting on the overall matters of related projects. A specialist is assigned to a local government for a certain period of time with the objective of making the NVP a success.

The purpose of this report is to make a comprehensive evaluation of the FD's performance achieved for the NVP in Yeongyang County, an underdeveloped region in Gyeongsangbuk-do, and to present the tasks to be performed.

The major performances of the FD's consultancy can be summarized as follows:

First, the consultation reports for the NVP were presented. The reports were included in the monitoring and evaluation of the core development programs such as the Education for Strengthening Regional Innovation, the Integrated Identity Project for Yeongyang County, the Self-Development of Quality Certification System, the Specialized Health Products Development, the Infrastructure Development for Truly Healthy Agricultural Products, the Health Experience Festival, and the Ecological Experience with Lightning Bugs.

Second, an incentive project which was financed based on the results of the 2005 NVP was reviewed and evaluated.

Third, the problems faced by the persons in charge of implementing the project were derived, and the opinions on the ma-

jor issues relating to the implementation of the 2006 NVP were presented and discussed at the NVP Council Meeting.

Fourth, the importance of developing environment-friendly agriculture was presented at the Yeongyang Forum at the True Health Town under the theme of 'Guidance for the Development of Environment-Friendly Agriculture as the Growth Engine of Future Agriculture in Yeongyang County.'

Fifth, the suggestions on building the positive participation of local residents and on the improvement of the FD System for revitalizing the NVP were presented at the Joint Workshop for New Vitality Project organized by the Balanced Development Committee.

Finally, a comprehensive evaluation was made and the tasks identified to be activating the New Vitality Project were presented.

The NVP of Yeongyang County is evaluated to have contributed to the building of competence among the local residents and to the finding of new development sources to prepare for the future, while the regional circumstances have continued to deteriorate due to the population fall and the financial weakness.

In conclusion, it is necessary to identify the core businesses that can consolidate the overall competence of local residents and increase their income. As a core business, the environment-friendly agriculture should be positively fostered to preserve the natural environment in one of the most cleanest regions in the country. In this regard, I have made concrete suggestions on the direction to follow.

Researcher: Chang-Gil Kim(Ph.D.)
Report No: C2006-16-2/Sep. 2006
E-mail: changgil@krei.re.kr

A Study on the Introduction of Beef Tracking System in Korea

Recently, the countries struck by mad cow disease (Bovine Spongiform Encephalopathy or BSE in brief) and the countries exporting beef in large volumes have introduced a cattle tracking system. Korea has not experienced a domestic outbreak of mad cow disease so far. But in December 2003, when mad cow disease hit the United States, the beef consumption in Korea plunged. And the possibility of a local outbreak of mad cow disease in the future cannot be eliminated. Accordingly, the Korean government conducted a pilot project for a beef tracking system as a preventive measure for the disease, and the system is scheduled to be implemented in full scale from 2008. In this context, this study focuses on the issues to consider upon the full-scale implementation of the system.

Since October 2004, 17 beef brand holders and local governments have taken part in the cattle tracking project. Farmers attached ear tags to their cattle to make them carry their identification number. When calves are born or a cattle transfer occurs, the details are reported to the authorities. In addition, to verify any misplacement of the identification number on the beef in the course of distribution, beef samples are collected at slaughter houses and selling places for a DNA matching test. However, since the pilot project was conducted without a legal foundation, there is no law to apply to the farmers who do not fulfill the requirements of ear tagging and the reporting of cattle births or transfers. This has weakened the actual effectiveness of the pilot project. Under the project, beef brand holders or regional livestock cooperatives should keep the tracking record. However, there are no dedicated staff to handle the heavy workload of reporting and keeping on record.

In this regard, the following actions need to be taken for the nationwide implementation of a cattle tracking system: First and foremost, standard rules should govern the matters concerning cattle identification and ear tagging. In addition, cattle farms

should be subject to premise registration at the farm level and farmers should be given a premise identification code. And then the cattle and premise identification numbers should be managed under a unified database system. In other words, the 'Animal Identification Database' for cattle and farms should be created for this purpose.

The objective and scope of the project should be clarified. The objective of introducing the cattle tracking system should be limited to livestock disease control and the prevention of illegal beef distribution. Ideally, the project scope should include production, butchery, and distribution, and all cattle farms and domestically raised cattle should be subject to the registration. To this end, it is necessary to expand the application of the premise registration from cattle farms of a certain size or above to all cattle owning households.

Given that the tracking system is a costly project, it is necessary to build a more efficient system. The requirements and procedures to be met by cattle owning farm households and distributors should be minimized and streamlined. In addition, the costs related to ear tagging should be covered by farmers. In case when the identification numbers are difficult to use, lot numbers should be allowed instead. The transaction details including the cattle identification numbers should be kept on record at slaughter houses and during the course of distribution for a certain period. In addition, it is desirable to use the latest Radio Frequency Identification (RFID) system instead of bar codes. Financial support could also be offered to encourage the use of the RFID.

The tracking system generates heavy workload. A dedicated organization should be established within the central government, and local governments should increase the number of dedicated public officials and provide guidance to make sure that ear tagging and reporting are properly conducted in close cooperation with producer groups. When selecting an organization responsible for the management of the tracking database, candidate organizations should be closely examined for their intentions to participate in the project and their capabilities to perform the duty. Nevertheless, it should be determined as to which is more of a primary concern: livestock disease control or the prevention

of illegal beef trade. This consideration is critical in selecting a DB managing organization.

The pilot project currently under way has found that it is difficult to secure the moving records of cattle. When the nationwide implementation of a tracking system materializes, it is predicted that the difficulty in figuring out the cattle movement will continue to remain. Presently, when shipping out beef cows, farmers are required to submit the veterinary certificate attesting that there is no brucellosis infection. As in Europe, where a cattle passport system has been in place, it seems more desirable for Korea to introduce the cattle passport system to record all cattle transfers and disease details for livestock disease surveillance.

The nationwide implementation of a cattle tracking system requires the enactment of a related law as in foreign countries. The law, which stipulates the duties of cattle farms, slaughter houses, and distributors, should be enacted along with the penalties for the violation of the law. Furthermore, more staff and budget support should be provided to assist the organizations and institutions that will handle heavier workload of implementing the tracking system. To sum up, it seems that the tracking system should begin from the production stage first and be expanded gradually into the distribution stage for its soft landing.

Researchers: Joo-Ho Song(Ph.D.), Byung-Jun Woo(Ph.D.)
and Duck Huh(Ph.D.)
Report No: C2006-34/Oct. 2006
E-mail: jhsong@krei.re.kr

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The Comprehensive Development Plans for the Agriculture and Rural Communities in Gijang-gun

Recently, the world is opening the agricultural markets driven by WTO/DDA negotiations, conclusion of FTAs between countries, and changes of agricultural policies in a way that places focus on the multidimensional functions of agriculture. These global changes in the agricultural environment are having a huge impact on the domestic agriculture and agricultural administration, and ripple effects are predicted in the local agricultural sectors. In particular, the investment and interest of the local autonomous entities in agriculture constitute a major factor in determining the quality of life in the farming community, the competitiveness of each farm's production, and the income level of households. In this regard, the formulation of agricultural plans and the implementation of the plans by local autonomous entities are gaining increasing significance.

In this study, in-depth examinations are made on regional, environmental, and socio-economic traits regarding the agriculture and rural communities of Gijang-gun. Also, the primary goal of this study is to come up with inclusive development plans for the agriculture and rural communities by assessing the strong and weak points.

Comprised of three 'myeons' and two towns, Gijang-gun is located in a suburban region near a metropolis.

By industry sectors, the rice grown in the region stands a better chance of being promoted as a specialty premium brand since an eco-friendly rice cultivation complex is already in place. But, when it comes to the dissemination of superior breeds and processing systems, the region lags behind.

The region's specialty crop is pears. Recently, the production of horticultural crops has been increasing, but vegetables are grown on a small scale.

As for livestock farming, Gijang-gun is famous for Korean beef cattle. For this reason, the region is now in the process of being designated as the 'Special Beef Cattle Zone in Cholma.'

However, the continued rise in land prices in the region has caused difficulties for newcomers in realizing economies of scale in the livestock industry.

In terms of the distribution of agricultural produce, the region is not suitable as a production base.

In the meantime, Gijang-gun is blessed with the abundance of tourism assets including wonderful landscape and mountain and fishing villages. Nevertheless, only a handful of farm households are participating in the rural tourism projects that are based on these rich resources. The living standards of the rural communities are quite good on average compared to other parts of Korea. Also, the county is actively engaged in sisterhood relationships with businesses in neighboring counties, and there are many employment opportunities in industry sectors other than agriculture.

Given the current situation, Gijang-gun needs to positively consider the construction of 'Well-Being Town' for the sake of further development of agriculture and local communities.

In order to realize the vision of 'Well-Being Town,' the following measures should be taken: construction of a high-quality eco-products system, development of high income-generating agricultural products, selective composition of agricultural products, supporting the public promotion and marketing of agricultural products, and reconstruction of a pleasant living environment and leisure space.

Researchers: Moon-Ho Park(Ph.D.), Eui-Sik Hwang(Ph.D.),
Yong-Taek Kim(Ph.D.) and Eun-Jung Shin
Report No: C2006-44/Dec. 2006
E-mail: mhpark@krei.re.kr

A Study on the Production and Marketing of Sprouts and Leaf Vegetables

The consumption of sprouts and leaf vegetables is recently being increased as 'well-being' foods. They take up a large share in the vegetable markets of the US, Europe, and Australia; but, in the case of the vegetable market in Japan, their share is small despite the current rise in their consumption.

The purpose of this study is to seek ways to promote the sprouts and leaf vegetable industry by investigating and analyzing the current status and technical difficulties related with seed development, cultivation, distribution, and marketing.

The cultivation area of sprouts was 65 hectares in 2005 with an annual increase rate of 5% on average from 2002 to 2005. In terms of cultivation area by sprout type, radish sprouts were cultivated the most with a 31% share followed by turnip, alfalfa, and romaine. The production amount of sprouts was too small to be obtained before 2002. But, it is estimated to have been 16 billion won in 2005.

The area of leaf vegetables was increased to 11,682 hectares in 2005 with an annual increase rate of 5% on average from 2000 to 2005. The leaf vegetables which showed large increases in cultivation area were the newly developed cabbage 'Ssamchu,' along with leaf cabbage and pak choi. The leaf vegetable that showed a reduction in cultivation area was lettuce. The production of leaf vegetables rose to 290 billion won in 2005 with an annual increase rate of 10% on average during the same period.

The environment-friendly cultivation of leaf vegetables stood at an insignificant level in 2000, but it has increased to account for about 10% of the total leaf cultivated area in 2005. During the period, environment-friendly cultivation has increasingly been adopted by farmers each year along with the rise in the consumption of safe and high-quality agricultural products.

Sprouts are grown from the seeds that have not been treated with chemicals. They are harvested within 3~4 days after sprouting and are cultivated by using an environment-friendly

method without the use of agricultural chemicals or fertilizer. Sprouts are cultivated on a large scale and at least 20 different varieties are grown at the same time to meet consumer needs.

There is a need to establish a strategy aimed at substituting the seed import and increasing the export of sprouts through seed development. The sprout seed market is estimated to stand at about 2% (300 million won) of the 150 billion-won vegetable seed market in Korea. Of the total sprout seeds, more than 2.4 billion won (80%) of seeds are imported. Meanwhile, the cultivation area of sprouts is expected to increase in the future along with an increase in the amount of money needed to import seeds, thus resulting in the growing need to substitute the import through seed development.

According to a customer survey, it was found that in the case of sprouts and leaf vegetables high quality and functional vegetables are preferred the most. In terms of packaging, consumers preferred the small package comprised of different types of sprouts, and they chose the conventional weight measurement for leaf vegetables. It was also found that whether or not the agricultural products were produced by using an environment- friendly cultivation method was an important factor in their consumption.

In regard to the future course of the sprout business, sprouts should be cultivated as a ‘demand-creation’ crop. As the number of people aware of sprouts accounts for less than 50% of total consumers, and as only 40~50% of ordinary consumers are aware of the beneficial effects and can cook sprouts, and as the demand is expected to increase by 50~60%, the sprout consumption is forecast to rise continuously.

The cultivation of sprouts requires a production system devoid of food-poisoning bacteria. Concurrently, strict management and monitoring of the cultivation process are needed. Sprouts should be developed as the ingredient of value-added goods such as ‘sprout soup,’ ‘sprout cosmetics,’ and ‘sprout tea’ to meet growing demand.

Leaf vegetables need to be cultivated as a new high income crop. The cultivation area of leaf vegetables has risen from 9,200 hectares in 2000 to 11,700 hectares in 2005, an annual increase of 5% on average, while the production amount grew by

10% on average annually during the same period. Likewise, the consumption has increased and expanded.

As the demand for safe and high-quality agricultural products is increasing, the production of leaf vegetables, too, should be converted into an environment-friendly cultivation. However, since more than half of the production cost is a cost incurred in buying environment-friendly cultivation materials, the government should come up with a strategy to provide the materials at low costs.

Researchers: Yean-Jung Kim(Ph.D.), Hyun-Tae Park(Ph.D.) and Hye-Sung Han
Report No: C2006-26/Sep. 2006
E-mail: yjkim@krei.re.kr

A Study of Remodeling the Jinju Agricultural Products Wholesale Market for Operation Improvement

The purpose of this study is to propose a rational remodeling plan for the constant development of the Jinju Agricultural Products Wholesale Market. The main contents of the study deal with the fostering of the wholesale market to be competitive and a rational plan to establish the foundation for promoting transactions in the market.

The problems that the Jinju agricultural wholesale market faces are inappropriate responses to changes in the marketing environment, the growth slowdown of the wholesale market, decreases in transaction amount and the number of market participants, shortcomings in the collection and distribution of agricultural products, and inefficient as well as insufficient logistics including facilities.

The major project for the operation improvement of the wholesale market is the construction of a marine products sales zone in the current market. This will provide consumers with one-stop shopping. The main functions of the marine products wholesale market are wholesaling, retailing, processing, collection and dissemination of market information, and digital marketing. We estimate that the transaction volume of marine products to be around 30,040 tons per year. The proper size of the facility can range from 9,075 m^2 to 11,484 m^2 depending on the development plan for the marine products wholesale market.

The projects for improving the current facilities include the installation of sorting and packing facilities, additional low- temperature storage rooms, a cooling system at the auction hall, and the maintenance of waste disposal facilities and a supermarket for one-stop shopping.

Researchers: Chang-Gun Jeon(Ph.D.) and Myung-Ki Cho(Ph.D.)
Report No: C2006-41/Nov. 2006
E-mail: cgjeon@krei.re.kr

A Study on the Market Distribution of Imported Kimchi in Korea

The amount of food materials Korea imports annually has been increasing rapidly in recent years due to the booming of the domestic dining-out industry and Korea's further opening of its domestic market to foreign products. In the case of kimchi, the amount of imported kimchi ingredients has exceeded 110,000 tons in 2005, surpassing 20 percent of the total kimchi ingredients sold in the domestic market in the same year. Consequently, the amount of imported food materials has grown to have a profound impact on the supply and prices of kimchi raw materials in the domestic kimchi market.

What's noteworthy, in particular, is that there has not been a clear grasp on the current market status of kimchi imported from China with regard to the following respects: packaging types, distribution channels, distributors, import methods, price formation, customer-based distribution routes, distribution periods, and hygiene control. Accordingly, the importation of kimchi from China is having negative effects on the domestic kimchi industry and on the farmers who produce kimchi ingredients. In addition, the difficulty in providing customers with accurate information on imported kimchi has further exacerbated the uncertainty in the setting up of related policies and in their implementation.

This study seeks to secure basic policy materials needed to revitalize the domestic kimchi industry and enhance its competitive advantage by analyzing the current market status of imported kimchi, the amount of which has continued to rise since 2000. By securing the policy materials, this study is expected to assist consumers, suppliers, and government officials in their making rational decisions based on accurate information.

Researchers: Chang-Gun Jeon(Ph.D.) and Min-Jeong Kim
Report No: C2006-27/Oct. 2006
E-mail: cgjeon@krei.re.kr

Mid/Long-Term Vision for Plant Quarantine and Development Plan

The plant quarantine conditions of home and abroad are rapidly changing. The rising demand for quarantine driven by increasing agricultural trade, more international negotiations on quarantine, and the rising public demand for quarantine are a few examples of the changes. Facing the global era of unlimited competition, the study is devised to set a mid/long-term vision for plant quarantine and to establish a future-oriented and efficient plant quarantine system by presenting the goals and key strategies. To this end, the study analyzes changes in the domestic and overseas plant quarantine conditions and makes a future forecast. It also evaluates the Korean plant quarantine system, including the system and organization operating status, and finds out the matters to consider based on an analysis of the plant quarantine systems of advanced countries. Lastly, it sets out a mid/long-term vision for plant quarantine and an implementation strategy.

The National Plant Quarantine Service (NPQS), the plant quarantine authority in Korea, has obtained some achievements, such as the more prompt forecast of diseases and insect pests, the resolution of on-site export errors, strengthening of international plant quarantine exchanges and cooperation, and enhanced customer satisfaction through plant quarantine service improvement. However, it still needs to do more to actively promote its plant quarantine activities to the public. Although its role as an organization is important, the public awareness is at a low level because the promotional means has been lacking. Furthermore, since it is demanded to build a scientific and efficient quarantine system in response to the changing quarantine conditions, efforts need to be made to launch specialized organizations in related fields, nurture experts for overseas negotiations, and collect and analyze foreign diseases and harmful insect information by country and commodity.

The pending issues relating to plant quarantine can be summarized as follows: First, professional knowledge should be

built in response to changing conditions. Second, the effort to collect overseas information and meet the demand for analysis in preparation for market opening is insufficient. Third, the NPQS staff are under heavy workload as the quarantine demand is rising. Fourth, the roles and functions assigned to NPQS branches and sub-branches are not clearly differentiated. Fifth, the promotion of plant quarantine is insufficient.

To ensure the mid/long-term development of plant quarantine, first of all, the NPQS should undergo reorganization and functional adjustment. Currently, the organization has three tiers composed of the main office, branches, and sub-branches. It should be readjusted to a two-tier organization composed of a main office and regional offices. In addition, it is needed to establish "Scientific Research Institute for Plant Quarantine" (tentatively named) which will take the initiative in carrying out researches on overseas diseases, harmful insects, and plant quarantine. It is also needed to consolidate and readjust the five departments of the main quarantine office and transform the NPQS into a team-based organization. The export quarantine function of the NPQS should be delegated to local governments.

Second, efficiency needs to be improved through the simplification of work processes and the use of computer systems. Some plant quarantine operations, including the quarantine of imported cargos and the quarantine of portable plants, were found to have a high need for operation simplification. For instance, the items which have no track record of causing diseases and harmful insects might be exempted from quarantine examination, or the sampling could be scaled down to reduce the excessive work burden.

Third, quarantine personnel should be reinforced and the improvement of the working environment is needed. Recently, the number of quarantine examiners has risen so that some improvement can be made in terms of precise quarantine system, quarantine services, and quality. But along with the world trade liberalization, the dramatic surge in the demand for agricultural quarantine makes it inevitable to expand the quarantine examiner pool. In Korea, when calculated based on the per capita quarantine work volume handled per year, an average of 4% of personnel in-

crease will be needed from 2005 to 2016. To reach the standard of Japan, an average of 9% of personnel increase is needed during the same period. The personnel system should be more flexible and the rigid hierarchical structure should be removed. The employee welfare of the NPQS, including the working environment, should be enhanced.

Fourth, the expertise of NPQS employees should be improved. To this end, they should be given the opportunity of training provided by related organizations of home and abroad. Joint researches could be pursued in cooperation with universities, research institutions, and other external expert groups. Meanwhile, if an external consulting team composed of experts is launched and operated, it could improve the internal capability of the NPQS.

Lastly, for the advancement of plant quarantine, we need to take more active efforts to enhance export competitiveness through strengthened international cooperation; improve the capability of handling market opening; strengthen border quarantine; construct the emergency response system, promote public participation; and carry out a review on the idea of launching "Animal & Plant Hygienic Quarantine Agency" (tentatively named) as a mid/long-term task.

Researchers: Ji-Hyun Choi(Ph.D.), Chul-Min Kim(Ph.D.)
and Moon-Ho Lee
Report No: C2006-50/Nov. 2006
E-mail: jihchoi@krei.re.kr

The Influences and Issues Surrounding the Changes of Conditions in the Floricultural Industry

This study aims to propose an analysis for each aspect of the influence on the floricultural industry from outside factors such as oil price, exchange rate, and FTAs and suggest directions for the development of the floricultural industry in Korea.

Most floricultural farms are dedicated only to floricultural farming due to labor and technology intensive characteristics of the floricultural industry. The ratio of facility farms, in particular, has increased after the government set a modernization policy in 1990. Accordingly, the uncertainty of management from the fluctuations of exchange rate and oil price is much higher in the case of floricultural farms than those farms growing crops other than flowers. Also, floriculturists export only a limited number of flowers and plants to a limited number of countries. This creates a weak foundation for the rapid adaptation to outside changes and raises exportation risks.

The floricultural plants of Korea are less exposed to customs duties in general, with the duties running close to 8% for most plants and 25% for cut flowers. China levies duties of about 10% or less while Japan is mostly free of customs. As for the U.S., tropical orchids are exempt from the duties. So, the conclusion of an FTA is expected to have no influence on the export market.

The results of an analysis indicate that if all customs duties are removed completely the production of carnations and roses will fall by 0.7% and 0.5% respectively compared with the average values of 2003～2005, whereas the consumptions will grow by 0.53% and 0.33% respectively. Under the same conditions, the production amount of tropical orchids will be decreased by 0.16% and the consumption by 0.22%. However, the effects of opening the market will be more influential to Korean floricultural farms if the probability of a shift in cultivation items from vegetables to flowers and plants is considered.

Therefore, it is imperative, for the future development of the industry, that floriculturists maintain advanced production and

marketing systems. At the same time, they should foster dedicated products for export and constantly create the demand for domestic floricultural plants.

Researchers: Hyeon-Tae Park(Ph.D.), Ki-Hwan Park(Ph.D.) and Hye-Sung Han
Report No: C2006-53/Dec. 2006
E-mail: htpark@krei.re.kr

An Analysis on the Performance and Efficiency of Agricultural Logistic Facilities

As part of a project to evaluate government programs, this study examines the effectiveness and efficiency of three government programs: the agricultural processing center (APC) support program, the logistics standardization program for agricultural products, and the logistics facilities joint use program. The mission of these programs is to facilitate the marketing of agricultural products and reduce logistics costs.

We review the program plans described by the Ministry of Agriculture and Forestry, re-establish the intervention logic of the government programs for enhancing the efficient use of the logistics facilities for agricultural products through qualitative investigation, and then derive the questions which need to be answered through quantitative analysis.

For the analysis on the effectiveness of the APC support program, we investigate whether agricultural product price and farm receiving price increase when agricultural products are shipped through the APC to wholesale markets. For an analysis on the effectiveness of the logistics standardization program for agricultural products and the logistics facilities joint use program, we investigate whether non-value-adding logistics cost increases when agricultural products are shipped on pallets.

We examine the efficiency of the government policies aimed at improving the marketing in producing districts, the overlapping problem of multiple government programs relating to agricultural product logistics standardization, and the system of budget accounts. In particular, as to the system of government policies for improving the marketing in producing districts, we examine the overlapping problem of the APC support program and the large-scale APC support program administered as one of the several programs on the Free Trade Agreement (FTA) funding support for fruit production. Also, we investigate the proper form of future investments on APCs.

When a large-scale APC is constructed in a region where

APCs already exist, there is a high possibility that two different types of APCs can compete with each other to secure agricultural products. To alleviate this potential problem, it is essential to establish a horizontal interrelationship between the existing APCs and the large-scale APC.

The current system, wherein the support organizations administering the logistics standardization program render assistance to an identical marketing entity with their own fund separately, can reduce the efficiency of resource allocation in achieving logistic efficiency. Therefore, it is necessary that the several programs for improving logistic efficiency are unified into a single program under one budget account and one organization administering such a unified program.

As for the APC support program and the agricultural logistics standardization program administered under the Balanced National Development Special Accounts (BNDSA), there is the possibility of inefficient resource allocation by local autonomous entities. In particular, it is challenging to be easy, both systematically and politically, for the existing APCs specialized in specific items and managed across several regions to consider participating in the large-scale APC. Therefore, it is necessary to reform the support system in order to solve such a problem.

Researchers: Myung-Ki Cho(Ph.D.) and Myoung-Ki Lee(Ph.D.)
Report No: C2006-56/Dec. 2006
E-mail: chomk@krei.re.kr

A Study on Establishing a Target Rate of Food Self-Sufficiency in Korea

The main objectives of this study are to establish a target level of food production and consumption for achieving nutrition balance of Koreans, and analyze food self-sufficiency rates from each possible scenario coping with a given food supply and demand condition.

While the food self-sufficiency rate provides consumers with a reference to a desirable food consumption level, it also works as a guideline on national food production for producers and the government.

In the study, the target rate of food self-sufficiency in year 2015 was established within a feasible level coping with the current and future food supply and demand conditions. The target rate of food production was based on the baseline estimations from econometrics models such as 'KREI-ASMO' and 'KREI-COMO,' and the target rate of food consumption was derived from the consumers' desirable nutrition goals for 2015.

The estimation results of food self-sufficiency rates for each important food are as below:

The food self-sufficiency rate of rice is about 90% with 760～830 thousand hectares of cultivation. The rate for staple food grains, such as rice, barley, and wheat, without the animal-feeding purpose is about 60%. In addition, the food self-sufficiency rate for staple food grains, including those for feed purpose, could be increased from 27% to 30～33% with higher forage use.

For livestock, the rates of beef, pork, and chicken are 42%, 82%, and 90%, respectively. The rate for livestock has decreased to the current level due to increased consumption and the ongoing Free Trade Agreement (FTA) between Korea and the US. The rates for vegetables and fruits have also decreased from 94% and 85% to 60% and 78%, respectively. These figures represent decreased production, resulting mainly from the conclusion of DDA and FTA negotiations and increasing consumption. The rate for marine products currently stands at 68%, but it is set to drop to

58% for year 2015 due to tied-up production and increasing consumption. Finally, the self-sufficiency rate of synthetic foods on a calorie basis was estimated at 45% to 47%, which is almost the same level as in 2004.

To improve food self-sufficiency rate, this study suggests several programs on food production and consumption. In the consumption side, providing education and public information on diet, developing traditional Korean menus, certifying product origin, and reducing food waste are important. In the production side, it is necessary to cultivate more feed grains and forage, increase competitiveness through quality control, and improve food safety towards consumer satisfaction.

In the near future, the government has to design a policy for adopting a socially agreed food self-sufficiency rate in the scope of the 'Agriculture and Rural Development Plan.' Furthermore, the established target rate should be examined by the permanent committee to be established or an existing institute within a fixed period of time to keep up with the changing agricultural conditions resulting from DDA and FTA.

Researchers: Ji-Hyeon Choi(Ph.D.), Byung-Joon Woo(Ph.D.),
Myung-Hwan Kim(Ph.D.) and Min-Jeong Kim
Report No: C2006-7/Apr. 2006
E-mail: jihchoi@krei.re.kr

An Introduction of Rice Public Stockholding Program

The direct payment program for rice farmers was adopted last year. The 85% of difference between target and market price should be financed by the government. The payment is composed of fixed payment and variable payment. The variable payment should be paid within the AMS. But the direct payment program and the rice procurement program are competitive in using the AMS. So it is inevitable to abolish the rice procurement program and introduce the rice public stockholding program for food security.

The reasonable volume of rice in the stockholding program for solely food security is 803 thousand tons at the end of a grain year. The volume can be adjusted to reflect the trend of rice consumption reduction. The reserved rice could be domestic. That is the way to be consistent with the management rule on imported rice. It was suggested to buy the rice for public stockholding on contract in the short run and on auction in the mid and long run. The surveyed price from October to December is applied to buy the rice. In terms of administering stockholdings, the revolving way is more efficient than the reserving method.

The suggested program was designed to be consistent with WTO regulations. The volume such stocks correspond to predetermined the targets related solely to food security. The rice purchases by the government shall be made at current market prices and the sales from food security stocks shall be made at the market.

Researchers: Dong-Gyu Park(Ph.D.) and Hye-young Kim
Report No: C2006-1/Jan. 2006
E-mail: dgpark@krei.re.kr

A Study of Compensation Structure in the Forestry Sector as a Public Good

Other than producing lumber, forest has the function of purifying air, reserving water, preserving health, and providing recreational opportunities. Due to the character of public good, forest can't be evaluated in the market and further has the possibility of a market failure. To prevent a market failure, it is necessary to support the function of forest with appropriate incentives.

The purpose of this study is to explain a related theory of forest as a public good and suggest policy options of adequate compensation to forest owners.

This study explains the theories and considerations of compensating the social benefits of forest and points out the necessity of a compensating policy in Chapter 2.

Chapter 3 provides a case study on the compensation for social benefits.

Chapter 4 considers possible approaches to compensate the social benefits of forest using survey outcomes.

Finally, this study suggests a direction of policy options on the compensation and support structure.

Researchers: Yong-Kwang Shin(Ph.D.) and Cheol-Su Chang(Ph.D.)
Report No: C2006-33
E-mail: ykshin22@krei.re.kr

Development of Agri-Environmental Indicators to Meet Discussions on the Development of OECD Environmental Indicators

Agriculture may positively or negatively affect the environment depending on the management of production activities. The Agri-Environmental Indicators (AEIs) are the representative values calculated with the given criteria for those areas selected to determine the effects of agriculture on the environment and vice versa. The OECD Secretariat has been promoting the development of agri-environmental indicators by organizing a Joint Working Party in 1993 and will announce a comprehensive report in the middle of 2007.

This study is intended to analyze the trends of AEI development by the OECD JWP and to present a policy linkage and subjects to meet the future development of AEIs following the announcement of a comprehensive report on AEI development.

The study is largely organized into six chapters. The introduction overviews the issues raised and objectives of the study and reviews previous studies. Chapter 2 covers the development process of the OECD AEIs, concept and configuration of prior AEIs, trends of the JWP discussions in the OECD Agri-Environmental Policy Committee, and contents of the AEI comprehensive report. Chapter 3 presents a comparative analysis of the agri-environmental status of the OECD members. The target indicators include the following eight key indicators: contextual indicator, nutrient balance, agricultural pesticide use and risk, energy indicator, soil indicator, water use and water quality, atmosphere and weather change, and biological diversity. Chapter 4 presents a comparison of environmental performance with changes in circumstances and examples of assessment on agri-environmental policy using the nutrient balance indicator in regard to the political utilization of AEIs. In addition, this chapter reviews Directed Acyclic Graph (DAG) and Stylized Agri-environmental Policy Impact Model (SAPIM) under discussion in the OECD as a policy assessment model using AEIs. Besides, the STONE model of

the Netherlands and IRENA (Indicator Reporting on the Integration of Environmental Concerns into Agricultural Policy) of the EU are covered in this chapter. Chapter 5 presents six subjects for AEI development: development of indicators suitable for domestic agricultural conditions; development of persuasive indicators appropriate for multiple functions; development of composite indicators regarding the AEIs; development of indicators to meet user's needs and distribution of information; and establishment of an indicator development network between experts and persons responsible for the policy. Finally, Chapter 6 presents a summary and conclusions.

As environmental problems may largely differ by country and region, there might be a limitation in integrating the indicators and comparatively analyzing countries by using the AEIs based on average values. However, the nutrient indicators for nitrogen and phosphoric acid, the number and area of ecological farms, the number and area of farms applying nutrient management, and the investment to agri-environmental research are regarded as very useful indicators for the comparison of countries. Through the continual development and update of AEIs, the environmental load on agriculture should be reduced by identifying the changes in the local agricultural environment and by promoting a step-by-step strategy for the areas that require responses such as nutrient management. For instance, a warning message of excessive nutrient input was given to the Netherlands, an OECE member, for marking the highest value of nitrogen balance indicator in 1997. Since then, the Dutch government has achieved considerable performance improvements by promoting a step-by-step national strategy to reduce surplus nutrients using the AEIs. This may be a good example of clearing the surplus nutrient problem in the domestic agricultural environment.

Researchers: Chang-Gil Kim(Ph.D.), Tae-Young Kim and Eun-Mi Jeong(Ph.D.)
Report No: C2006-48/Nov. 2006
E-mail: changgil@krei.re.kr

The Study to Activate Rice Consignment Sales

The rice price at harvest time can be stabilized if the price risk at off-harvest time can be removed. The business pattern between farmers and RPCs should be changed from transactions (buying and selling) into the sales on consignment to get rid of price risks. Then, the received prices by farmers can be averaged to an annual price, and the management of RPCs can be rationalized because RPCs take a fee. And the conflict between farmers and RPCs can be removed.

It was found that the amount of an advance payment to farmers is not much. This means that the level of an advance payment is not important to activate the sales on consignment. It is very general that the rice price for consignment sales is calculated exactly at the market price of farmers' choosing. This implies that we can not adopt the pooling system that Japan and Australia apply.

It is surveyed that 20% of farmers and 38% of RPCs have intentions to do the sales on consignment, and 45% of farmers and 38% of RPCs want their sales to be made through consignment if the conditions are satisfied. The 44.8% of rice farmers and 42.3% of RPC operators ask that the clearing price must be guaranteed to activate the sales on consignment. Farmers and RPC operators worry that the price at the off-harvest time falls below the price of harvest time.

The government tried the sales on consignment as a pilot project. It aimed 100,800 tons, but the result turned out to be 20% of the target. There were a few reasons why farmers and RPCs did not participate in the pilot project. The price level which should be calculated was not suggested. And much paper work was required of RPC operators.

A kind of guaranteed price should be suggested, and then the uncertainty farmers and RPCs face can be removed. We can refer to the loan rate program the U.S. has. If the market price falls below the loan, then the government pays the difference between loan rate and market price. Considering the loan rate, we

should take into account the market situation and should not consider the non-market factors.

Researchers: Dong-Gyu Park(Ph.D.) and Gyu-Dae Cho(Ph.D.)
Report No: C2006-49/Dec. 2006
E-mail: dgpark@krei.re.kr

Key Tasks for Strengthening Agricultural Competitiveness in Preparation for Agricultural Market Opening

The purpose of this study is to analyze the agricultural policies on four leading agricultural sectors (export agriculture, environmentally-friendly agriculture, food safety, and seed industry) and to identify the tasks for institutional improvement and the tasks to be implemented in the future for competitiveness enhancement.

The study evaluated agricultural policies by sector and reviewed related literature. Based on the collected opinions from responsible policy officials and experts of concerned sectors, pending issues and long-term tasks to be pursued were derived.

1. Export Agriculture

The tasks to be pursued to resolve pending issues relating to the expansion of export agriculture are as follows: Firstly, the Korean government should resume its support to modernize the protected horticulture to improve productivity and quality of horticultural crops, which are the major export items. Secondly, an integrated management system of exported agricultural products should be established to systematically manage agricultural products (commercial goods), people (producers, exporters, importers, distributors), and logistics that are related to the flow of exported agricultural products including production, commercialization, logistics, export, and market management. Thirdly, the cooperative sorting and sugary content-based sorting should be mandated for exported agricultural products, and the quality regulation should be enforced. Fourthly, the system of supporting export logistic expenses should be improved to enhance the expertise of exporting farm households. Lastly, the tracking system should be introduced by export companies, and the growth of their size should be encouraged.

The mid- to long-term tasks for expanding export agriculture

include species development, the strengthening of the study on plant breeding, the establishment of the guiding and training system for advancing cultivation technology, the introduction of the risk sharing system or the risk buffer system, the expansion of the export complex size, and the encouragement of agricultural production and export in an enterprise scale.

2. Environmentally-Friendly Agricultural Products

The environment-friendly agricultural policy has been implemented with a major focus on the production-side policy support. Thanks to the policy for nurturing the environmentally-friendly agriculture, the certification volume of agricultural products has been on a steep increase since 2002. The environmentally-friendly agriculture has marked continuous growth in terms of production, but it is still in its infancy in Korea and serves as a niche market.

The ultimate goal of the environmentally-friendly agricultural policy is to 'harmonize agriculture with the environment.' It means that the environmental load generated by the agricultural sector should be minimized to stabilize sustainable agriculture. The environmentally-friendly agriculture refers to the agriculture that uses the minimum volume of chemical materials including chemical fertilizers and pesticides to preserve the sound agricultural ecosystem and maintain material balance at the unit region level, and it also recycles various agricultural byproducts. This could minimize the environmental load and continue to produce safe agricultural products.

3. Food Safety

To enhance the qualitative competitiveness of local agri-foods, securing food safety from the production stage is the most needed. For this purpose, the CAP/tracking system and the HACCP should be expanded, and more efforts should be made to promote and provide education on safety-related systems. In addition, the measures to secure food safety from the production stage should be reviewed by the newly launched Food Safety Service,

and it is required to impose more strict punishment against the violators of safe agri-food criteria (production, processing, and distribution).

The mid- to long-term tasks include the expansion of the framework to secure agri-food safety and the development of strengthened information collection capability by increasing the number of local monitoring staff. Lastly, food safety information on agricultural, livestock, and marine products should be unveiled to consumers to build their trust.

4. Seed Industry

The seed industry is an agricultural sector which can generate high added values. It can be nurtured as a technology and capital intensive industry and has a high potential to be developed as an export industry. Thanks to the government support for nurturing the seed industry so far, the foundation was already laid down to enable the industry to take a leap forward.

To help the seed industry grow into an export industry, the following policy tasks should be implemented: In the species development and supply sector, high technology should be applied to develop high-quality species. In the seed distribution sector, a sound and transparent distribution system should be established, and the means to enhance the distributional efficiency should be introduced in response to the changing distribution environment. In relation to seed export, target market-oriented export strategies should be developed, and the research and exploration of overseas markets should be conducted. In the policy and institution sector, the seed-related systems should be continuously complemented and refined, and a variety of support programs should be drafted to enhance the efficiency of R&D investment.

Researchers: Ji-Hyeon Choi(Ph.D.), Hyun-Tae Park(Ph.D.),
Byung-Ryul Kim(Ph.D.), Chang-Gil Kim(Ph.D.)
and Min-Jeong Kim
Report No: C2006-55/Dec. 2006
E-mail: jihchoi@krei.re.kr

RURAL DEVELOPMENT RESEARCH 2

Sustainable Development Strategies for Korea's Rural Economy

This is the third year report of a three-year collaborative research entitled 'A Study on Mitigation of Income Gap between Urban and Rural Areas through Balanced Regional Development Strategies.' This study is organized by the Korean National Research Council for Economics, Humanities and Social Sciences. The ultimate purpose of this study is to identify policy alternatives for reducing the income gap between rural and urban areas.

The study consists of the following five parts: 1) development of agribusiness including food processing, local resource-based industry, and agro-tourism in rural areas, 2) creation of social job opportunities in rural areas, 3) development of manufacturing industry in rural areas, 4) vitalization of traditional rural market, and 5) institutional reformation including graduated national fiscal aid and division of roles between the national government and local governments.

The results can be summarized as follows:

1) Since the rural economy depends largely on agriculture, agribusiness including food processing and agro-tourism is one of the important schemes to enhance rural income by increasing the demand for raw materials and extending value-added processes, etc. However, these sectors have faced difficulties in recent years due to the disorganized promotion programs. The enhancement of relationships among the food, tourism, and agricultural sectors through the incorporation of 'food and agro-tourism' into the agricultural industry covered by agricultural policy and the development of an industry based on rural resources, such as the local food processing, are suggested to improve the rural economy. In addition, the introduction of development programs by the characteristics of businesses (governing body, technology, raw materials, etc.) and the reformation of the administrative systems are also suggested as policy alternatives.

2) The promotion of the rural industrial clusters including the region-based major industries can also be an alternative to in-

crease job opportunities for rural residents including farmers. Since agricultural resources like land are very limited in Korea, it is important to provide the opportunities to find jobs in the non-agricultural sectors. According to a survey for the Rural Industrial Estate, the selection of business items that have strong relations with local areas is one of the most important factors for success. In addition, the introduction of a diversified supporting system and the transferring of the infrastructure incentives to the wage subsidy incentive are also recommended.

3) The vitalization of the traditional rural market is another alternative for the sustainable development of rural economy. Normally, the rural market performs very important functions, such as buying daily commodities and selling agricultural products, for the sustainment of local areas. However, most traditional rural markets have disappeared because of low rural population density, improved road and transportation system, and rapid spread of modern supermarket chains in rural areas. Specialized programs for the rural market are proposed for the promotion of traditional rural markets with the 'select and focus' strategy.

4) The creation of various social job opportunities in rural areas is another suggestion to raise rural income because rural areas still have large numbers of the unemployed and/or less employed workers. The important thing in developing various social job programs is that the jobs are based on local resources and strongly related to rural society. In order to achieve the purpose of this suggestion, a local government's area specific education project that sufficiently reflects the characteristics of a local area is more important than a central government policy. Especially, considering the demand for LOHAS (Lifestyles of Health and Sustainability) through paradigm shift from regional development policy to regional social policy is very important to this program. Moreover, establishment of the Rural Social Job Creation Center is also suggested.

5) The graduated national fiscal aid programs that apply to lower allotment rates on local government share of matching fund for less developed areas are recommended as an alternative for the improvement of rural economy. With respect to the financial analysis, fiscal soundness of the local government affects strongly

various regional development projects. Therefore, providing more financial support for less developed areas through the graduated national fiscal aid system has reasonability in terms of balanced national development. In addition, the reformation of rural development system, including the integration of the central government authority for rural development, the decentralization system to provide more governing power to local governments, and the cooperation among regions related to rural development are also important policies to promote the effective rural development.

Researchers: Shi-Hyun Park(Ph.D.), Dong-Phil Lee(Ph.D.),
Yong-Lyoul Kim(Ph.D.), Joo-In Seong, Eun-Jung Shin,
Kyung-Eun Choi, In-Woo Jun, Bong-Ho Shin,
Yong-Ki Jung and Han-Sung Lee
Report No: R536/Nov. 2006
E-mail: shpark@krei.re.kr

A Study on the Relationship of Social Capital and Rural Development in Korea

This study aims to identify the relationship between social capital and rural development. Tentatively, this study hypothesizes that social capital has a close relationship to the development of rural communities. Therefore, the deterioration of social capital must result in the deterioration of rural communities.

This study is composed of three parts. The first part is to review the related literature and make a new definition of social capital in the Korean context. It also seeks to identify the forms of social capital in social groups and its operational mechanism in rural Korea. The second part is to identify the indicators for measuring social capital and measure the social capital of social groups. The third part is to identify the role and function of social capital for the development of rural communities in Korea.

Conventionally, social capital has been conceptualized as "the norms and social relations embedded in the social structure of society that enable people to coordinate action and to achieve desired goals." Some studies identified social capital with social groups and voluntary associations. However, this concept is vague and obscure to grasp the reality of social capital. Therefore, this study re-conceptualized social capital, which is measurable and testifiable in the rural context of Korea.

This study defines social capital as "an ability enabling people to take action for achieving desired goals in social groups or social networks," and this ability should be created through social interactions such as social exchange and compensation, cooperation, competition, and conflict.

Rural village as a community is the complex of various social groups. Any people in a rural community must belong to more than one social group, and make daily lives through social interaction with the members of social groups. Under this definition, this study identifies that social capital in rural Korea has been pervasive, embedding in social groups, and enabling social groups and rural communities to be operated.

However, social capital in traditional social groups is shading away to some degree in the process of modernization. In particular, when government policies for rural development are introduced, the property of traditional social capital is shading away.

Hypothetical indicators were set for measuring social capital by each basic concept of social capital: social exchange and compensation, cooperation, competition, and conflict. The next step was to verify the hypothetical social capital indicators. Finally, each basic conceptual social capital had four to six social capital indicators.

The social capital was measured from six farming groups producing strawberry and watermelon. The farming groups with better performance showed a higher degree of social capital index in the basic concept of social capital: social exchange and compensation, cooperation, and competition. However, the conflict related social capital index was higher in the farming groups with poor performance.

In correlation analysis, social capital could explain the income of farming group members by 13.7 percent. However, social capital could explain the daily activities of farming group members by 51.4 percent. Social capital is an important property for the members of a farming group in income earning and daily life.

One of the important findings of this study is that the highly developed village communities accumulate more social capital than lower developed village communities. This means that any rural community accumulating high social capital could launch a development project with good cooperation and trust and a lower degree of conflicts among members. Instead, any rural community with poor social capital accumulation must face difficulties with a poor degree of cooperation and trust and a high degree of conflicts among members.

A traditional social organization in a rural community has strong ties among the members of social groups and among the social groups in the community. Therefore, bonding social capital and bridging social capital were pervasive properties in traditional rural communities. However, when government projects are introduced into rural communities, conflicts arise among social

groups in the community as the social group monopolizes community resources dominantly. This study also found that the linking social capital is important for rural community development since the rural community could obtain valuable resources, information, and technology from outside organizations. Therefore, fostering, bonding, bridging, and linking social capital is important when the government introduces any development projects into rural communities.

As a conclusion, social capital is an essential for rural community development. This study suggests the followings to foster social capital in rural communities: First, partnership is important between local government and rural community to foster community leadership and community empowerment, and to induce participatory development for launching development projects. Secondly, a consulting consortium participating with local government bodies, local companies, universities, research institutes, and experts is necessary to assist a rural community launch development projects and accumulate social capital. Thirdly, NGOs and NPOs must be fostered to assist remote rural communities foster leadership and accumulate social capital.

Researchers: Ki-Whan Chung(Ph.D.), Jae-Mahn Shim and Kyung-Eun Choi
Report No: R527/Nov. 2006
E-mail: kwchung@krei.re.kr

Infrastructure Building for Regional Innovation System in Rural Regions

The aim of this study is to suggest the direction for building the infrastructure of the regional innovation system (RIS), where the RIS is established and operates, through the analysis of the current status of the RIS, and to seek necessary policy support measures.

To this end, the study is divided into five parts. In the first part, concepts such as ‘innovation of rural regions’ and ‘RIS of rural regions’ are defined. In the second part, the current status of the RIS of rural regions is analyzed, and regional comparison is made. In the third part, rural regions’ regional innovation cases and features are analyzed. In the fourth part, the implementation and application status of policy projects aimed to build the RIS infrastructure for rural regions are analyzed. In the fifth part, the direction for building the RIS infrastructure and policy support are set forth.

The regional innovation of rural regions can be defined as “the collection of group activities organized to make new attempts for regional problem resolution and value enhancement.” However, there are regional gaps in infrastructure where the RIS can operate both in terms of quantity and quality. Cities (“Si” in Korean) have relatively sounder RIS infrastructure compared with counties (“Gun” in Korean). It was found that the areas which have a weak RIS infrastructure are at the most disadvantage in terms of regional development. For the regions whose infrastructure of regional innovation is feeble, nurturing local talents was found to be the most necessary.

Despite the disparity in the infrastructure of regional innovation, various regional innovation activities are taking place. The study and analysis of 22 cases have found that 14 types of entities are performing 68 types of activities. Regional innovation activities can be broken down into ‘product innovation,’ ‘production process innovation,’ ‘marketing innovation,’ ‘organizational innovation,’ and ‘innovation in other areas (welfare, training, envi-

ronment).' They will be implemented for 3 to 20 years undergoing status diagnosis, planning, execution, and expansion. In most regional innovation activities, four types of group activities are commonly found: 'shared perception,' 'learning,' 'organization,' and 'regulations and systems.' In particular, a network survey and analysis found that it is more effective to structure and operate local entity-initiated issue networks to deal with current issues of the region instead of pursuing forced policy network.

Several policies have been implemented to facilitate regional innovation activities in places with relatively insufficient innovation foundation, and contributed to forming the vertical alliance and a social network of stakeholders centered around leading regional industries. Nevertheless, the project period has not been sufficient so far, and the capacity of regional human resources is not enough.

Therefore, to build the RIS infrastructure, 'openness,' 'comprehensiveness,' and 'sustainability' should be applied as principles. Under the principles, the policy project's implementation period needs to be extended; rich policy menus should be suggested; regional choices should be expanded; and the scope of participants should be enlarged in the course of executing policy projects. It is also needed to improve the existing new drive projects, forum support projects, regional innovation council, and so on to make sure of their contribution to regional innovation activities. The social infrastructure of rural regions should be strengthened by identifying the resources for regional diagnosis, supporting DB building and the establishment of legally binding plans by cities and counties, creating a region-specific education system, strengthening the capability of public officials of local governments, and building an open network for stimulating NPOs and experts' participation in rural development.

Researchers: Mi-Ryung Song(Ph.D.), Joo-Young Park
and Jeong-Seop Kim(Ph.D.)
Report No: R521/Nov. 2006
E-mail: mrsong@krei.re.kr

Social Safety Net and Policy Measures for the Rural Elderly

The purpose of this study is to analyze the current social safety net for the rural elderly, and to suggest policy measures to improve the social safety net.

The major research methods include the collection of existing related data, a field survey, in-depth interviews, and so on. Existing related data were collected by searching the data of related governmental organizations and research institutes. The field survey was conducted among 1,000 elderly residents (aged 65 or older) of 50 rural areas, asking them about their economic activities and social safety. Descriptive statistics (such as frequencies, percentage, and means) and cross-classification tables were used to organize and summarize the data of the field survey.

According to the results of the field survey, 43.2% of the respondents answered that they are participating in farming. Most (83.3%) elderly farmers expressed their intentions to continue farming. Only a small percentage (11.0%) of the respondents answered that they are participating in non-farm economic activities. About two thirds of the respondents had the annual household income of 10 million won or less. The average annual household income of the respondents was 8,280,000 won.

In the case of the first social safety net (social insurance), the pension recipient ratio was 20.2%. The medical insurance non-recipient ratio was 18.9%. The recipients of employment insurance and industrial accident compensation insurance were very few. In the case of the second social safety net (public assistance), the proportion of recipients in the national basic livelihood security system was only 11.2%. In the case of the third social safety net (urgent support system), most respondents (95.2%) did not know the urgent supporting system.

The welfare service that the government must expand and help the rural elderly with priority are cash support, public medical service, and residential home care service.

The basic policy directions to improve the social safety net

for the rural elderly are as follows: 1) A participatory and productive welfare paradigm is necessary. 2) A legal system to reflect the characteristics of the rural elderly should be prepared. 3) The welfare budget for the rural elderly should be expanded. 4) The management of welfare business transferred to local governments should be reinforced. 5) The delivery system of social safety net for the rural elderly must be reorganized. 6) The blind spot zone problem of social safety net should be solved.

Researchers: Dae-Shik Park(Ph.D.) and Kyeong-Hwan Choi(Ph.D.)
Report No: R524/Nov. 2006
E-mail: pds8382@krei.re.kr

Polarization of Rural Society and Policy Tasks

The purpose of this study was to analyze the current polarization of rural society, and to suggest policy tasks to improve the polarization.

The major research methods include the collection and analysis of existing related data, a field survey, in-depth interviews, and so on. The existing related data were collected by searching the data of related governmental organizations and research institutes. The field survey was conducted among 500 rural residents, asking them about their awareness of the polarization of rural society. Descriptive statistics (such as frequencies, percentage, and means) and cross-classification tables were used to organize and summarize the data of the field survey.

According to this study, the polarization of rural society, on the whole, deepened. The polarization in income, employment, health, residence, and social participation sectors was deepened. But, the polarization in the education sector was relaxed. The major causes of the polarization were the lack of jobs, the difference of income and economic ability, and so on.

The major policy tasks to dissolve the polarization of rural society are as follows: 1) A multi-dimensional approach is necessary. 2) Policies differentiated according to rural areas must be developed. 3) Post and prior measures are necessary. 4) The social safety net for the poor and weak should be reinforced. 5) Mid- and long-term socioeconomic measures are necessary.

Researchers: Dae-Shik Park(Ph.D.), Sang-Jin Ma(Ph.D.)
and Jae-Mahn Shim
Report No: R525/Nov. 2006
E-mail: pds8382@krei.re.kr

Making Livable Rural Areas

The purpose of this study is to discuss the vision and strategy of making rural areas desirable places to live. Plenty of arguments can be made on what makes a rural area a livable place, but the study stresses what should be done at least to achieve the transition. To this end, the current status of rural areas and details of existing rural policies were analyzed, and based on the analysis a future vision and a strategy for rural areas were designed.

To make rural areas more livable places, the central government should set out diverse and comprehensive policies. Government-wide cooperation is needed, and the measures under the special law for improving the quality of living in rural areas should be consistently implemented. Meanwhile, policies should be proactively worked out and sought to attract urban citizens to rural areas. In addition, local government agencies should change their roles from the executers of the government-designed policy projects to the managers who can plan and realize region-specific development.

The biggest difficulty facing rural areas in pushing ahead with the initiative is the shortage of workforce. Therefore, it is needed to form a grand coalition among regional colleges, civic groups, and rural experts just like NPOs of Japan and LAGs of Europe, and to open new routes for their participation in the initiative.

Researchers: Mi-Ryung Song(Ph.D.), Joo-In Seong
and Kyung-Cheol Park
Report No: P86/Oct. 2006
E-mail: mrsong@krei.re.kr

A Study on Rural Administration System Innovation

The purpose of this study was to develop innovative strategies to cope with the changes and new needs of rural administration. For the purpose, the study specifically analyzed the changing trends in the environment of rural administration, the inner condition of rural local government, and the change in the administrative demands of government officers and rural residents. In the study, we examined the adminstration related statistics from year 1996 to 2005, carried out surveys and interviews of 1,050 officers and 967 residents, and held study conferences with co-research institutes including the Korea Research Institute for Local Administration (KRILA), the Korea Institute of Public Administration (KIPA), and the Korea Institute for Health and Social Affairs (KIHASA).

As a result, this study suggested the following strategies for rural administration system innovation: ① establishment of a new administrative organization, allocation of human resource for new rural residents from foreign countries and urban areas, training for jobs other than agriculture, and generation of local economy related statistics and sub-local civil services; ② reinforcement of current administrative functions in policy areas that include local government policy planning, public relations promotion of local government policies, welfare services for the aged, field health and medical service, public and lifelong education support, cultural and tourism service, and environment management service; ③ the merger and abolition of local administrative functions and organizations including local rural development centers, social welfare departments, and health- medical departments; ④ function adjustment between local and central government/administrative organizations in such functions as culture and tourism, environment management, construction and transportation, and disaster and safety management.

Researchers: Sang-Jin Ma(Ph.D.), Ki-Whan Chung(Ph.D.) and Jae-Mahn Shim

Report No: P83/May. 2006
E-mail: msj@krei.re.kr

How to Improve Professionality of Farmer Education & Training Practitioners

The purpose of this study was to explore the strategies for improving the professionality of farmer education and training practitioners. For this purpose, the study also investigated the current problem concerning the professionality of the practitioners; identified their roles and competencies; and analyzed their needs through literature and expert reviews, surveys, and interviews.

The literature reviews on the professionality, farmer education and training policies, and researches have found that the job environment of the practitioners was so poor to execute normal education and training, and suggested strategies to support them develop their professionality through such means as the provision of learning opportunities.

Based on the literature reviews on the roles and competencies of human resource development practitioners, and some modification of them with the help of related experts, the specifics of the professionality were identified as follows: 11 roles as administrator, evaluator, education and training manager, material developer, individual career-development advisor, facilitator, marketer, need analyst, organizational change agent, program designer, and researcher; and 32 competencies including technical, business, interpersonal, and intellectual competencies.

Based on the surveys and interviews among farmer education and training practitioners, the needs for professionality development in terms of education and training and job supports were analyzed as follows: farmer education and training practitioners had educational needs for such roles as program developer, administrator, evaluator, material developer, and researcher rather than education and training manager, marketer, and organizational change agent; they had educational needs for technical competencies rather than intellectual competencies; while they had mental support from institutes, they needed job supports including extended education and training opportunities, incentives for the education and training job, communication among other education

and training practitioners, and expert consulting on their job.

From the above research findings, the following strategies for improving the professionality of farmer education and training practitioners were drawn: ① improving the importance of the education and training domain at institutes; ② providing well-organized education and training information and materials; ③ supporting training programs customized to meet the needs of various careers and institutes and extended education opportunities such as short-term study trips abroad and participation in excellent human resource development courses; ④ furnishing the networking among education and training practitioners; ⑤ subsidizing expert consulting on their education and training; ⑥ improving the criteria for evaluating farmer education and training institutes to afford incentives to those institutes trying to develop the practitioners' professionality; ⑦ expanding the funding for the institutes through such means as the adjustment of unit training cost to a realistic level, affording subsidy to develop the practitioners, and supporting their tuition for various training opportunities; and ⑧ preparing an institutional fundament including legalizing the above suggested supports and installing farmer education and training support institutes.

Researchers: Sang-Jin Ma(Ph.D.) and Kyeong-Hwan Choi(Ph.D.)
Report No: P85/Nov. 2006
E-mail: msj@krei.re.kr

Establishment of Framework for Chung-Buk Bio Agricultural Complex

The bio industry is growing into an integral part of the high-tech industries which will lead the 21st century. Because of this, advanced countries have designated the bio industry as their strategic industry, putting great efforts into the R&D and the industrialization of the bio industry. Taking a hint from the trend, North Chungcheong Province (Chungcheongbuk-do in Korean) is eager to advance the industrialization of the bio industry by building a bio agri-industrial complex and use it as the means to revitalize the regional economy for balanced regional development.

This study has developed the basic plan of the bio agri-industrial complex to be built in Ilwon, Samseung-myeon, Boeun-gun, and the details of the plan are as follows:

To develop the basic plan, first of all, the features and development prospects of the bio agri-industrial complex were considered. The basic concept of the bio agri-industrial complex was defined as the cluster of the primary, secondary, and tertiary industry-related facilities. Based on similar case studies, the growth trend and the success possibility of the bio agri-industrial complex were reviewed.

Then, three candidate sites were analyzed, and Ilwon was finally determined as a project site. For the selected area, high-level and related plans were reviewed and development conditions including local situations and district boundary setting were analyzed.

As a next step, the size of the area to be developed as the bio agri-industrial complex was determined, and the types of industries to be attracted into the complex were selected. The total size was determined at some 1 million pyeong (1 pyeong = approx. 3.3 square meters) including the industrial, agricultural, and residential sites as well as the sites for distribution and public facilities. As for the industries to be attracted, BT and IT were selected.

Regarding space allocation, two options were designed and

their respective advantages and disadvantages were analyzed. For each option, we developed plans in regard to land usage, allocation of industrial lots, allocation of population and houses, park and green system, supply handling system, and environment management.

Lastly, a project feasibility analysis was conducted. To this end, the competition environment of the industrial complex was analyzed, and the investment amount and project expenses for the construction were calculated. In addition, the incomes from selling lots were estimated, and the economic effects of the project were analyzed applying such methods as Net Present Value (NPV) and Initial Rate of Returns (IRR).

Researchers: Shi-Hyun Park(Ph.D.), Ju-Young Park
and Kyong-Cheol Park
Report No: C2006-55/Dec. 2006
E-mail: shpark@krei.re.kr

Policy Directions and Strategies for New Living Space in Rural Areas

Many rural areas in Korea would not be able to find the drivers for sustainable growth without new migrants from urban areas, because of the serious trends of declining and ageing population. Many urban dwellers have some willingness to live in a rural community with good amenities. But there are not sufficient incentives for them to migrate into rural areas, because the quality of living environments and social services in rural areas have been downgraded.

This study aims to put forward the policy directions and strategies for new living space in rural areas. The NLSRA means a community settlement where the migrants from urban areas and the existing dwellers can live together with good amenities and social services in rural Korea.

The 56.1 percent of urban dwellers have the willingness to migrate into rural areas in the future. But there are not so many people who are developing some concrete plans to migrate into rural areas within the next ten years. To realize the potential demand for the settlement in rural areas, it is necessary to make various efforts as followings:

to inform the potential migrants of what they need to make decisions from the initial stage of their migration to the actual settlement in a rural community,

to provide information about the values of agriculture and rural space to win public interest,

to develop some ‘community-integration programs’ to help the migrants settle within a rural community,

to improve housing, landscape, social services, etc.

The NLSRA project should be initiated by local governments. But it is also necessary for the central government, rural communities, and private sectors to participate and to cooperate with each other, because the NLSRA is very broad in its scope and diverse in the resources that are to be mobilized.

Researchers: Mi-Ryung Song(Ph.D.) et al.
Report No: C2006-8, C2006-8-1~6, D209-211
E-mail: mrsong@krei.re.kr

Family Doctor's Consulting Report on the Brand Power Promotion Project for Danyang Six-Clove Garlic

Since 2005, the 'Participatory Government' has been implementing the New Vitality Project (NVP) to develop underdeveloped regions. The NVP was introduced in the course of evaluating the one-sided, benefit-providing support policies initiated by the central government. These policies, however, have resulted in the inefficient and hackneyed running of various projects, neglecting human resources and regional development without long-term visions when the less developed regions were getting poorer even though large sums of financial resources were put to correct the situation.

The Family Doctor (FD), which is a specialized consultant system implemented to achieve the substantiality of the NVP, plays the role of providing advice and consulting services on the overall matters related to the project. The services include the establishment of relevant project plans through the designation of an expert to a particular local government to successfully perform the NVP for a certain period of time.

The purpose of this report is to present the results of the FD consultancy for the NVP of Danyang County, an underdeveloped region in Chungcheongbuk-do, and to suggest strategies on the brand power promotion of Danyang's six-clove garlic as the NVP.

The major performances of the FD consultancy can be summarized as follows:

First, the quarterly consultation reports on the brand power promotion projects for Danyang garlic were presented. The reports evaluated the performances of the NVP project and suggested various projects concerned with regional innovation, productivity, agricultural processing, propagation and marketing, and tour programs.

Second, the report suggested various strategies on the brand power promotion of Danyang garlic based on the NVP of 2005.

Third, major issues and suggestions on implementing the 2006 NVP projects were discussed at the NVP Council Meeting, and the difficulties in implementing the projects were monitored to find solutions.

Fourth, the implementation process of the garlic processing project was propelled as a core project of the NVP and was monitored. Suggestions on the future direction of the project were made after visiting environmentally-friendly garlic farms.

Fifth, as an educational program to strengthen regional innovation, the Danyang County Forum for Garlic Festival was held under the theme of "The Future Direction of the NVP for Balanced Regional Development." At the forum, future strategies to vitalize the NVP of Danyang County were suggested.

Sixth, suggestions and strategies on the participation of regional residents and on the improvement of the FD system to activate the NVP were presented at the Joint Workshop for the NVP organized by the Presidential Committee on Balanced National Development.

Finally, a comprehensive evaluation and future directions for vitalizing the brand promotion project on Danyang's six-clove garlic were presented. According to the presentation, it is essential to obtain superior garlic seeds to increase the productivity of Danyang garlic, disseminate an environmentally-friendly cultivation method, and develop high production technologies.

For vitalizing the garlic processing industry, highly functional condiments added with garlic need to be developed, together with the vitalization of the processing industry relative to restoratives. It was also suggested that the county expand the garlic industry's infrastructure by establishing garlic processing plants and low-temperature storage houses.

The propagation and marketing strategies are needed to increase the demand for Danyang garlic and raise its added values, and secure stable markets and open up new markets. On the other hand, Danyang County is asked to vitalize rural experience tours focusing on Danyang's six-clove garlic through such projects as garlic festivals and exhibitions.

In addition, suggestions were made for Danyang County to construct a garlic cluster so as to strengthen the innovation ca-

pacity of Danyang garlic and maintain sustainable development. For these purposes, the county needs to continuously carry out the training of innovative leaders along with the technological advancement of Danyang garlic.

Researchers: Seung-Woo Ryu(Ph.D.)
and Myoung-Chae Joung(Ph.D.)
Report No: C2006-16-5/Dec. 2006
E-mail: sewryu@krei.re.kr

Ginseng Industry in China: Current Situation and Related Institutions

The purpose of this study is to identify the current situation and related institutions with the production, processing, marketing, trade, and consumption of ginseng in China. In 2005, China took a 70% share of the world's cultivated ginseng market and a 75% share of the wild and wild-simulated ginseng market. This is a surprise for the people in Korea because they have thought "Korean ginseng is the world's best, and Korea is the only representative of the world ginseng industry." Anyway, it is valuable to understand what the current situation and related institutions are for the purpose of fully understanding the magic of the Chinese ginseng industry. Major findings are summarized as follows:

1) The ginseng production in China is required to get the permission from the Forestry Department because 80% of the ginseng cultivation in China belongs to the forestry. However, the permission for ginseng cultivation is getting more difficult these years. There are two different types of ginseng; and Asian and American ginsengs are grown in China. In 2004, the cultivated area for Asian ginseng stood at 4,500 hectares while those of American ginseng and simulated ginseng were 16,000 hectares and 900 hectares respectively. About 545 kg of Asian ginseng is produced at the cost of 8,554 yuan while 398 kg of American ginseng is produced at the cost of 2,645 yuan in a cultivated area of 200 pyeong (one pyeong equals 3.3 square meters). This is the reason for the rapid increase in the cultivated area for American ginseng in China.

2) The final products made from ginseng are classified into two types: root-type products (like red ginseng, white ginseng, etc.) and more delicate secondary products (like tea, drinks, powders, extracts, etc.). Basically, Asian ginseng have been used for root-type products while American ginseng have been used for secondary products. The root products have been treated as traditional medicine, and the secondary products as functional food in

China. After being processed at small local factories, most ginseng are shipped to the world market for sales at drug stores, supermarkets, and other retailers. Because of the smallness in terms of processing capacity and capital, consumers have doubts as to the quality of ginseng products. In addition, with the exception of few well-known brands such as 'Shingaiha' and 'Hwangbongsam,' most companies do not have their own brands at all. The imitation of Korean ginseng brands in the Chinese market is one of the most serious problems for the development of ginseng marketing.

3) China's ginseng export has increased from 1,700 metric tons in 2000 to 2,360 metric tons in 2005 and the export price of ginseng per kilogram also increased from US $6.62 to $12.46 during the same period. Even so, the export price had shown a decreasing trend since 1988 from US $40~50/kg because of overproduction and dumping with the excessive competition around the 1990s. However, ginseng price is on a rising trend these years because ginseng production has been decreasing in China. In addition, as China succeeded in steadily producing American ginseng in recent years, the import of American ginseng fell from 3 thousands metric tons (US $34 million) in 2001 to 1,737 tons in 2004. Only 15 tons of Asian ginseng were imported from North Korea and 2 tons from South Korea in 2004. The limited importation of Asian ginseng was the result of high non-tariff barriers in China.

4) One third of produced ginseng are exported, and the rest are consumed at the domestic market in China. About half of the domestic consumption goes to raw materials for medicine, health foods, extracts, cosmetics, etc., and another half goes to personal consumption in the manner of steaming or boiling as tea, and soup for dietary supplement. The Chinese people used Korean ginseng as medicine while American ginseng were used as a dietary supplement to support their health. Although many Chinese believe in the superiority of Korean ginseng, it is difficult for them to consume the product because of its high price.

5) Although Jilin Province accounts for about 80% of the total ginseng production in China, the quality of the ginseng produced in the province has been unstable due to the low level of

production and processing technologies. Furthermore, Jilin Province has not had famous brands because of the insufficient efforts to develop the market. However, Jilin Province made a public announcement setting 15,000 million yuan and US $300million as the respective targets for the production and export of ginseng in five years. For the purpose of meeting these targets, various policy programs are launched. These programs include the preparation of a production base, the promotion of leading ginseng companies, the development of hi-tech ginseng products, and the establishment of the 'Changbaisan' brand and others.

6) According to the findings of this study, the following implications are drawn for the development of the Korean ginseng industry: (i) develop various and convenience products to meet consumer's needs, (ii) promote the wild simulated ginseng industry, (iii) introduce production and processing standards, (iv) establish national brands and control the quality in the production and marketing process, and (v) reform the institutional and administrative systems for the strategic development of the ginseng industry in Korea.

Researcher: Dong-Phil Lee(Ph.D.)
Report No: C2006-39/Nov. 2006
E-mail: ldphil@krei.re.kr

The Future Prospect of Rural Areas, “Rural Space 2020”

The purpose of this study is to picture the look of Korean rural areas around 2020 in consideration of a variety of rapid changes presently facing rural areas based on probable imaginations of the future. To this end, available statistics were collected to predict major indicators at a certain time in the future. In parallel, expert discussions were continuously held on diverse themes relating to the future of rural areas. The results of the expert discussions were utilized to draw up scenarios for future lifestyles of rural residents.

The findings of the study on the probable look of Korean rural areas by 2020 are summed up as follows: In the majority of rural areas, agriculture would not be regarded as the most important economic activity. In the market areas related to the daily life of rural residents, service supply would be contracted, but due to the frequent intervention in the public sector, the ‘service at your doorstep’ would appear for the class of people who have low access to the services. It would be easy to see only few young and middle-aged farmers work as full-time rice farmers. Meanwhile, organic farming would continue to be revitalized, and the quality protocols would be voluntarily adopted and stabilized by farmers. Among the components of a farm household’s income, the proportion of government subsidies such as direct payment would surge compared to the current level. The autonomous welfare function of rural communities, which has been maintained at the village level, would be significantly scaled down or disappear. The mixed living of rural and urban residents, increasing immigration, and the segmentation of farmers by commodity will make the rural society more heterogeneous. Within the rural areas, disparities among small towns would deteriorate. The urban access to rural areas would dramatically improve. In the meantime, new quasi-public transportation means would appear for the rural residents whose access to public transportation is very poor. The opportunities for lifelong learning would become more abun-

dant, greatly contributing to enhancing the quality of life for rural residents. Although the demand for medical services is rising rapidly, it is in question whether the demand could be satisfactorily met in rural areas. It seems that as the boundary of urban areas expands, the 'destruction of the unique landscape of rural villages' would grow severe. However, depending on regions, local residents and governments will make active voluntary efforts to preserve their landscape.

To make a better future for rural areas, the government does not need to rush in and use policy interventions in various areas. Instead, it should give a priority to systematically organizing existing rural policies which are complicatedly entangled. Furthermore, there are a plethora of more work to do, including the establishment of mid/long-term rural policy visions, the complementation of statistical data serving as the basis for policy making, and the assessment and supplementation of new attempts in rural areas.

Researchers: Shi-Hyun Park(Ph.D.), Dae-Shik Park(Ph.D.),
Mi-Ryung Song(Ph.D.), Ju-Young Park
and Jeong-Seop Kim(Ph.D.)
Report No: C2006-59/Dec. 2006
E-mail: shpark@krei.re.kr

The Improvement of the National Health Insurance Premium Reduction System for Farmers and Fishermen

The main purpose of this study is to prepare ways to improve the National Health Insurance Premium Reduction System for farmers and fishermen. The National Health Insurance Premium Reduction System is a system to reduce the economic burden of farmers and fishermen whose access to medical services is poor and whose economic power is weak. Nevertheless, the reduction system is regarded as a social problem from a social fairness perspective.

Since 2004, farmers and fishermen have been taking the additional insurance premium reduction in addition to the premium reduction (22%) offered to rural inhabitants. The additional insurance premium reduction rate increased from 8% in 2004 to 28% in 2006. The calculated medical insurance premium also rose, thus substantially lowering the burden on farmers and fishermen.

As of January 2006, the number of farm and fishing households having the premium reduction support stood at 535,826. Most of these households belonged to the low health insurance premium class, while only a small portion belonged to the high health insurance premium class. Most precedent studies insisted on choosing a graded premium reduction method so that the reduction rate for the lower tier recipients can be increased while the support rate for the higher tier can be decreased.

In this study, the premium reduction ways to lessen the economic burden of farmers and fishermen were examined based on the income redistribution principle of social insurance. Taking into account the strengths and weaknesses of ‘exclusion,’ ‘reduction,’ and ‘exemption’ as means to provide the insurance support, graded health insurance premium reduction methods were examined chiefly.

According to the results of a simulation analysis, the desirable insurance premium reduction options are as follows: the re-

duction rate for the low class is 51～60%, the reduction rate for the intermediate class is 50%, the reduction method for the high class is the fixed amount reduction. In order to obtain the desired results by using this reduction method, the related laws and the National Health Insurance's premium levy system must be improved.

Researchers: Kyeong-Hwan Choi(Ph.D.) and Dae-Shik Park(Ph.D.)
Report No: C2006-17/Sep. 2006
E-mail: kyeong@krei.re.kr

How to Introduce Policy Proofing System for Balanced Development between Urban and Rural Areas

The purpose of this study was to investigate how to introduce a policy proofing system and a rural impact assessment for the balanced development of urban and rural areas in Korea. For this purpose, the study reviewed the literature on impact assessment in terms of concept, process, principle, and scope. Domestic cases of impact assessment were analyzed including environment impact assessment, regulatory impact analysis, balanced development impact assessment, pre-validity analysis, policy quality management, gender impact assessment, and technology impact assessment. In addition, foreign cases of rural impact assessment, such as Rural Proofing of the UK, Rural Lens of Canada, and Rural Area Flexibility Analysis in New York State in the US, were analyzed.

As a result of the above reviews and analyses with the help of expert advice, this study suggested the following ideas about the policy proofing system for the balanced development of urban and rural areas: ① Rural impact assessment is to improve the lives of rural residents by checking the impact of the government's initiatives for rural areas in the process of policy design, development, implementation, and evaluation. ② Rurality should be considered with respect to poor infrastructure, stagnant rural economy, declining rural society, and conserving the environment and multi-functionality. ③ A steering body should be established for research and development; data and information collecting; recommendation and education; coordination and consulting; and promotion and publication. In addition, ④ some operational tasks for system settlement should be implemented including rule making for rural impact assessment; building up expert groups to support and give advice on the system; developing a rural impact checklist for policy makers; producing rural statistics and rural index; education of policy makers and promoting the system to the pubic; and reflecting rural impact assessment to other impact

assessment.

Researchers: Sang-Jin Ma(Ph.D.) and Dae-Shik Park(Ph.D.)
Report No: C2006-30/Nov. 2006
E-mail: msj@krei.re.kr

The Establishment of International Cooperation for Agricultural Development

Many developing countries, such as Vietnam and China, want to learn the successful agricultural development strategies which have supported the rapid economic development in Korea. The international society also demands Korea to expand the Official Development Assistance (ODA) fund for agricultural development in developing countries. In response to the demand of the international society, the Korean government will increase the ODA fund to the 0.1 percent level of the Gross National Income (GNI) in 2009, and this trend will continue by the year 2015.

Although Korea has the strong will to increase the ODA fund, the operational system to develop agriculture through international cooperation is still not well established. During the past several decades, every agricultural organization had its own implementation schemes in relation to the international cooperation. This has led to the low performance in terms of agricultural development through international cooperation. Accordingly, it has become a new agricultural policy agenda for the Korean government to design an efficient and effective mechanism to promote agricultural cooperation with developing countries and international agencies.

This study investigates the current situation of Korea's agricultural development cooperation with abroad and evaluates the performance of agricultural policies for international agricultural cooperation. In addition, the study suggests Korea's agricultural development model as a unique model for agricultural development in developing countries. The Korean agricultural development model includes the vision, missions, basic directions, and detailed strategies for transferring the Korean model to many developing countries.

Researchers: Yong-Taek Kim(Ph.D.), Ki-Whan Chung
and Kyong-Cheol Park
Report No: C2006-58/Nov. 2006
E-mail: yongkim@krei.re.kr

A Study on Introducing Farm Registration in Korea

The goal of the study is to design a way to implement a farm registration program, where farms report their business information required by the government for the efficient administering of farm support programs and for the practical application of the information in other policies.

Government programs for farmers have been changed from market-oriented ones to those based on individual farms. There will be more programs targeting individual farms, such as direct payment and farm income stabilization account, and less price support programs or market interventions. Such farm-based programs need cross-sectional as well as time-series information on individual farms; for example, cultivated land size, kinds of crops grown, and number of livestock.

It is necessary to have an aggregate management system of farm data to reduce administration cost and improve the accuracy of data. Each farm support program has its own farm application process and data management in the current system, where they don't share the data and, accordingly, it is hard to verify the information.

Farms became diversified in many ways. Farm size, level of specialization, and age of farmers changed more than before. Farmers demand the government offer differentiated farm programs that can align with farm characteristics. In response to this, the government needs to manage farm information systematically and provide differentiated and tailor-made information for implementing different programs, hence necessitating the government to carry out the Policy Customer Relationship Management (PCRM).

To successfully implement a farm registration program, we performed a number of research tasks and proposed suggestions as follows:

First, we examined farm registration programs of home and abroad: the livestock registration system, the integrated agricultural information system, and the farm land registration system

of Korea; the IACS of Europe; and the Customer Statement and Comprehensive Information Management System of the US.

Second, we made suggestions as to how to carry out the farm registration and in which direction the system should be headed. Careful consideration is given to the following respects: who is going to register, which registration method is to be used, whether the registration should be mandatory or voluntary, what kinds of information are to be registered, and who is going to administer the program.

Third, we examined the laws that can affect the implementation of a farm registration system, and suggestions were made as to how to coordinate them. The reviewed laws are tax laws and the laws regarding information protection.

Researchers: Nae-Won Oh(Ph.D.), Soo-Suk Kim(Ph.D.),
Ho-Gun Chung(Ph.D.), Myung-Heon Lee(Ph.D.)
and Wook Ko
Report No: C2006-3/Jan. 2006
E-mail: naewonoh@krei.re.kr

The Evaluation Model for the Comprehensive Agricultural/Rural Development Plan & Future Direction of the Agricultural Public Finance Policy

This study attempts to evaluate the performance of the '119 Trillion Won Comprehensive Plan' for the development of agriculture and rural areas. The study also aims to provide basic data that can help determine the future course of the agricultural finance policy designed to assist Korean agriculture in actively coping with the rapidly changing environment.

One important factor to be considered in implementing the expanded agricultural finance over 10 years is the efficient usage of the public funds to offset the income loss of farmers from further opening of the agricultural market.

Most studies and researches on the agricultural public finance focused mainly on the performance of agricultural development projects. This study, however, focuses on the inter-relationship between agriculture and the national economy. In other words, this study investigates the effects of the agricultural public finance on both the agriculture and the rest of the national economy.

One important implication of this study is the significance of expanding the agricultural public fund for the national economy as a whole. Accordingly, it is necessary to derive consensus among the people by objectively showing the effects of the expanded public fund for agriculture and rural areas.

Researchers: Kim Yong-Taek(Ph.D.), Eui-Sik Hwang(Ph.D.), Joon-Kee Park(Ph.D.), Oh-Sang Kwon(Ph.D.) and Han-Pil Moon
Report No: C2006-21/Apr. 2006
E-mail: yongkim@krei.re.kr

A Study on the Administrative System for Rural Development and Welfare Projects

The purpose of this study is to develop an effective administrative system for various rural development and welfare projects in Korea. This study especially aims to support the reformation of the administrative system for the successful completion of the rural development projects initiated by the Ministry of Planning and Budget (MPB).

Interviews and a survey were conducted to identify problems of the current administrative system and to present policy alternatives. According to the results of a survey, the followings are identified as the problems of the rural development and welfare projects: (1) various small projects are proposed as rural development schemes without the consideration of rural characteristics and/or spatial hierarchy, (2) most projects are introduced by the central government without relation with the rural development planning of a region concerned, (3) most projects are operated by different administrative systems of the central and local governments, thus causing poor linkage among related projects, etc.

These problems can be overcome through one of the following measures: providing an integrated guideline and/or introducing an administrative organization for a specific project, vitalizing a regional planning system, and integrating all the related projects of different ministries. Since the integration of the projects which belong to different ministries is not an easy task, a stepwise approach to enhance the relationship among those projects is recommended. However, it is ultimately desired that similar projects (in terms of purpose, contents, and spatial aspects) should be integrated under the principle to reform the whole administrative system for rural development and welfare projects.

Based on the principle of the reformation, the followings are recommended as alternatives to the administrative system: (1) transferring of the small-town development projects from the Ministry of Government Administration and Home Affairs (MOGAHA) to the Ministry of Agriculture and Forestry (MAF),

and applying the project to rural center development programs to provide various services for the people in rural areas as a whole, (2) transferring of MOGAHA projects for less developed areas, including islands and remote areas, to the MAF, and, under a long-term perspective, integrating the following similar projects implemented by various government ministries: the fishery village development project of the Ministry of Maritime Affairs and Fishery (MOMAF), the mountainous village development project of the Korea Forest Service (KFS), and the rural village development project of the MAF, (3) integrating all village-based rural tourism projects by various ministries into a 'village development project' and providing autonomy to local governments in implementing the project, (5) setting a certain service standard, that is national minimums, to meet the basic needs of rural residents, and especially for such development projects related with housing, roads, water supply, transportation, education, health care, and cultural and welfare facilities, (6) transferring of the rural vitalization and information village projects of the MOGAHA and the farmer's pension project of the Ministry of Health & Welfare (MOHW) to the MAF to enhance linkage among related projects.

The MAF has a major responsibility to develop rural areas because agriculture is a basic industry of the countryside and because farmers are the majority group of rural residents. The efficiency of a rural and agricultural development policy can be enhanced through the integration of various small projects operated by separate government ministries. However, related laws and budgets should also be reformed to support the effective operation of these new administrative systems.

Researchers: Dong-Phil Lee(Ph.D.), Kyeong-Whan Choi(Ph.D.) and Joo-In Seong
Report No: C2006-18/Sep. 2006
E-mail: ldphil@krei.re.kr

AGRICULTURAL OUTLOOK AND INFORMATION 3

A Time Series Analysis on Prices of Fruits and Vegetables

Prices of fruits and vegetables not only fluctuate between years but also vary considerably between seasons. The purpose of this study is to investigate the patterns (characteristics) of price variation over time and find appropriate models for forecasting future prices.

The study deals with prices of four vegetables, two fruits, and four fruit-bearing vegetables. The study tests stationarity and seasonal effects of price series. It applies mainly time series methods - ARIMA, GARCH, VAR, and the transfer function approach - to model the movements of produce prices.

The main results are summarized as follows:

First, since systematic differences between monthly produce prices are found, price data should be differentiated between monthly figures (seasonal differences) on a year-to-year basis. And Chusok (the harvest festival) is found to have a holiday effect on the prices of apples and pears, whose prices increase by ten to twenty percent.

Second, the coefficients of seasonal autoregressive terms are found to be significantly negative and less than one in absolute value in most models. This implies that prices fluctuate but converge to the equilibrium level following the cobweb theory.

Third, according to ex-post forecasting, the study finds a model whose forecast errors are less than 15 percent for most items. In most cases, the ARIMA/GARCH and transfer function models outperform VAR models.

Lastly, the inclusion of an exogenous variable (supply quantity) into the pure time-series model increases the explanative and forecast power. This implies that the incorporation of a regression method into the time series method would be beneficial in modeling the price of produce.

Researchers: Yong-Sun Lee(Ph.D.), Byung-Ok Choi(Ph.D.) and Song-Bo Sim

Report No: R537/Nov. 2006
E-mail: yslee@krei.re.kr

Designing a System for Collecting and Processing Data on Agricultural Commodities Logistics

Since it was founded in 1999, the Agricultural Outlook Information Center has developed information systems to collect and process data efficiently. Especially the Agricultural Outlook Web-Survey System (DB), developed in 2004, and the Outlook & Agricultural Statistics Information System (OASIS), developed in 2005, comprise the main body of the information system of the Agricultural Outlook Program.

This study is to design a system for collecting and processing data on agricultural commodities logistics. The study aims to propose alternatives to collect data and process them in an efficient way.

The report consists of three main sections: 1) the situation of Korea's agricultural logistics data and their usage, 2) alternatives for collecting and processing data for agricultural logistics, 3) the applicability of the RFID for collecting data.

Researchers: Yong-Sun Lee(Ph.D.), Jeah-Hwan Kim, Mi-Sung Park and Young-Gu Park
Report No: M76/Mar. 2006
E-mail: yslee@krei.re.kr

Modelling and Management of KREI-COMO 2005

This study is to improve the commodity outlook model of KREI, i.e. KREI-COMO (Korea Rural Economic Institute - Commodity Model), which is developed to produce mid- and long-term forecasts of demand, supply, prices, and trade volumes.

This study renews the statistical and market data sets and reestimate the model. It improves the structure of KREI-COMO to modify the functional form and change variables. The model consists of acreage response functions, yield functions, and price flexibility functions. KREI-COMO 2005 includes import demand functions.

Researchers: Yong-Sun Lee(Ph.D.) and Song-Bo Sim
Report No: W27/Jan. 2006
E-mail: yslee@krei.re.kr

Agricultural Outlook for 2007

"Agricultural Outlook for 2007" provides short- and long-run baseline projections for the agricultural sector until 2017. The projections cover agricultural commodities and aggregate indicators of the sector, such as agricultural production, farm income, and food prices. The baseline identifies the major forces and uncertainties affecting the future agricultural market and the prospects for production, consumption, trade, and prices.

The projections are conditional scenarios with no shocks and are based on specific assumptions regarding the macro-economy, domestic agricultural policies, the DDA (Doha Development Agenda) negotiations of the WTO, and the Korea-US FTA (Free Trade Agreement).

This annual report has three parts. Part 1 discusses the outlook of the world and Korean economies, the trend of the world's agricultural policies, and the outlook of rural and farm earnings in 2007. Part 2 deals with various issues, including DDA (Doha Development Agenda), FTAs (Free Trade Agreements), North Korean agriculture, green tourism, bio-energy, traditional food, rural development and welfare, agricultural policies and agriculture in the U.S., Japan, China, and the EU (European Union). Part 3 is a forecast for commodities such as grains, livestock, vegetables, fruits, floriculture, ginseng (Insam), and forestry foods in the Korean and international markets.

Researchers: Myung-Hwan Kim(Ph.D.) et al.
Report No: M81/Jan. 2007
E-mail: kimkim@krei.re.kr

Quarterly Report on the Agricultural and Rural Economy

This report addresses mid- and long-term agricultural trends using key domestic and international economic variables such as GDPs, oil prices, bond rates, exchange rates, and prices of major agricultural commodities. This quarterly report touches upon domestic and international micro- and macro-economic situations, rural economic trends, international agriculture, agricultural commodities, and special issues.

Researchers: Yong-Sun Lee(Ph.D.) and Song-Bo Sim
Report No: M48-9-1~4/Dec. 2006
E-mail: yslee@krei.re.kr

Monthly Fruit Outlook

The fruits dealt with in this study are apples, pears, citruses, sweet persimmons, grapes, and peaches. This study provides information on the prices and qualities of six fruit commodities. The information is used to improve the farm planning and marketing strategies for the fruits. The information on the supply and demand trends of the commodities is crucial to the central and regional governments' planning for stabilizing agricultural markets as well as farm household income.

This research contains annual acreages, production volumes, price trends, quality levels, consumer behaviors, and short-term forecasts for the six fruits. Also, information on import and export quantities and prices is provided.

After surveying nationwide sample farmers and monitoring and analyzing the results of the survey, the monthly outlook was written. The results of the outlook were published and distributed to farmers, marketers, extension workers, businessmen, and policy makers in the form of a pamphlet and a poster eight times in 2006.

Researchers: Kyung-Phil Kim(Ph.D.), Mi-Sung Park, Hyun-No Kim and Sang-Mo Ryu
Report No: Monthly Outlook Series/Dec. 2006
E-mail: kkphil@krei.re.kr

Monthly Outlook for Fruit-Bearing Vegetables

In Korea, as foreign agricultural products are imported, the agricultural market environment has been changed dramatically. Our farmers cannot be supported any more in terms of agricultural prices by the government. Also, the wholesale prices of fruit-bearing vegetables are getting more volatile than before. And farm producers should pay more attention to the market trends of prices and volumes.

The purpose of this study is to enhance the credibility of the information on whether the production volume is increasing or decreasing each month and whether the price of each commodity is increasing or decreasing, etc. so that it may lead farmers, intermediate wholesalers, and governments to induce reasonable decisions.

The Monthly Outlook Report announces information (market supply, prices, etc.) associated with fruit-bearing vegetables. The research included seven commodities in 2006: cucumber, pumpkin, watermelon, oriental melon, tomato, strawberry, and green pepper. The main contents of this report contain research and analysis data on the expected crop acreages, harvest acreages, regional yields, production, export and import trends, prices, etc.

Aggregating the data and developing a supply and demand model that includes flexibility, yields, price-elasticity functions, etc., this research endeavors to forecast the short-term market outlook (mainly one or two months ahead for harvest acreage, volumes, and prices) considering the wholesale market trends. It also goes through a pre-screening process via the Central Advisers Committee for the draft of the monthly outlook report to accommodate the committee's professional viewpoints.

In 2006, the monthly outlooks were published 11 times, including a newsflash. Especially during the July 2006 typhoon season, the heavy rainfall had incurred a serious negative impact on the harvesting conditions of cucumbers across Gangwon Province with a drastic decrease of crop yields. Thus, we pub-

lished an extra special report to adjust the pre-published yields and price forecasts associated with items.

In the last 2~3 years, the farm acreages of seven crops have been decreased, except for pumpkin. In the case of tomato, its acreage has been increased drastically from 2001 to 2005 due to the expanded market demand and sustained market price; however, its acreage had dropped 2% during 2006 compared to 2005. Also, the pre-forecasted acreages of seven individual crops in 2007 will be increased, except for oriental melon. In particular, during 2007, the acreages of watermelon, tomato, and green pepper will be expanded by more than 5 % compared to 2006.

About 13,000 copies of the outlook reports on fruit-bearing vegetables were published and distributed to farmers, marketers, extension workers, businessmen, and policy makers in every month from March to December. They also were distributed via the Internet (aglook.krei.re.kr), and the Korea Rural Economic Institute's and the Ministry of Agriculture and Forestry's main home pages. The results were also published in the several newspapers associated with the agricultural business.

Researchers: Seong-Cheon Seo(Ph.D.), Hak-Kyun Jeong,
Won-Tae Kim, Ik-Chang Choi
and Byung-Ok Choi(Ph.D.)
Report No: Monthly Outlook Series/Dec. 2006
E-mail: sseo@krei.re.kr

Monthly Vegetable Outlook

The purpose of the monthly vegetable outlook is to help farmers improve farm planning and marketing strategies through the timely provision of information on the supply and demand trends, prices, and short-term forecasts for vegetables which are usually unstable in terms of prices. This information is also crucial to the central and regional governments' planning for stabilizing agricultural markets.

The major contents of the monthly vegetable outlook are as follows: intended and actual planted acreages, cultivation situation and yield, estimated production, inventory, import and export amounts, price trend and forecasts, and meteorological forecasts. The commodities included in the outlook are red pepper, garlic, onion, Welsh onion, Chinese cabbage, radish, carrot, cabbage, and white potato.

The vegetable outlook is published on the first day of the month and sent to farmers, nationwide agricultural organizations, such as the National Agricultural Cooperative Federation, wholesale markets, agricultural technology centers, etc.

Researchers: Ki-Hwan Park(Ph.D.), Seong-Hwan Song, Young-Gu Park, Jae-Han Kim, Jong-Yeol Yoon and Jeong-Kyung Jang
Report No: Monthly Outlook Series/Dec. 2006
E-mail: kihwan@krei.re.kr

Livestock Outlook

In Korea, the prices of livestock products have been known to fluctuate greatly according to the supply and demand conditions. Rapid price change is harmful to farmers in managing their farms because the output price is the most important factor determining farms' revenue.

The objective of the livestock outlook is to improve farm planning and marketing strategies for livestock products by reporting outlook information to farmers. It is also used to help traders make business plans and help policymakers establish policies for stabilizing the market.

The contents of the livestock outlook include the number of heads, the number of slaughters, feed production, the exports and imports, price trends, and short-term forecasts for the number of heads and the prices. The short-term price outlook for livestock is dominated by two factors: supply and demand. The main factor of the supply side is the number of slaughters, while that of the demand side is economic conditions and consumers' behavior.

The livestock outlook is published both monthly and quarterly. It includes information on prices, supply-demand conditions, and short-term forecasts for livestock products. It consists of five commodities. They are hanwoo (traditional Korean cattle), dairy cow, pig, layer, and chicken. The chicken outlook is published monthly and the others quarterly.

Researchers: Min-Kook Jeong(Ph.D.), Hyung-Woo Lee, Hyun-Jung Kim and Jung-Min Lee
Report No: Monthly Outlook Series/Dec. 2006
E-mail: mkjeong@krei.re.kr

AGRICULTURAL POLICY RESEARCH 4

An Evaluation and Tasks for Korean Rice Policies in the WTO Ruling

This study aims to synthetically evaluate the achievements of the Korean rice policies that have been promoted since the WTO sailing and to provide the directions for their improvement. This study especially focuses on the status analysis of the rice industry in view of market directivity and industrial competitiveness and presents political and institutional proposals to better accomplish these objectives.

Each chapter of this study is organized on the following main issues: impacts of rice policies on productivity improvement, large farming scale, income stabilization, marketing efficiency, and supply and demand adjustment. The first issue is about the changes in rice productivity by the government's investments and loans for the rice industry. The second issue is about the trend of enlargement of rice farming scale and the economies of scale in rice production. The third issue is regarding the income fluctuation of rice farms. The fourth issue is related to rice marketing. The last issue is regarding supply and demand adjustment in the rice market.

According to a synthetical summary of all analysis results, rice policies can be positively evaluated because related policies have been rapidly carried out toward a market-oriented direction. However, more still remain to be done for the Korean rice industry to cope with further market opening. First, the establishment of an institutional system for the effective adjustment of rice supply and demand and the government's effort to raise rice consumption through quality control and promotion are urgently needed. Second, it is necessary that various support systems should be set up in line with the development of farming, which allows specialized rice farms to expand their farming scale. Lastly, reviewing and rearranging current direct payments are necessary for the income stabilization of farm households and the adjustment of supply and demand.

Researchers: Jeong-Ho Kim(Ph.D.), Myung-Hwan Sung(Ph.D.) and Hye-Jung Kang(Ph.D.)
Report No: R540/Nov. 2006
E-mail: jhkim@krei.re.kr

A Comparative Study between Korea and Japan on Endogenous Rural Vitalization Policy - Three Case Studies -

This is a comparative study between Korea and Japan on endogenous rural development policy. Endogenous development strategy could be defined as the subjects of a community aware of community problems and finding solutions with community resources through development activities. Endogenous community development, therefore, consists of four components: organizing subjects, building the capacity of the subjects, utilization and conservation of community resources, and activities for problem solving. Rural community revitalization could be realized through the increase of development activities for agricultural production and processing, specialized products, rural tourism, rural-urban exchanges, etc.

This study consists of three cases: community's social organizations, community's farming groups, and community building through rural-urban exchanges and rural tourism.

1. Community Organizations and the Condition of Endogenous Rural Community Development

Sound age structure of the population in a community is very important for the development of the community. The age structure of Korean rural communities is relatively sound compared to the age structure of Japanese rural communities. However, the age structure of Korean rural communities is rapidly changing and will become more aged than that of Japanese rural communities in the near future. Korean rural communities shall face the problem of scarce human resources, in particular with leaders who are young and will succeed the community leadership.

Because of the heavy migration and change of age structure in Korean rural communities, traditional social organizations become weak and dissolved. In the case of Japan, it is very rare

that traditional community organizations still remain. However, the social organizations in Japanese rural communities are well organized according to the needs of modern communities in the spheres of autonomous administration, economics, religion, and culture.

Fostering young leaders who will be community leaders in the future is a very important factor for endogenous rural community development. Community leaders must be fostered from young ages by having them participate in community activities and learn the norms and traditions of community organizations.

2. Community Farming Groups and Agricultural Development

Cooperative farming companies (CFCs) in Korea produce farm products individually, while selling the farm products cooperatively. Even though the members of a CFC know that cooperative production is better than individual production in the sense of saving production cost, it is not an easy task for them to follow the principle, and, therefore, it is not realized yet. The individual farmer in the company is a full-time farmer and has large-scale farm machinery, of which the capacities are beyond his farming scale.

In the case of Japan, community farming groups produce agricultural products in the way of cooperative farming and participate in the processing and marketing of farm products. The group farming in Japan is a way of saving more costs than individual farming.

Community farming groups in Japan could save production costs and prevent the increase of idle farmlands in rural communities. It is also possible to increase income and employment in the farm sector through the increase of vegetable cultivation after rice cultivation and the increase of farm processing and rural tourism.

The leaders of group farming in the case of Japan are mostly part-time farmers and reentered farmers who retired from a non-farm business. The experiences gained from the non-farm sector become valuable for vitalizing group farming activities.

However, in the case of Korea, the leaders of cooperative

farming companies are mostly full-time farmers. Therefore, the reentered farmers who have experiences in non-farm businesses are not utilized. The leadership of reentered farmers must be considered for the vitalization of cooperative farming companies in Korea.

3. Community Building and Revitalization

The community building of Japan and Korea are very similar in their objectives, contents, activities, resources, and outside support. The ways of endogenous rural community development could be classified into four steps according to the process of development and the role play between community people and the local government: mobilized, participatory, initiative, and autonomous. In particular, the facilitators such as NPOs, experts, companies, and civic organizations play important roles for each step of endogenous development.

In the case of Japan, the facilitators are well organized and developed compared to the case of Korea. However, in the case of Korea, the facilitators are mostly local government officers. The partnership between community people and local government officers leads the community building activities in Korea.

The activities of civic organizations in the form of NGOs are increasing in Korea. The weaknesses of rural community activities, which are caused by old age and depopulation, are covered by civic organizations such as NPOs in Japan. It is desirable for endogenous rural community development in Korea to foster facilitators like the NPOs in Japan, and develop various programs for the participation of community people in the course of endogenous community development.

Researchers: Tae-Gon Kim(M.A.), Ki-Whan Chung(Ph.D.)
and Mi-Ryung Song(Ph.D.)
Report No: R526/Nov. 2006
E-mail: taegon@krei.re.kr

Strategies of Joint Marketing Cooperative Firms

The objective of the study is to find a way to foster agricultural producer shippers that can adjust well with various requests from the consumer market by utilizing joint marketing cooperative firms. The concept of joint marketing cooperative firm is newly introduced in the Agricultural Cooperative Act, which was revised to cope with the changing marketing environment. In order to find a way to transform the marketing business of cooperatives to be a market-oriented marketing business that can create added values, we examined a development plan for share marketing cooperative firms.

As in other countries in the OECD, Korean farmers are encountering the same changes that were mainly driven by consumers. Consumption patterns have changed to care more about food safety and quality rather than just price. As the roles of small retailers are shrinking and the same holds for wholesalers and the wholesale market, the market power of a handful number of big hypermarket chains is growing with their market share. Recently, the competition among big chains is getting severe as more stores from different chains are opened in one area. The transaction pattern to link producers and consumers is changed from auction to direct transaction, which is preferred by big hypermarket chains. In this circumstance, producers need to adapt themselves to the demand from big retailers, who request large volumes of supply in a given quality all year round. Because of the competition among retailers and the changes in consumer preference, producers also need to make their products be differentiated from other products. On top of it, the market opening from trade negotiations brought more imported agricultural products at lower prices.

New organizations in charge of producer shipping have shown to actively correspond with the requests from the consumer market. However, joint alliances or integrated cooperatives of regional cooperatives showed their limitations in terms of specialization, enterprising, and speed of business adjustment. Hence,

joint marketing cooperative firms are introduced to overcome the limitations and take charge of the business activities that are difficult for an individual regional cooperative to fulfill.

Using the interviews with various agricultural producer shippers, including joint marketing cooperative firms, we figured out what prevented the development of agricultural producer shippers. The interviews were focused on governing structure, capital raising, profit distribution, and related laws including tax. Since there are only ten joint marketing cooperative firms so far and most of them were established this year, we couldn't proceed with a quantitative analysis of business performance. We also reviewed the case of agricultural cooperatives in Japan, which have been experiencing marketing business reform. Agricultural cooperatives in Japan have a similar integrated cooperative structure, where the marketing business unit and the financial business unit are dependent upon each other. We figured out how their reform is related with changes in the consumer market and then examined the limitations of their reform.

In the study, we carried out the following: First, we established the vision and status of joint marketing cooperative firms, differentiating them from the merger of existing cooperatives and subsidiaries. Second, understanding the obstacle of their development, we proposed the revision of related regulations to propel their revitalization. Third, we suggested an ideal relationship between joint marketing cooperative firms and farmers, member regional cooperatives, and the NACF.

Researchers: Eui-Sik Hwang(Ph.D.) and Ho-Gun Chong(Ph.D.)
Report No: R534/Sep. 2006
E-mail: eshwang@krei.re.kr

Investigation on the Management Status of Agricultural Corporations and Finding Ways for Institutional Improvement

This study aims to investigate the problems of the current agricultural corporation system by conducting case studies and a questionnaire survey of agricultural corporation operators. It also seeks to come up with directions and practical ways for the institutional improvement of agricultural corporations with regard to various aspects, such as law, institution, and policy, by drawing implications from agricultural corporation systems and policies in advanced countries.

The institutional and political problems faced by the agricultural corporations in Korea today are summarized as follows: First, any distinction between the farming association corporation and the agricultural corporation company is so ambiguous that it is difficult to gain much analytical benefits from their respective institutional features. Second, due to the broad dimensions of businesses covered by agricultural corporations, stretching from agricultural production to marketing and other customer-oriented services, it is difficult to set accurate political objectives for agricultural corporations. Third, agricultural corporations have competitive or conflicting relationships with regional agricultural cooperatives in carrying out their operations such as marketing. Fourth, there is no agency to oversee the agricultural corporations. Accordingly, agricultural corporations do not have their own systems to evaluate and monitor their management. Fifth, the tax benefit system for agricultural corporations is only effective during a certain period as it is based on time-limited provisions.

The directions for developing Korean agricultural corporations are suggested to achieve two distinct goals. One of them is to provide a basis for fostering large-scale agricultural corporations as business enterprises. The other is to establish a new form of corporation with the scale of small family farms, thus rationalizing the family farm management currently prevailing.

Institutional reforms for developing agricultural corpo-

rations can be attained by taking the following three steps. The first step is to resolve the management and control-related problems of today's agricultural corporation system. The second step is to introduce a limited responsibility enterprise with the scale of family farms, the so-called "limited agricultural corporation," as an alternative agricultural corporation. This system focuses on transforming family farms into a corporation type that pursues transparent management by separating the management from the household economy and that minimizes the risks and debts through limited responsibility for management and capital. In addition, it is possible to bring up a model for farm successors, allowing family management by parents and their sons or daughters alike. The third step is to set up a new corporation system that classifies the current agricultural corporations into two classes according to corporate functions; i.e. agricultural production corporation and agricultural service corporation. The former is consisted of large agricultural production units and small family farms. The latter assumes the form of a unified agricultural enterprise completely free of investment and management in non-agricultural sectors.

Researchers: Soo-Suk Kim(Ph.D.) and Seok-Doo Park(Ph.D.)
Report No: R522/Sep. 2006
E-mail: soosuk@krei.re.kr

Classifying Farm Typology for Customized Agricultural Policies

This study aims to classify farm typology in Korea, which is a basis work for implementing 'customized agricultural policies.' For references for farm typology, classifying farm typology in the EU and Germany is investigated. For empirical analysis, multivariate techniques of factor and cluster analysis are applied to farm-level cross sectional data from 2004, allowing firstly, the identification of the underlying constructs characterizing farms within the sample, and secondly, the categorizing of relatively homogeneous farms in terms of farm characteristics, production performance index, farming type (major crop produced), and farm operator's human capital. The main results of this study are summarized as follows:

Firstly, a cluster analysis indicated the presence of six clusters. The classification of sample farms thus resulted in six distinctively different types. The six identified types can be characterized as specialized rice farms, medium-sized horticulture farms, specialized livestock farms, diversified farms with old operators, small income farms with old operators, and farms with off-farm income as a major income. These findings highlight important farm typology differences for consideration from agricultural policy formulation perspectives.

Secondly, clustering is influenced mainly by agricultural income, operator's age, and farming type. These variables can be used as major indices for classifying Korean farms. A simplified index for classifying farm typology will be required for actual application on the population of farms. This study suggests two alternatives, with these being "transformed farm size" and "standardized income."

Researchers: Soo-Suk Kim(Ph.D.), Tae-Gon Kim(M.A) and Hye-Jung Kang(Ph.D.)
Report No: W29/Jun. 2006
E-mail: soosuk@krei.re.kr

Analysis of Farm Income Variations Across Farm Typology by the Korea-U.S. FTA

This study aims to anticipate the degrees of farm income variations across farm typology in the case of the conclusion of the Korea-U.S. Free Trade Agreement (FTA), using farm-level cross sectional data collected in 2004.

This study develops a model measuring farm income variations of individual farm households resulting from tariff elimination and a 50% tariff reduction for major agricultural products, in connection with the variations in the production values measured for aggregated farms. In order to categorize the degree of variations in farm income, farm households are classified according to some characteristic variables such as farmer's age, standardized farming size, and farming type.

The results demonstrate that those farm households in the sample face a significant decreases of farm income in both cases of tariff elimination and a 50% tariff reduction. It is found that smaller farms producing grains, beans, and meats experience the highest decreasing rates of farm income resulting from tariff elimination and a 50% tariff reduction. The results also show that older farm operators experience a rapid decrease in farm income. Based on the analysis, it is concluded that effective farm income stabilization by farm typology is crucial for reducing the loss of farm income that can be faced by Korean farms after the conclusion of the Korea-U.S. FTA.

Researcher: Hye-Jung Kang(Ph.D.)
Report No: W30/Jul. 2006
E-mail: kang@krei.re.kr

An Assessment of FD Consultancy for the New Vitality Project in Sancheong County

The purpose of the New Vitality Project (NVP), which was implemented in 2005 by the present government (Participatory Government) for regional development, was to establish a base for long-term self support for the less developed regions. The NVP was introduced in the course of evaluating one-sided, benefit-providing support policies initiated mostly by the incumbent government. These policies have caused the inefficient running of hackneyed, facility-oriented projects and neglected human resources and regional development without long-term visions when the less developed regions were getting poorer even though large sums of financial resources were put to correct the situation. The government introduced "Family Doctors (FDs)" so that they can provide advice and consulting services on the overall matters related to the NVP. The FD system is considered as a specialized consultant system implemented to achieve the substantiality of the NVP. FDs should play many roles such as (1) supporting the local government in establishing the project plan, (2) monitoring and evaluating the main programs of the project, (3) making recommendations to specialists related to herbs and Korean medicine, (4) amending the action plans of the main programs, (5) consulting on establishing a regional innovation system, (6) encouraging the participation of residents, etc.

This report summarizes the results of FD's provision of consultation for the NVP of Sancheong County, an underdeveloped region in Gyeongsangnam-do. It embodies the results of a comprehensive evaluation on the performance of the project and the FD's role. Also, some recommendations were made to improve the project and the FD system.

Researcher: Hong-Sang Kim(Ph.D.)
Report No: C2006-16-3/Oct. 2006
E-mail: hskim@krei.re.kr

A Validity Evaluation on the Construction Plan and Management of a Marketing and Distribution Center of Agricultural Products in Pocheon City

In Korea, the distribution channels and the trade practices regarding agricultural products are dramatically changing like the market shares in the agri-food market. Recently, distribution centers and large-scale membership discount stores have been established in big cities to shorten marketing channels by connecting stores and consumers. They represent a new system of agricultural marketing that may pose a significant challenge to traditional wholesale markets and, thus, provide a competitive environment in the agri-food market. Besides, agricultural marketing businesses are more and more conducted through horizontal and vertical integration in order to enhance marketing efficiency in terms of lower marketing costs and more competition. In producing areas, horizontal integration is associated with various commodity-wise groupings of primary producers. Vertical integration is achieved through marketing businesses operating various marketing facilities, such as those for processing, transportation, etc.

Pocheon City is located near the Seoul metropolitan area and its agriculture forms quite a large part of the rural economy as compared with other regions. Rice, vegetables, livestock, and grapes are the main products of Pocheon. However, there isn't a powerful organization of farmers whose aim is to promote marketing and produce quality products. Moreover, other potent operating bodies, including rural agricultural cooperatives and municipal offices, have not played an active role in assisting the establishment of various marketing facilities aimed at reducing marketing costs and increasing the marketing efficiency of physical nature, such as transportation, processing, storage, packaging, sorting, grading, and harvesting.

Therefore, it is high time for Pocheon City to establish a marketing and distribution center of agricultural products. It will play a leading role in the agricultural marketing business in the northern part of Gyeonggi-do. It will serve as a collection place,

a warehouse, and a sorting, grading, and packing center. This center should operate marketing businesses in consuming areas together with relevant parties, such as wholesale markets and retail food stores dealing with rural agricultural products as well as other comsumer goods, in order to increase its profit margin. If realized, this center will make producers enjoy favorable prices, and consumers will benefit from quality products and reasonable prices.

It is reasonable that the center have the size capable of handling agricultural products worth 20 billion won in annual sales in the case of an APC and 20~30 billion won in the case of a large-scale retail store. In this case, the expected working expenses, except the land purchasing cost, are approximately 20 billion won.

According to the validity evaluation analysis, the IRR (internal rate of return) of the operating body of the marketing and distribution center will be 10.9 percent in 2030 on the assumption that its turnover target for 2015 is set at 40 billion won.

Researchers: Eui-Sik Hwang(Ph.D.) and Han-Pil Moon
Report No: C2006-2/Jan. 2006
E-mail: eshwang@krei.re.kr

An Analysis of Agricultural Investment Policy and Rural Financial Markets in Korea

This study aims to review the capital inflow into the agriculture and rural sectors with respect to the government and the rural financial market. To make progress with the structural adjustment of agriculture in the post DDA/WTO era, Korea launched a new integrated agricultural and rural development program in 2004. This study focuses on interpreting the program and analyzing its characteristics compared with the past structural adjustment programs since 1992. It is also designed to review the rural financial market situation and suggest new financial services and policy directions.

The integrated development program is supported by a 119 trillion won investment plan for the period from 2004 to 2013. It changed the policy direction from investment to production and from marketing to income support for farm households suffering from stagnant income and whose debt burden has been increasing since the mid-1990s. In addition, the portion of the investment in rural community development has been increased to enhance the quality of living of rural residents. However, many farmers did not expect the success of the program based on the past experience of investment policy failures and the uncertainty of the future agricultural environment as the protection level of agriculture is lowered. This low level of trust in policy is another barrier for the government to overcome.

The information asymmetry of agricultural investment programs is one of the factors which have caused the low level of trust in policy. The government used the total amount of agricultural investments as a way of persuading farmers to accept the market opening policies since the agricultural trade negotiations under the Uruguay Round were launched. But this strategy caused farmers to have high expectations for government support and made taxpayers to experience too much resources allocated to inefficient sectors, such as agriculture. In fact, a great portion of investments were allocated to modernizing the agricultural infra-

structure and increasing the farming scale of large farms. This improved productivity and increased the supply of agricultural products, which in turn lowered price levels and farm income, and increased farm household debts. Many farmers suffering from low income and a high debt burden criticize the government and its policy failure.

Cooperative credit is a main source of external capital for farmers and the credit guarantee system for farmers is an important policy instrument to reduce failures of rural financial markets. Although the cooperative banking is relatively sound because of the strong support of the credit guarantee fund for farmers, it is expected that this good situation will not be continued as the market competition intensifies. Thus, a strong structural adjustment of agricultural cooperatives is needed for the new phase of the rural and agricultural environments with market opening. Furthermore, cooperatives should make further efforts to develop new financial services for aging rural communities.

Researchers: Seong-Jae Park(Ph.D.), Yong-Taek Kim(Ph.D.),
Eui-Sik Hwang(Ph.D.), Han-Pil Moon
and Yong-Won Cho
Report No: C2006-10/Apr. 2006
E-mail: seongjae@krei.re.kr

Evaluation of the Situation and Achievement of the Agricultural Policy

This study aims to inspect the main agricultural policies, evaluate the results of their execution, and present strategic policy measures for development by means of analyzing loans and investment projects under the 'Participatory Government.' Based on these analytic results, we drew several significant political implications and suggested several policies.

Firstly, in order to systematize agricultural · rural · farm policies, the central government should enforce the main policies related with the whole agricultural sector, and local governments should ensure the successful implementation of their agricultural policies. In addition, the priority should be given to provide local governments with the basis for capacity building to promote endogenous local development. Secondly, the government should endeavor to inspect related policies, establish efficient policy management systems, and cope with the situation in the economy and the opening of markets.

Obviously, one of the most important things is the renewal of public faith in government policy because it is a prerequisite to respond to rapidly changing consumer demands and market dynamics. Another is large investment, such as enlarging the budget for direct payment and enforcing support for farms. These should be adjusted by relating to the results of the WTO negotiation.

Researchers: Jeong-Ho Kim(Ph.D.), Hong-Sang Kim(Ph.D.), Mi-Ryung Song(Ph.D.) and Byoung-Hoon Lee
Report No: C2006-5/Mar. 2006
E-mail: jhkim@krei.re.kr

Development of a Sustainable Estuary Management Strategy in Korea: the Agricultural Sector

This study is part of a comprehensive research conducted jointly by the Korea Environment Institute (KEI), the Korea Research Institute for Human Settlements (KRIHS), the Korea Maritime Institute (KMI), and the Korea Rural Economic Institute (KREI), each specializing in their respective field of study for three years. This study has the contents focused on agriculture and estuary management.

This study examined the agricultural situation in estuary regions and analyzed the estuary management system and its prospect of sustaining the estuary environment for agriculture. Consequently, it presented management strategies for sustainable estuaries that can facilitate continued agricultural production and that can conserve the estuary environment simultaneously. It especially suggested a law improvement for sustainable estuary management.

The main problems in managing the estuary environment for agriculture are summarized as follows: the destruction of habitats by the construction of a dike along an estuary, the management of irrigation facilities related to agriculture, water pollution in estuaries by agriculture and the livestock industry, and so on. The construction of a dike along an estuary has positive effects, such as the enlargement of water supply and land; on the other hand, it has negative effects, such as the destruction of habitats and the environment around there.

Finally, it is necessary to establish disposal facilities for livestock excretion and enforce a policy that regulates the location of livestock facilities in order to preserve the estuary environment. Moreover, environment-friendly farming should be encouraged in the areas surrounding estuaries. Especially such programs as those designating eco-friendly farming regions can be considered. In short, more disposal facilities for pollutants should be established in the first place. In the long run, an eco-friendly agricultural production system should be built.

Researchers: Hong-Sang Kim(Ph.D.) and Ju-Young Park
Report No: C2006-28/Oct. 2006
E-mail: hskim@krei.re.kr

A Study on the Management Program of Agricultural Promotion Zones

The Agricultural Promotion Zone (APZ) system has been devised to designate those spatially collected lands with good-quality for cultivation as an APZ, to concentrate investment for agricultural infrastructure improvement, and to preserve APZs as agricultural production bases. Since December 1992, when 1,008 thousand hectares, or 48.7% of the total agricultural lands (2,070 thousand ha), had been designated as APZs, the size has increased continuously to reach 1,153 thousand ha, or 63.2% of the total agricultural lands (1,824 thousand ha).

This study is focused on two issues that are critical in improving the APZ system. The first issue relates to the cancellation of the designation of those lands that are no more in conformity with the APZ conditions, and the second one to the increase of compensation for the difference in land prices between the lands in APZs and the lands outside of APZs. With regard to the first issue, the Korea Rural Community & Agriculture Corporation has performed a survey between March 2005 and October 2006 to examine the current situation of the APZs in 153 cities/counties which have APZ lands and 38 cities/counties which do not have APZs. Based on the findings of the survey, this study concludes that there are 40,191 ha of agricultural lands which shall not be under the APZ system any more, and suggests a few criteria for cancelling the designation of APZs. For the second issue, several policy measures and programs are recommended for policy makers, including the differentiation of fixed direct payment in the current paddy direct payment program to provide incentives for the lands in APZs.

Researcher: Seok-Doo Park(Ph.D.)
Report No: C2006-36/Nov. 2006
E-mail: sdpark@krei.re.kr

A Study on Agricultural Water Right Problems and Improvement (I): Law and Institutions

Recently, there are growing concerns on saving agricultural water use and utilizing agricultural water for other purposes. These demands came from several sources, such as non-agricultural water demands and the difficulty of constructing new dams. This study was initiated to provide a theoretical foundation on agricultural water rights from the current nationwide discussion on modifying the water use right structure.

Although agricultural water use accounts for more than half of the whole water use in the country, few studies focus on agricultural water right problems due to the customary agricultural water use and the lack of its legal definition. Therefore, this study suggests how to improve the law and institutions related with agricultural water rights by analyzing the law and institutions of agricultural water use, the current institutional structure of water use, and the water use rights of foreign countries.

In the study, the following issues are discussed with case studies to analyze the current agricultural water right problems: utilization and management of agricultural water rights, water use right conflicts between agriculture and other sectors, water use conflicts within agriculture, and tradable water user rights.

Also, water use-related legal and institutional problems, such as the conflict between customary and authorized water use rights, the unclear definition of the range of vested water use rights, the unclearly identified holder of agricultural water right, and the inadequately secured agricultural water use rights, are discussed and analyzed.

In addition, the cases of Australia, the U.S., and France, which are countries aggressively reforming the water use rights, and Japan, whose system resembles that of Korea, are studied. In the section, the results of the case studies suggest the possible options of introducing a tradable water use permit, fixing the law, and protecting the agricultural water use rights.

Finally, this study suggests how to improve the legal and

institutional settings related to agricultural water use rights. This study especially accentuates several things to consider, such as minimizing conflicts on water use rights, agricultural water right having the first priority among water uses, efficient water saving of agricultural water use, the direction of long-term water management, and issues on introducing a tradable water permit.

Researchers: Hong-Sang Kim(Ph.D.) and Joo-Nyung Heo
Report No: C2006-38/Nov. 2006
E-mail: hskim@krei.re.kr

A Study of an Agricultural Income Stabilization Program for Farmers

The study examined the prerequisites for operating an agricultural income stabilization program, which the government considers enforcing in 2009 or afterwards, and what contents the program needs to contain. We investigated alternatives of the income stabilization policy and suggested a basic direction in which the policy is supposed to head, while considering the domestic agricultural conditions, policy changes in developed countries, and related WTO regulations.

Because of not only the growing income fluctuation in farming caused by its unique characteristics and market opening, but also the restriction on traditional income support programs caused by bilateral and multilateral trade negotiations, it is necessary to reform the farm policy and come up with a solution to stabilize farm income. In this sense, an agricultural income stabilization program is becoming a key player, as Canada has already implemented one and the US is considering one.

Canada recently changed its program from NISA to CAIS. In both programs, a farmer can choose the income protection level based on his risk aversion, financial conditions, and the level of risk in his farming. NISA is similar to a savings account in the sense that it cumulates its own interest based on the amount of farmers deposit in his/her NISA account. While CAIS is similar to insurance in the sense that farmers pay premiums, the premiums are not expired unless the program makes a payment. In our review of the two programs, we found that NISA is easier to operate than CAIS, because it requires less information on farmers. However, CAIS is more effective in protecting farmers from severe income dropping. Since both programs have their own advantages, we designed two agricultural income stabilization programs. One is based on NISA and the other is based on CAIS. We investigated the possibilities of implementing the programs with consideration of the income index, way of gathering income information, target farm tier and commodities, and required

budget. If one of them is enforced, we suggest that it is available to every farmer, but implemented only for the commodity for which income information can be collected. We suggested that it is better to start a program with livestock and fruits, since they are better prepared in many aspects. It is appropriate not to cover rice in the program since the current direct payment programs for rice place a limit and the income fluctuation of rice farming is relatively small.

We suggested a candidate pilot operation for gathering information on farmers in both operational and financial respects that are key elements in the program. By carrying out a statistical analysis as well as a survey, we estimated a function of the farm income fluctuation, the income support levels and budget requirements in different income stabilization programs, and the accounting ability of farmers.

The NISA-type program requires smaller budgets than the CAIS-type program on the same protection level. When 50% of livestock and fruit farmers are registered in the programs, it is estimated that the NISA type needs 85.4 billion won while the CAIS type needs 140.8 billion won.

Along with budget requirement, farmer's share in a program and the level of effect of income compensation are key factors in the government choosing a program. Before making a decision, it is also required for the government to fully review the linkages among the income stabilization program, direct payment, disaster insurance, and other income compensation programs in an effort to raise the efficiency of the farm income policy.

Researchers: Seong-Jae Park(Ph.D.), Nae-Won Oh(Ph.D.),
Tae-Gon Kim(M.A.), Joon-Kee Park(Ph.D.),
Ho-Gun Chung(Ph.D.), Suhk-Hyun Kim(Ph.D.),
Han-Pil Moon and Yong-Won Cho
Report No: C2006-29/May. 2006
E-mail: seongjae@krei.re.kr

Institutional Innovation Initiatives for Agricultural Enterprises' Growth

The Ministry of Agriculture and Forestry (MAF) has promoted agricultural business firms to make the agricultural system competitive because they would play pivotal roles. The first plan was to promote external investment and put human resources into agriculture by means of policy measures related to institutional changes and taxation from 2004. The researcher analyzes the current states and trends, and surveys managers about their opportunities, threats, difficulties, and support from the government. At the same time, many different policy measures are juggled for this regard.

A policy-making infrastructure is needed to produce precise statistics of the current status and trends in agri-business. Thus, when an agri-business opens, the owner has an obligation to report the MAF. Strengthening external funding and investing to construct a unique credit evaluation system for agri-enterprises, separating the agri-Innobiz category from the service section, and introducing the agricultural enterprises accounting system, and expanding funds focused on Agri-biz are needed.

To strengthen the information infrastructure, it is necessary for the government to subsidize consulting services and the ERP system, facilitate agri-patent acquisition and its utilization, and change the agri-R&D support fund administration in order to satisfy the needs of enterprises. Strengthening the agri-brand power requires intensifying investment in marketing firms and selected large brands. To expand the exports of agri-products, it is essential to increase the support fund for raw material processing and marketing in foreign markets as well as new product development.

Researchers: Young-Saing Kim(Ph.D.) and Jeong-Ho Kim(Ph.D.)
Report No: C2006-24/Oct. 2006
E-mail: jhkim@krei.re.kr

Reform and Business Innovation of the National Agricultural Cooperative Federation in Korea

The purpose of the study is to establish the business innovation strategies of the National Agricultural Cooperative Federation (NACF). It is a top priority to revitalize the marketing and supply businesses of the NACF since it has been losing money and dependent upon the profit generated by the banking business. The organization is also closely linked with the business of primary cooperatives, with their performances moving together. It is widely acknowledged that a prior condition for revitalizing the marketing and supply businesses of the NACF is to separate the banking division from the marketing and supply division, and then make them operate and account for their own performance independently.

The reason why academics' and farmers' associations request the separation of the NACF is that they believe the NACF has only put in effort on fortifying the financial operation, not paying attention to marketing and supply operations, which results in less effort on promoting the business activities of primary cooperatives. A prior condition of the separation is to build a foundation of self-reliance for the marketing and supply division. For this, an appropriate plan to revitalize the marketing and supply operations (businesses) needs to be set and executed first. In 2006, the NACF proposed a plan to fulfill the task. If the business division is not self-supportive, the separation wouldn't guarantee the independence of the business division. On the contrary, its reliance on the banking division would be more severe. Hence, the burden to the banking division would be bigger.

The environment surrounding the marketing and sales business of the NACF has been changing and evolving rapidly. As the market powers of a handful of big hypermarket chains are growing with their market shares, small retailers as well as wholesalers and the wholesale market have been shrinking. Transaction patterns to link producers with consumers have been evolving from the traditional method of auctioning to direct transactions pre-

ferred by big hypermarket chains. On top of this, the market opening from trade negotiations brought in more imported agricultural products at lower prices.

In order to accomplish the purpose of the study, we did the following:

First, we analyzed the business structure of the NACF, then summarized the current condition and problems. Second, we evaluated the adequacy of the plan to revitalize the marketing and sales business, which was prepared by the NACF and submitted to the Presidential Commission for the NACF Reform. Third, we analyzed why the NACF has been losing money with the marketing and supply operations and then derived business innovation strategies to build a self-reliance foundation. Fourth and last, we came up with basic principles, systems, and rules for modifying a scheme for the plan to revitalize marketing and sales business and proposed our own plan coping with the market opening of agricultural products and the changes in the marketing environment.

Researchers: Eui-Sik Hwang(Ph.D.), Sung-Jae Park(Ph.D.),
Ho-Gun Chung(Ph.D.) and Yong-Won Cho
Report No: C2006-40/Dec. 2006
E-mail: eshwang@krei.re.kr

Promotion Strategies for Customized Agricultural Policies

The aim of the recent agricultural policies places a higher value on increase of farm income and development of rural areas than on the role as national food supply. The individual and discriminatory policy measures for each policy, such as direct payments, off-farm income development, and social welfare services, are required to achieve these policy objectives. Accordingly, the driving ways of the agricultural policies tend to transform from top-down supporting programs to the cafeteria-style programs selected directly by policy demanders.

Under the current policy regime, the Korean government has a plan to promote 'customized agricultural policies,' seeking innovation in the implementation of agricultural policies. All farms are first classified into several farm types and then some policy programs for each farm type are provided in a menu form. On the basis of these policy menus, farmers themselves select suitable policy programs according to their development levels.

For the basic typology, all farms are classified into specialized farms, semi-specialized farms, and midium-sized farms by the growth levels of farming. As an auxiliary typology, elderly farms and start-up farms are separated by the age of farmer. Subsidiary farms and hobby farms are also divided by the composition of farm income. The index determining farm growth is defined as the equivalent farm size to be made attainable more than the average income of urban workers.

A core of the 'customized agricultural policies' is that farmers choose suitable policies for themselves, thus the policy scheme for each farm typology should be provided in advance. Specialized farms, having a higher share of agricultural income, need an industrial policy that helps strengthen their competitiveness. Furthermore, once independent management is considerably accomplished, graduation from the government support can be considered. On the other side, elderly farms, having a limitation in their farming development, require supporting programs for the

soft retirement from farming and welfare policies for the security of the aged. Especially, the introduction of a special income subsidy, designed to support elderly farmers who devoted a lifetime to farm work, is needed. Policies for the subsidiary farms include the installation of joint marketing facilities and training programs for off-farm employment, assisting those farmers to lead a secure life in rural areas.

The customized agricultural policies focusing on policy beneficiaries' demands need to establish some principles ahead of practical implementation. Those principles embrace clarification of objective, discrimination of policy measure, exclusiveness of target, equity of policy application, and independence of selection.

For the efficient propelling of customized agricultural policies, the required arrangements are as the following: First, a farm registration system should be built as the groundwork. Second, the former policy projects should be adjusted to customized policies, revising enforcement guidelines for agriculture and forestry. Specially, it is necessary that insufficient welfare programs should be reinforced. Third, all kinds of loan projects should be combined into a synthetic fund, which is distributed for farm facilities, farm operation, and farm management stabilization. Fourth, it is necessary that the executive organs take full charge of the customized agricultural policies in both central and local governments. Lastly, associated statistical data including individual farm information should be improved. As a detailed method, a combined control system, controlling consistently and synthetically essential information such as the farm registration list, the farmland register, and the supporting fund record, is proposed.

Researchers: Jeong-Ho Kim(Ph.D.), Soo-Suk Kim(Ph.D.),
Tae-Gon Kim(M.A.), Dae-Shik Park(Ph.D.)
and Hye-Jung Kang(Ph.D.)
Report No: C2006-43/Dec. 2006
E-mail: jhkim@krei.re.kr

Redefining the Farmland Concept and Finding Programs for Farmland Procurement and Utilization during a Food Crisis

This study aims to reappraise the traditional farmland concept in the political and legalistic views for confronting the changes in the domestic and foreign agricultural situations and to seek ways for the stable procurement and the efficient utilization of farmland during a food crisis, pursuing the benefits of a national economy through the modification of the farmland concept and its scope, and finally reviewing their alternatives.

Especially the farmland concept related to the livestock feeding sites prescribed in the law of farmland improvement association is reviewed in the view of political and legalistic interpretations, and some problems followed by the modification of the concept are drawn out. Furthermore, some schemes to solve those problems are considered. This study also investigates ways to utilize farmland in case of emergencies through domestic and foreign case studies and derives associated tasks in legal and institutional aspects.

This study consists of two parts: the first part deals with the modification of the farmland concept relating to livestock feeding sites, and the second part proposes schemes for efficient procurement and utilization of farmland in the case of a food crisis.

The first part examines the background and progress of the discussion regarding an Agricultural Land Act revision, intended to include livestock feeding sites into the farmland concept. The current system regarding livestock feeding sites is investigated, focusing on the regulations of farmland utilization, the farmland concept, and the farmland diversion system. The main issues surrounding the modification of the farmland concept are also discussed. Those investigations lead to suggest improved alternatives of the farmland concept in which livestock feeding sites are included and present methods and tasks for institutional reforms across the alternatives. Lastly, general directions and major

practical tasks that improve the associated systems are proposed.

The second part first identifies a distinct feature of this study that finds countermeasures to procure and utilize farmland in the case of a food crisis. It defines the conceptual range of a food crisis based on previous research documents, and classifies the levels of food crisis. It also presents countermeasures with respect to such major issues as the utilization of existing farmland and the diversion of non-farmland into crop areas. Lastly, for procurement and utilization of farmland in the case of a food crisis, this study suggests improvements to the legal and institutional framework and related organizations.

Researchers: Hong-Sang Kim(Ph.D.), Jeong-Ho Kim(Ph.D.)
and Seok-Doo Park(Ph.D.)
Report No: C2006-35/Nov. 2006
E-mail: hskim@krei.re.kr@krei.re.kr

A Study on the Development of the Korea Agricultural Outlook Model, KREI-ASMO 2006

KREI-ASMO (KREI-Agricultural Simulation Model) was developed by the Korea Rural Economic Institute (KREI) in 1996. The simulation model has been used to forecast the mid- to long-term outlook of Korean agriculture to analyze various alternative policies. This model is a partial equilibrium model that adopts a dynamic recursive simulation method.

The model has been applied as a useful quantitative analysis tool to forecast the commodity supply and demand schedules for the Korean agricultural outlook.

KREI-ASMO is divided into five sub-models as follows: a model for forecasting macro-economic variables; an input price model; a grain, fruit, and vegetable model; a livestock model; and a closing model for the entire Korean agriculture. In addition, the model includes the commodities imported, such as rice, pulses, miscellaneous grains, oilseeds, red pepper, Chinese cabbage, oriental radish, barley, garlic, onion, other vegetables, apple, Asian pear, grape, tangerine, peach, persimmon, beef and cattle, dairy products, hog, and poultry.

KREI has renewed the statistical data base every year and has improved the structure of the model to facilitate the role of KREI-ASMO. In this context, this study has been carried out continuously.

In particular, the KREI-ASMO task-force (T/F) team was established in August, 2006. The team has been working on the entire model to find out existing problems and improve the structure of the model. Moreover, the team will provide useful information out of the model until the end of next January. In this report, changes for the model structure of KREI-ASMO 2006 are introduced and major activities of the ASMO task-force team are also provided.

Researchers: Myung-Hwan Kim(Ph.D.), Dae-Seob Lee(Ph.D.),
Tae-Hun Kim(Ph.D.), Bae-Sung Kim(Ph.D.),

Youing-Su Cho(Ph.D.), Young-Ho Lee
and Tae-Yeon Yoon
Report No: M80/Dec. 2006
E-mail: kimkim@krei.re.kr

The Agricultural Outlook Model Aglink 2006

The Aglink model is a dynamic recursive simulation model and a partial supply-demand equilibrium model of the world agricultural sector. The model was developed by the OECD Secretariat in cooperation with member countries in 1993 and has been used to formulate the OECD's world agricultural outlook and simulate for various policy analyses.

As this study will be carried out continuously year by year, the final aim is to build a sufficient application capacity of KREI (Korea Rural Economic Institute) to analyze the world agriculture market and to indicate future directions of Korea's agricultural policies. The major research contents of this year are as follows:

In the 1st chapter, the research background, the aims of this study, a review of preceding researches, and a brief explanation of the imported variables in the Aglink model are introduced.

In the 2nd chapter, we reviewed the current status and outlook of the world's soybeans and oilseed market. And in the 3rd chapter, we reviewed the current status of soybean supply, demand, and trade in Brazil.

In the 4th chapter, also according to a review of the imported soybeans market in Korea, the researchers evaluated Korea's current issues in the soybean market. And we made possible scenarios based on the 2nd and 3rd chapters' conclusion and assessed the results of each scenario.

And in the 5th chapter, we introduced the Brazil module in Aglink 2006 to elevate the degree of understanding of the Brazil oilseeds module.

Researchers: Bae-Sung Kim(Ph.D.), Young-Su Cho(Ph.D.)
and Young-Ho Lee
Report No: M79/Dec. 2006
E-mail: bbskim@krei.re.kr

World Agriculture Online Reports

The world agricultural policies and trade are increasingly influencing the domestic agriculture. Accordingly, it is important to have information on the agriculture of other countries.

The project aims at providing farmers, entrepeneurs, researchers, and organizations with information on the agriculture and policies of other countries. It is expected to be used for agricultural policy making, identifying world trends, setting up a strategy for trade negotiations with the world, increasing agricultural export, and improving farm and firm management.

The information collected is being provided through the 'World Agriculture Online Reports' section of the KREI homepage. It is published monthly in World Agricultural News. In 2006, we did the following activities:

Firstly, in 2006, the homepage dealt with a total of 140 world agriculture news, including 5 overviews of world agriculture, 23 agricultural policies, and 112 world topics. The information was provided mainly by the research staff of KREI and co-operated by other organizations (Regional Academy, MAF, RDA, NACF, and so on).

Secondly, World Agricultural News was published every month in 2006. Seven hundred fifty copies were printed in each month, and a copy is about 140 pages in total.

Thirdly, the section of 'World Agriculture Online Reports' was improved for sharing information with others by reinforcing the search engine, establishing research networks, and providing opportunities to access related websites.

The research networks will be expanded and will be used as a space for information sharing. Many people are expected to participate in the networks, including KREI staff, Internet searchers, translators, authors, officers, and residents in foreign countries.

Researchers: Tae-Gon Kim(M.A.) and Byoung-Hoon Lee
Report No: M45-65~76/Dec. 2006
E-mail: taegon@krei.re.kr

FOREST POLICY RESEARCH 5

A Study of Modelling a Supply and Demand Outlook System of Korean Chestnut

This study is mainly designed to model a supply and demand outlook system of the chestnut market in Korea. The basic figures from simulation results of the system would help making efficient policy planning.

The contents include the current chestnut market conditions, estimations of functional forms of the supply and demand system, and modelling of the system. Two pending problems on the removal of a TRQ and the enforcement of environmentally-friendly cultivation are simulated in accordance with possible scenarios.

According to the estimation result of the acreage function, it is more efficient to conceive policy plans for costs than for prices to alter the acreage, since the cost is more highly elastic than the price. Typhoons in August are the most effective factor in the yield per unit area. The yield function does not depend on the typhoons in September, however. The imports are divided into two functions by their uses. The price of domestically produced chestnuts has a larger impact on fresh chestnut imports than the import price. The import amount of processed chestnuts is highly elastic according to the price of domestically produced chestnuts as well as their own price. However, the estimation result of the function is unstable due to the sudden increases of recent imports.

The exports of processed chestnuts and fresh chestnuts are regressed with respect to the price of Japanese chestnuts in common. For the processed chestnut, the export amount is elastic according to its own price, and it has a substitution relationship with domestic consumption. The export of fresh chestnuts has a substitution relationship with the decreasing exports of processed chestnuts, and the export will increase for a considerable time because of the highly elastic parameter of substitution. For the demand function of fresh chestnuts, we have a regression equation of the price with respect to the quantity and other independent variables. In addition, the calculated prices from this function be-

come the values of the price variable in the acreage function.

The baseline system is modelled and run with the estimated functions over a span of 9 years, which ends by 2015. The results indicate that the total amount of production will decrease by 21%, and the share of total imports in the supply side will be 14.4%. The consumption of chestnuts per capita will drop to 0.99 kg, and this is a 24% decrease from the current consumption. The producers' price will increase by 62% while the profits per hectare will increase by 122%.

The first scenario of the TRQ removal reduces the baseline acreage by 3.6% and increases the import amount by more than 9,000 metric tons. Consequently, the total amount of supply increases, and the producers' price decreases to reduce the profit per hectare by 11%.

The second scenario of environment-friendly cultivation incurs a profit loss of ₩2,195,000 per hectare.

Researchers: Sang-Min Lee(Ph.D.) and Chul-Soo Chang(Ph.D.)
Report No: R528/Sep. 2006
E-mail: smlee@krei.re.kr

Monitoring the Financial Performances of Major Forest Projects

This study investigates the performances of publicly financed projects of the forest sector. The main purpose of the investigation is to reveal problems of allocating and utilizing public finances for the projects.

Eight major projects, such as replanting trees after forest fires, promoting the marketing of forest products, purchasing private forest lands for extending national forests, and training forest laborers, are selected and analyzed.

Several problems in each project were revealed during the process of monitoring and reported to the executive teams dealing with the projects in the Korean Forest Service. Most of the revealed problems were fixed during the monitoring process, while some of them still remained unfixed.

In addition, policy implications and proposals for enhancing the performance of major financed projects were provided for each project.

Researchers: Hyun-Deok Seok(Ph.D.) and Yo-Han Lee
Report No: C2006-42/Dec. 2006
E-mail: hdseok@krei.re.kr

Studies for the Improvement of Forestry Project Systems

This is a follow-up study of the last year's monitoring study for major forestry projects such as forest road construction, plantation, and forest management.

For plantation projects, operators should be secured to keep following the projects for the efficient performances of the plantation projects. To do this, the amended provisions of related laws and rules are provided.

For forest management projects, performance monitoring systems for thinning and other practices need to be improved. A digital planning system can be a solution for the forest management projects. A field map invented in the Czech Republic in 1994 was considered as a sole planning device for the forest management and improvement project. Since it has a reputation of having powerful performances and dependable functions, more than 10 countries, including Germany and Ireland, hire it for national forestry inventory and ecological studies. The field map was tested and proven as a useful device for the harsh conditions of Korean forests. Therefore, a Korean version of the field map was developed and tested for this study.

For the construction project of forest roads, the results of the monitoring advised that a standard manual for planning forest roads is required. This study produced a standard manual for planning forest road construction.

Researchers: Hyun-Deok Seok(Ph.D.) and Yo-Han Lee
Report No: C2006-32/Nov. 2006
E-mail: hdseok@krei.re.kr

A Study of Devising Schemes for the Bilateral FTA Negotiations with the United States and Canada: Impact Analyses of Forest Products

This study is mainly designed to suggest negotiation directions and strategies for the forest products negotiations of the Korea-US and the Korea-Canada Free Trade Agreements. The purpose is to minimize the negative effects expected by the results of the agreements. The suggestions are based on the appraisals of impacts when tariff barriers are removed or reduced, and the effects are measured through the analyses of import value increments.

The contents include the recent trade trends of forest products between the countries, the current industry and market conditions of main products, a structural comparison of the tariff systems, and appraisals of FTA impacts.

For accurate appraisal, various methods are applied. The import market share and the market comparative advantage index are calculated to find the main products to be considered seriously. The potential bilateral trade value and the coefficients of the import price in import demand functions are estimated to measure the import value increments.

It is expected that imports of main nuts, such as almond, walnut and pistachio, as well as wood products, such as sawn woods, plywoods and various boards from the United States, would increase if the tariffs are removed. For Canada, the increments would mainly come from fibers, particle boards, and medium density fibers since the consumption of those products heavily depends on imports. The increases of the import values of the main products would be 127 million dollars from the United States and 55 million dollars from Canada.

To minimize the impacts of the FTAs with the United States and Canada, it is required that the market opening of three main nuts and wood products should be delayed as long as possible. In addition to these products, the markets of other important non-timber products should also be opened up

conservatively. The main wood products, such as plywoods, sawn woods, particle boards, and fibers, utilize domestic resources and wood wastes. Consequently, they play important roles for a sustainable forest management plan, and the protection of their market is very critical.

Researchers: Sang-Min Lee(Ph.D.) and Chul-Soo Chang(Ph.D.)
Report No: C2006-46/Dec. 2006
E-mail: smlee@krei.re.kr

A Study on the Computation of Standard Yields and the Establishment of the Claims Adjustment Method for the Chestnut Insurance Program

Chestnuts had been one of the most profitable crops for a couple of decades. More than fifty thousand farmers were engaged in the production during the period. The production amount of 2003, however, had decreased and the chestnut industry had shown signs of stagnating. The consecutive typhoons which broke out in 2002 and 2003 were considered as the main reason for the industry's dullness. It is strongly required to bring in a crop insurance program for the chestnut to compensate for the loss of profits due to natural disasters.

This study focuses on the estimation of standard yields and the setting-up of claims adjustment methods for a chestnut insurance program. Standard yields are the most important materials for a crop insurance program, and they are the bases of insured amounts and premiums. The stability of the program heavily depends on the accuracy of the yields.

Three different yearly production data were classified by the ages of trees for the main chestnut-producing regions of Gwangyang, Sanchung, and Gongju. The yearly amounts of production for the ages are averaged to make standard yield tables and graphs. No yield graphs reflect theoretical backgrounds, however.

The standard yield tables are revised to be possibly utilized for an insurance program. The several age classes are aggregated and their yields are averaged. The revision of the standard yield graphs seems to follow the configuration introduced in the references. The yields of chestnuts are regressed with respect to the degree of the management works of pruning, fertilizing, and the control of insects to find their contributions to the increase of yields. The results, however, should be confirmed through field studies since the explanation abilities of the data are very low.

The Japanese system of claims adjustment is carefully

studied to check its adoptability under our current situations. Three methods relevant to the chestnut insurance have their own strengths and weaknesses at the same time. It is recommended to introduce them in accordance with a time plan. The first method is to offset damage caused by all target casualties. The way of claims adjustment is relatively easy since no field survey is necessary to estimate losses. The premise to apply for this method, however, is to restrict the eligibility to those who circulate their products through a distributor, such as a cooperative association, and this would reduce the number of policyholders. Since the circulation rate of chestnut through distributors is just about 70% of all, it should be considered under the longest time plan after a systemic revision of the distribution channel. The second method is to estimate the overall losses during a production period. It is required, however, to have much more precise yield criteria to compare the final yields. Since the standard yield tables provided in this study remain to be confirmed, this method can be considered under a middle time plan. The last one is the same with the one utilized in the crop insurance programs for apples, pears, etc. Since we have much experience, it is relatively easy to adopt at once. The characteristics of chestnuts should be fully considered as it has been done in this study.

Researchers: Sang-Min Lee(Ph.D.) and Chul-Soo Chang(Ph.D.)
Report No: C2006-47/Dec. 2006
E-mail: smlee@krei.re.kr

Monthly Outlook for Chestnut

The purpose of the monthly outlook for chestnut is to help farmers improve their farm planning and marketing strategies through the timely provision of information on the supply and demand trends, price trends, and short-term forecasts for chestnut of which the prices are usually unstable. This information is also crucial to the central and regional governments when they set up plans for stabilizing the chestnut market.

The monthly outlook for chestnut is based on a survey of farmers selected as samples and of monitoring personnel in the main production districts. The major contents include the intended and actual planted acreage, the growth status and the yield, the estimated production, the price trend and forecast, the import and export amounts, and a meteorological forecast.

The monthly outlook for chestnut is published on the fifteenth day of the month, seven times a year in total, and distributed to farmers and nationwide organizations, such as forestry cooperatives, agricultural cooperatives, agricultural technology centers, and local governments. The monthly outlook is also found on the Internet, in the homepages of the Korea Rural Economic Institute (KREI) and the Korea Forest Service (KFS), and in newspapers.

Researchers: Cheol-Su Chang(Ph.D.), Hyun-Deok Seok(Ph.D.), Kyung-taek Min and Yo-Han Lee
Reoprt No: Monthly Outlook Series/Dec. 2006
E-mails: cschang@krei.re.kr

Monthly Outlook for Oak-Mushroom

The purpose of publishing the monthly oak-mushroom outlook is to help farmers improve their farm planning and marketing strategies through the timely provision of information on demand and supply and prices. This information is also crucial to the central and local governments when they establish plans for fostering the industry.

The monthly oak-mushroom outlook includes such details as the intentions behind the cultivation, the growth status and yield, the estimated production, the trade amount, the price trend and forecasts, and overseas market information.

The monthly outlook is published on the fifteenth day of each month and disseminated to farmers and nationwide organizations such as forestry cooperatives, agricultural cooperatives, agricultural technology centers, and local authorities.

Researchers: Cheol-Su Chang(Ph.D), Hyun-Deok Seok(Ph.D),
Kyung-Taek Min and Yo-Han Lee
Report No: Monthly Outlook Series/Dec. 2006
E-mail: cschang@krei.re.kr

Monthly Outlook for Astringent Persimmons and Jujubes

The purpose of publishing the monthly outlook of astringent persimmons and jujubes is to help growers improve their farm planning and marketing strategies through the timely provision of information on the supply and demand trends, prices, and short-term forecasts for astringent persimmons and jujubes. The monthly outlook is based on a survey of growers selected as monitors.

The monthly outlook is published in the second week of the month, four times a year in total, and distributed to growers and nationwide organizations such as forestry cooperatives, agricultural cooperatives, agricultural technology centers, and regional governments.

Researchers: Cheol-Su Chang(Ph.D.), Hyun-Deok Seok(Ph.D.), Kyung-taek Min and Yo-Han Lee
Report No: Monthly Outlook Series/Dec. 2006
E-mail: hdseok@krei.re.kr

6 INTERNATIONAL AGRICULTURAL TRADE RESEARCH

Mid- and Long-Term Projections on Chinese Agriculture

The Chinese economy has already experienced internal reforms since 1978. In the 21st century, it tries to continue external reforms through joining the World Trade Organization (WTO) in 2001. As China's economy grew rapidly, Chinese agricultural production also increased. But the share of agriculture in the national economy has kept on dwindling. The agriculture also experienced structural changes of expanding labor-intensive sectors, such as those of vegetables, fruits, and meat, at the cost of land-intensive grains. After joining the WTO, the increased agricultural imports have resulted in agricultural trade deficits since 2004.

This study analyzed the current supply and demand trends of major grains, vegetables, fruits, and meat and forecasted their future aspects. The projections based on the analyses show that China may possibly maintain the equilibrium in the supply and demand of most agricultural products in the mid and long run. But it must still depend upon imports of some land-intensive agricultural products, such as soybeans and feed grains, from abroad.

China has enhanced the market economy system even in rural and agricultural sectors since its joining the WTO. The government recognized the urban-rural income disparity as a significant social threat. It tried to solve the problem through increases in agricultural exports, which require high quality and safety standards of food and agricultural products. Currently, most developed countries have prohibited the imports of fruits and meat from China because of sanitary and phytosanitary (SPS) reasons.

It is necessary to build a system for predicting Chinese agricultural situations through collecting and analyzing related data and information. Korean agriculture cannot help getting impacted by changes in Chinese agricultural conditions. Some institutes in international organizations such as the OECD have already established outlook models for Chinese agriculture and have been storing up projection data. The results of their projections, however,

are insufficient to be utilized as the information which Korean agriculture has needed. This is because Korea has some specific characteristics in its agricultural structure.

As a result, we should establish our own model and projection systems for Chinese agriculture in the long run. More studies and analyses seem to be required for comparing agricultural competitive advantages from a free trade agreement (FTA) between Korea and China. Some other research topics, such as the strategies for entering into agricultural niche-markets in China or a survey on Chinese production belts for major agricultural products, may also warrant further studies.

Researchers: Myong-Keun Eor(Ph.D.), Bae-Sung Kim(Ph.D.), Chung-Gil Chung(Ph.D.) and Hyun-Joo Lee
Report No: R535/Nov. 2006
E-mail: myongeor@krei.re.kr

Evaluation of the Doha Agricultural Negotiations and Policy Implications

This study examines trade and policy concerns raised during the agricultural negotiations under the Doha Development Agenda and evaluates their potential impacts on domestic agriculture and farm policies. By analyzing key negotiation proposals tabled by major member countries, including the United States, the European Union, and the G20 developing countries, this research investigates modality issues on market access, domestic support, and export competition.

The results of the market access scenarios can be summarized as follows: First, the EU and the G20 proposals would have Korea cut its tariffs less than in the case of the US proposal. Second, the designation of sensitive products would attenuate a sharp cut in tariffs. But, the advantages of tariff cuts by designating sensitive products would be vanished if tariff capping is placed on. Third, the designation of special products could be a practical way to ward off tariff capping on most sensitive and high tariff products. Regardless of their scope, special products are likely to bring about far significant benefits than sensitive products.

As for domestic support, Korea may not be bound by the Overall Trade Distorting Subsidies (OTDS). But, the reduction obligation of the Aggregate Measure of Support (AMS), de minimis, and Blue Box would restrain policy flexibilities in the future. Special and differential treatment for developing countries is envisaged to ensure gradual policy reform.

Monte Carlo simulations are utilized to forecast possible outcomes of modalities. Korea's average tariff rate (currently 63%) is forecast to be 35% under the developing country status. The total AMS is expected to fall from 1.5 to 1.0 trillion won. The de minimis support is likely to be 2.9 trillion won and the Blue Box payments would be capped by 862 billion won. With developed country's commitments, the average tariff rate would be 17%. And domestic support is forecast to be 759 billion won

for the total AMS, 1.1 trillion won for de minimis, and 867 billion won for Blue Box.

To fully take advantage of the developing country's status, Korea should pay attention to the securement of enough number of tariff lines as special products. In addition, tariff capping must be abrogated. If inevitable, tariff capping should not apply to 'sensitive' and 'special' products.

As shown in the sensitivity analysis, the OTDS support would be greatly influenced by a permitted level of de minimis support. Hence, a cut in de minimis support must be minimized to ensure the effectiveness of the OTDS support and policy flexibilities.

Researchers: Song-Soo Lim(Ph.D.), Sang-Hyun Kim and So-Yeong Lim
Report No: R538/Nov. 2006
E-mail: songsoo@krei.re.kr

A Study on Changes in North Korean Agriculture Since the Food Crisis

North Korea's agriculture confronts serious problems. The underdeveloped industrial structure and working population have not been improved for more than 30 years. Agricultural materials and its foundation are insufficient. North Korea's agricultural production is far behind its production potential. These problems made it difficult to solve North Korea's chronic food shortage problems for more than 10 years.

North Korea needs to go ahead with a proper plan for agricultural development. It means the country needs reformation and capital. North Korea had already introduced limited agricultural reform but the effort was in vain due to capital shortage. The inadequate institutional reform of North Korea is the reason for low capital investment from other countries. The current economic and agricultural indices show that the country's situation has not improved much since the mid-1990s when North Korea began to suffer the chronic food shortage.

Considering all the aspects, it can be diagnosed that the agriculture of North Korea is caught in a trap of unsuccessful institutional reform and capital shortage. It seems that North Korea is still lost in the trap. To settle the situation, the country needs bold actions, such as active reformation and the introduction of foreign investment. Although the solution looks far from achievable, North Korea has to start from looking for possible alternatives. A small-size agricultural incubating project is the available alternative and a starting point for North Korea at this point.

Researchers: Young-Hoon Kim(Ph.D.) and In-Bae Ji
Report No: R531/Sep. 2006
E-mail: kyhoon@krei.re.kr

An Analysis of the Changes in Mexican Agriculture After NAFTA

This research is designed to investigate what happened to Mexican agriculture after NAFTA (North America Free Trade Agreement). The purpose of the Mexican case study is to find what implications Korea could obtain from Mexico because Korea is negotiating an FTA with the United States. NAFTA came into effect in 1994. Mexico is important in that it is the first developing country to have signed an FTA with the United States. In addition, 12 years have passed since Mexico joined NAFTA. Twelve years is enough time for accumulating a lot of data needed to analyze the effect of NAFTA.

It is certain that the Mexican agricultural GDP grew and export increased after NAFTA. However, the overall evaluation of the impact of NAFTA on Mexican agriculture is controversial because the GDP growth gap among the states was widened and the import has increased faster than export. Of course, it is not easy to judge whether NAFTA has overall a positive impact on Mexican agriculture or not. Some sectors benefited from NAFTA while other sectors incurred losses from NAFTA. The sectors that benefited would evaluate the effect of NAFTA positively but the sectors that experienced losses would not.

To mitigate the impact of NAFTA on agriculture, new policies were introduced. CONASUPO (the *Compania Nacional de Subsistencias Populares*) that intervened with the agricultural market through purchases and resales was phased out in the market and abolished in 1999. CONASUPO protected producers by purchasing grains at higher prices and supported consumers by reselling the commodities at lower prices. CONASUPO was replaced with ASERCA (*Apoyos y Servicios a la Comercializacion Agropecuaria*), which was established in 1993.

Under ASERCA, producers were paid the difference between policy price and international price. In addition, the payment was given only to producers who belonged to some specific states where there existed production surplus. Later, this was ex-

tended to the producers who had production surplus. The support for consumers was almost abolished.

A direct payment scheme, PROCAMPO (*Programa de Apoyos Directos al Campo*), was also introduced. The land owners who had planted some grains for 3 years before 1993 were eligible for the payment. The producers who owned less than 1 ha were paid the same rate as the producers who owned 1 ha. Furthermore, the growers whose land was between 1 ha and 5 ha were paid a higher rate than other growers. In 2003/04, 935 pesos/ha were paid while 1,120 peso/ha were paid for the size of 1-5 ha farms.

The trend of per capita GDP was analyzed. NAFTA contributed to the increase in per capita GDP. However, the difference with the per capita GDP of the U.S. was widened. That means that an FTA is not sufficient for developing countries to catch up with developed countries. After NAFTA, exports to the U.S. increased but imports into Mexico increased more. Thus, the trade balance in agriculture was not improved.

The corn market was also investigated. Corn in Mexico is the same as rice in Korea. There are two types of corn in Mexico: white corn and yellow corn. White corn, produced in Mexico, is usually used for food while yellow corn, imported from the U.S., is used for animal feed. Since NAFTA, corn production in Mexico continued to increase despite a downward trend of corn price and a substantial increase in imported corn. The plausible explanation is as follows: the substitutability between white and yellow corn is very low, so these two markets are actually separated, and the government support for producers of Southern Mexico keeps them producing traditional grains irrespective of market situation. It is not certain that such effects are caused by NAFTA because the situation was not affected by the abolishment of tariffs but by the direct payment. It is likely to be an indirect impact because the direct payment was introduced to mitigate the direct impact of NAFTA.

The lower price of imported corn also has positive impacts on pork and poultry producers by decreasing production cost. After NAFTA, the production of pork and chicken increased rapidly due to strong demand and lower production cost.

The northern states benefited from NAFTA through trade with the U.S. The production of vegetables and fruits shows a rapid increase in these states. However, the southern states hardly benefited from NAFTA. Thus, the gap in per capita income between the northern and southern states tends to be larger over time.

Researchers: Yun-Shik Kim(Ph.D.), Yoon-Jae Hwang(Ph.D.)
and Song-Soo Lim(Ph.D.)
Report No: P87/Oct. 2006
E-mail: yunshik@krei.re.kr

Reorganization of the Commodity Classification System (HSK) for Agricultural Products

This study focuses on the adjustment of commodity specification for tariff schedule. Ten major countries, including Korea, the U.S., the EU, and the MERCOSUR, are selected for comparative study under the consideration of region, level of development, and trade or trade negotiations with Korea. Domestic and international rules and regulations for commodity specification have been reviewed. A case study for the ten major countries was conducted to evaluate the Korean harmonized system (HSK).

Korea has 1,452 tariff lines for agricultural products and this is far below the average of the ten countries. The U.S. has the most specified commodity specification system with tariff lines of 2,689. The countries which have more than 2,000 tariff lines are Canada, the EU, and the MERCOSUR. On the other hand, Thailand has the most simplified tariff specification system with just 1,065 tariff lines. Korea maintains relatively well specified commodities for HS 5, 6, 14, and 18 compared to the average. However, the Korean commodity specification is far below the average for most commodities, including meat, dairy products, grains, tobacco, and beverages.

Korea needs to develop a more specified HS system that considers the level of processing, species, and contents of raw materials. For example, rice needs to be specified considering variety (short, medium, and long), the level of processing, and whether parboiled, milled or husked, broken, etc. Beef can be more specified, including veal and differences in parts like loin, hips, and rib. The specifications for dairy products should contain differences in variety and contents of raw materials. Different tariff rates should also be provided considering contents of raw materials and the level of processing as well as price differences from variety differences.

Problems are incurred often from the classification of “others,” which include anything other than the classified specifically. There are too many items included in “others” in the

Korean harmonized system (HSK) compared to other countries. Korea needs to specify real items to be classified in the HSK and try to minimize the items in "others." Authorities in charge of international tariff line specification and the Korean government need to discuss the possibilities of providing new HS codes for newly emerging traded goods, such as genetically modified products, organic products, and new variety products. Social and scientific needs and concerns are increasing for genetically modified products and their trade.

Researchers: Sei-Kyun Choi(Ph.D.) and Joo-Nyung Heo
Report No: C2006-60/May. 2006
E-mail: skchoi@krei.re.kr

Characteristics of the Agricultural Infrastructure of the Imjin River Basin and Inter-Korean Cooperation for Agricultural Development

The purpose of this research is to analyze the characteristics of agricultural infrastructure of the Imjin River Basin and to present a direction for Inter-Korean cooperation for agricultural development focused on the downstream area of the Imjin River Basin (the area encompasses the Gaeseong Industrial Complex).

The major results of this research are as follows:

The Imjin River Basin has abundant water resources, low elevation, and mild slopes. The agricultural infrastructure is weak although a land rezoning project was executed in the 1970s. The water resources for agriculture consist of reservoirs and pumping stations. Therefore, a lot of energy is required to provide water to the agricultural lands. It is recommended that an individual development project is preferred to a comprehensive infrastructure improvement program for inter-Korean cooperation in this area. The priority of desirable projects is as follows: repair and rehabilitation of the existing facilities, enforcement of the intake facilities, and improvement of the agricultural land.

The elevation of the most downstream area of the Imjin River is less than 200m. The proportion of the areas with slopes of less than 15% is 45 percent. Sixty one percent of the area is sandy soil, and the area of dry soil is 80 percent. Therefore, this area is suitable for upland agriculture. The irrigation system is complicated in this area. The Songdo Reservoir, the main water source, is connected with other reservoirs by pumping stations, weirs, and canals. Most irrigation facilities are inefficient because of high energy consumption. Seventy seven percent of paddy fields are already consolidated, but substantial areas are plotted in a small or medium scale. We propose that reservoir development projects should be confined to a limited area in the northen area. It is recommended that intake water facilities like ground tubes, water pumping stations, and weirs are developed in the middle area. Storage and intake facilities are suitable for the southern

area. The priority of the land rezoning project is low. The cost of erosion control work in this area is estimated to be 115 billion dollars.

The area encompasses the Gaeseong Industrial Complex. It is important to utilize the environmental merits of the Gaeseong Industrial Complex for the development of the area. We engaged in both quantity and quality evaluations of 5 alternative areas for pilot agricultural development projects. Finally, the alternative areas 3, 4, and 5 were selected as pilot farms. Each area has its own merits. We recommend three different types of pilot farms. The first one is a sericulture farm for providing raw materials to the raw silk factory in the Gaeseong Industrial Complex. The second type is a ginseng farm. It can sell raw materials to South Korean ginseng factories on a contract basis or export ginseng to foreign markets. The third type is a vegetable farm, which includes greenhouses. Farmers are able to make money by selling vegetables to laborers in the Gaeseong Industrial Complex or Gaeseong citizens. All types of farms were designed to invigorate commercial cooperation between the North and the South in the future.

Researchers: Tae-Jin Kwon(Ph.D) et al.
Report No: C2006-12/May. 2006
E-mail: kwontj@krei.re.kr

Strategies for Proceeding With Free Trade Agreements in the Agricultural Sector

The ongoing Doha Development Agenda (DDA) and Free Trade Agreement (FTA) negotiations will negatively affect the agricultural sector, leading to a decrease in farm income and agricultural employment. It is expected that if Korea belongs to the developing country group in the DDA negotiations, farm income will be dropped by 4%. If Korea is recognized as a developed country, farm income will be reduced by 10%. Additional agricultural market liberalization by various FTAs, in which the tariffs on all agricultural products except rice are assumed to be eliminated, will lead to a 16% decrease in farm income. This study aims to formulate comprehensive FTA strategies in the agricultural sector for both external and internal negotiations.

Sensitive products are selected in consideration of the importance of value added, cultivation area, transaction cost, competitiveness, damage amount, self-sufficiency, and direction of structural adjustment. The sensitive products include rice, beef, red pepper, ginseng, dairy products, garlic, Korean citrus, grape, apple, pork, chicken, soybean, peach, strawberry, sesame, persimmon, honey, onion, and tomato. One hundred sixty commodities of sensitive products based on the 10-unit Harmonized System (HS) are underlined as the highly sensitive products that need to be excluded from market liberalization or specially treated. These products account for 11% of 1,452 items of the total agricultural products. The offer list (O/L) can be prepared based on these sensitive product lists.

For minimizing the damage caused by market liberalization, the number of special treatment products should be maximized. Tariffs on such special treatment products should be maintained. Diverse modalities of tariff reduction need to be applied in order to acquire a sufficient fulfillment period and partial market liberalization. For example, immediate or gradual reduction of tariffs after a certain period of grace, applying different rate of reduction by tariff band, tariff reduction with tariff rate

quota (TRQ) can be considered.

Making a request list for partner's market liberalization is also important for increasing agricultural export. First of all, import restriction measures of a partner country should be analyzed. Since the level of tariff of India, Mexico, and Thailand is relatively high compared with that of developed countries, the possibility of expanding agricultural export to those developing countries is likely high. Accordingly, the request list should be actively prepared for FTA negotiations with developing countries. As for FTAs with developed countries, special consideration should be given to non-ad valorem tax. Many developed countries including the United States, Canada, and Japan maintain high level of non-ad valorem tax. Thus, the elimination of non-ad valorem tax or the reduction after transforming into ad valorem tax may be important issues in FTAs with developed countries.

Domestic measures coping with FTAs encompass minimizing social conflict and cost, and implementing long-term agricultural development strategies. In order to minimize social conflict, it is necessary to obtain the common understanding of nations and keep negotiations transparent. Long-term agricultural development strategies should be supported by policy for structural adjustment.

The decision system for Korean trade policy needs to be improved in several aspects. Most of all, the decision system for trade policy should fall in with national strategies for the growth of Korea's whole economy. The arbitration system for trade policy among various government departments should be built. The procedure for trade policy-making, which adjusts the various parties having different concerns relating to FTAs, needs to be established. The National Assembly's inspection of trade policies and the functions of the trade committee are required to be strengthened. Pre-plans for vulnerable industries should be prepared. Also, procedures for post assessment and post administration after launching trade agreements such as FTAs need to be introduced.

The decline in the number of farm and agricultural employment is expected to be accelerated as the degree of market opening is magnified. It is expected that the cultivated acreage for most grains except rice and other cultivated crops such as red pepper and garlic will be reduced by market opening. It is also

expected that agricultural income will decrease up to 16 percent by the extension of market opening. As a result, the difference between the incomes of urban areas and rural areas will widen. A comprehensive counterplan, such as bringing up young farmers and managing aged farmers should be implemented to prevent the deindustrialization in rural areas and promote balanced regional development under a market opening situation.

The proportion of farms whose farm income (or agricultural income) decreases by more than 10 percent will reach 42.8 percent (or 75.6 percent) under the tariff removal by the conclusion of FTAs. A relatively larger deal of damages will be done to farms which grow vegetables and fruits. It is suggested that the Canadian Agricultural Income Stabilization (CAIS) be considered as a benchmark for the agricultural income stabilization in Korea. At the current stage, it is expected that an income stabilization account program can be implemented in livestock and fruit sectors. In the payment amount by the level of protection, the government subsidy level should be set up by the extent of income loss.

The fundamental measures to cope with FTAs are restructuring, raising price and quality competitiveness, and stabilizing farm income. For the red pepper which is seriously affected by tariff reduction, it is necessary to reduce the cultivated acreage of vulnerable farms, but maintain a self-sufficient production level. Improving the quality level of the fruit farming sector is essential. Fruit farms should be concentrated and specialized to reach a proper scale under which they can be operated effectively by family labor. For the livestock sector, it is necessary to improve price competitive power by attaining a proper farming scale, producing high-quality meat by promoting excellent brands, and producing safe livestock products by establishing a safe and sanitary management system. Creating a sustainable livestock industry is also essential.

Researchers: Sei-Kyun Choi(Ph.D), Oh-Bok Kwon(Ph.D),
Myong-Keun Eor(Ph.D), Hye-Jung Kang(Ph.D),
Eu-Sik Hwang(Ph.D) and Joo-Nyung Heo(Ph.D)
Report No: C2006-9/Apr. 2006
E-mail: skchoi@krei.re.kr

Inter-Korean Cooperation for the Development of Sericulture in North Korea

This study aims to find the current state, policies, and the potential of sericulture in North Korea and analyze the feasibility of inter-Korean cooperation for the development of sericulture in North Korea. We have developed concrete strategies for better outcome from the cooperation.

North Korea was a major sericultural country until the early 1990s. Six hundred thousand boxes of silkworm eggs were reared from 62,000ha of mulberry areas, which produced 1,450 tons of raw silk. However, the productivity of the sericulture was very low. The International Fund for Agricultural Development (IFAD) estimates that North Korea has a potential to produce 5,000 tons of raw silk when the basis of sericulture is well developed.

South Korea's sericulture has been shrinking since the mid-1970s. There is no raw silk manufacture operating because domestic cocoons are not supplied. However, the silk fabric and silk garment industries produce 300 million dollars worth of products each year.

Cocoon production has been increasing by 4.7% per year during the recent 20 years. However, among the total cocoons produced in the world, only 2% are being traded in the international market because most sericultural countries utilize their own cocoons to produce raw silk. These characteristics cause relatively high fluctuations in the cocoon price. Major export countries are China and Uzbekistan. These countries export 60% of the total cocoons traded in the international market.

Raw silk production has increased by 7.5% since 1988. China is a major producer and exports 80% of the total raw silk circulated in the international markets. India is a major importing country and imports 48% of the total raw silk traded in the international market. South Korea imports 8% of the total raw silk. Recently the international raw silk price has been hiked to 35～40 dollars per kilogram. Both supply and demand have affected the

price increase. The high price of raw silk will be maintained for a while.

The silk industry transfers slowly from developed countries to developing countries. Sericultural technologies are not transferred easily among countries, and the raw silk industry has the characteristic of being raw material-oriented. These characteristics block industry transfer among countries. However, for that matter, North Korea has good conditions for developing sericulture as a major industry.

It is desirable for North Korea to develop sericulture rather than the raw silk or silk fabric industries. Productivity enhancement is more important than expanding the mulberry areas when developing the sericultural industry. North Korea needs 2 stages for its sericultural development strategy: the first stage is to restore the sericulture production from the early 1990s, and the second stage is to set the level that is same as the IFAD's target.

For the cooperation between the two Koreas, a wide range of fields is a possible target. Possible fields are as follows: the exchange of mulberry and silkworm varieties, the management of mulberry and silkworm, the commercial trade of raw silk and silk fabric, the direct investment for raw silk and silk fabric manufacture, training skilled laborers, market development, etc. Also, there are several types of cooperation between the South and the North, such as assistance, trade, and commercial cooperation. We need to set the final target as the enhancement of commercial cooperation.

We suggest a desirable strategy for inter-Korean cooperation in sericulture. The first stage is to develop a civilian assistance program for agricultural materials in a small scale. The second stage is to increase assistance and initiate inter-governmental cooperation. A medium scale of pilot farms is desirable in this stage. The third stage is to develop the infrastructure of sericulture through a loan basis. The fourth stage is to enhance commercial cooperation, such as commercial trade, contract farming or contract production, and processing on commission. The final stage is to make joint ventures or to collaborate on silk-related manufactures.

There are several financial sources for inter-Korean ser-

icultural cooperation. The most important financial source is the Inter-Korean Cooperation Fund, which is supported by the South Korean government. The fund is available on a grant or loan basis for assistance, trade, or commercial cooperation with North Korea. The Official Development Assistance (ODA) or the Economic Development Cooperation Fund (EDCF) can be the possible sources when the economic cooperation between the two Koreas expands. A commercial assistance program is also available from the Korea Development Bank.

Researchers: Tae-Jin Kwon(Ph.D.), Jong-Hyuk Suh(Ph.D.)
and In-Bae Ji
Report No: C2006-13/Jul. 2006
E-mail: kwontj@krei.re.kr

Korea-U.S. FTA: Effects and Strategies in the Agricultural Sector

This study aims to formulate comprehensive FTA (Free Trade Agreement) strategies in agricultural sector by analyzing FTAs (e.g., NAFTA) of other countries for building a Korean standard negotiation model, and calculating the impacts of FTAs on Korean agriculture.

The decision system for Korean trade policy needs to be improved in several aspects. Most of all, the decision system for trade policy should fall in with national strategies for the growth in Korea's whole economy. An arbitration system for trade policy among various government departments should be built. A procedure for trade policy-making which adjusts various parties having different concerns relating to FTAs needs to be established. The National Assembly's inspection of trade policies and the functions of the trade committee of the National Assembly are required to be strengthened. Pre-plans for vulnerable industries should be prepared. Also, procedures for post-assessment and post-administration after launching trade agreements such as FTAs need to be introduced.

The impacts of a Korea-US FTA on the agricultural sector are analyzed by the Computable General Equilibrium (CGE) Model. The study predicts about a 1-2 trillion won decrease in agricultural production and about a 2-3 trillion won increase in agricultural imports. The decrease in production will be most severe in livestock (about 900 billion won). Agricultural products are classified based on trade possibility, price competitiveness, and tariff level. Among them, rice is included in the highly sensitive group.

The ratios of rural and agricultural populations to total population in the MERCOSUR countries are lower than those in other countries in South America. Based on high agricultural competitiveness, the MERCOSUR countries export large amounts of grains, fruits, and livestock. The exports of agricultural products from Korea to this region are worth no more than hundreds

of thousands of dollars. The imports of agricultural products such as beef, pork, chicken, rice, soybean, orange, grape, apple, garlic and honey from the MERCOSUR countries are expected to be increased by the conclusion of Korea-MERCOSUR FTAs.

Korea-India agricultural product trade accounts for 7.3% of total Korea-India trade. Changes in the amount of agricultural production and import and export under a Korea-India FTA are analyzed by the CGE Model. Larger damages are predicted for oil-seeds and grains. The estimated production losses for the agricultural products are 132.7 billion won and 14.3 billion won, respectively. It is expected that condiment vegetables, such as dried red pepper, garlic, and onion, will be imported from India.

Expected changes in the trading pattern between Korea and China after the conclusion of an FTA are analyzed by using the Market Comparative Analysis (MCA) index. It is found that most Chinese agricultural products already have competitiveness in the Korean market. Most Chinese fresh agricultural products have cornered the Korean market. Only a small part of Korean processed agricultural products has a comparative advantage in the Chinese market. Using the Commercial Trade Balance (CTB) index, it is shown that the major Korean agricultural products are in a very weak position with respect to export competition with Chinese products. It is expected that, in the scenario 1, the agricultural income in 2014 under a Korea-China FTA will go down by 13.5 percent compared with that under no Korea-China FTA.

The impact of a Korea-EU FTA on main agricultural products is analyzed using the partial equilibrium model. The results show that while the amount of agricultural products imported from the EU is estimated to be up by approximately 12.3 percent, the amount of agricultural products exported is estimated to increase just by 6 percent compared to the base period 2002-2004. It is expected that imports of most processed agricultural products from the EU will increase. The amount of Korean exports of processed agricultural products such as ramyeon, kimchi, and bakery also will slightly increase. Although the increment in pork import is expected to be large, the direct damages to hog raisers might not be huge after the conclusion of a Korea-EU FTA since pork has already been imported from several countries.

The loss in agricultural production by the conclusion of a Korea-ASEAN FTA is estimated to be about 84 billion won in the scenario 1 and about 22 billion won in the scenario 2. It is estimated that the increments in imports of banana, pineapple, frozen chicken drumsticks, and manioc will be 4.5, 3, 7.6, and 0.9 billion won, respectively. It is expected that while in the case of offering an additional tariff-rate quota (TRQ) the impact of tariff reduction and the declining rate of producer revenue are great for citrus fruits, peanuts, mung beans, and sesame; and the impacts of an additional TRQ on garlic, onions, and sweet potato are relatively small.

At present, the amount of agricultural product imports from Canada is 10 times as big as the amount of agricultural product exports to Canada by Korea. It is expected that increments in imports will be great especially in beef (9 million dollars) and malt (7 million dollars) under a Korea-Canada FTA. It is also suggested that the imports of root crops for feed and rapeseed oil (canola oil) will increase.

The decline in the number of farm and agricultural employment is expected to be accelerated as the degree of market opening is magnified. It is expected that cultivated acreage for most grains, except rice, and other cultivated crops such as red pepper and garlic will be reduced by the market opening. It is also expected that agricultural income will decrease by up to 16 percent by the extension of market opening. As a result, the difference between the incomes of urban areas and rural areas will widen. A comprehensive counterplan, such as cultivating younger farmers and managing aged farmers, should be implemented for preventing deindustrialization in rural areas and promoting balanced regional development under a market opening situation.

The proportion of farms whose farm income (or agricultural income) decreases by more than 10 percent will reach 42.8 percent (or 75.6 percent) under tariff removal by the conclusion of FTAs. Relatively larger deals of damage will be done to farms which grow vegetables and fruits. It is suggested that the Canadian Agricultural Income Stabilization (CAIS) be considered as a benchmark for agricultural income stabilization in Korea. At the current stage, it is expected that an income stabilization ac-

count program can be implemented in livestock and fruit sectors. In the payment amount by the level of protection, the government subsidy level should be set up by the extent of income loss.

The fundamental measures to cope with FTAs are restructuring, raising price and quality competitiveness, and stabilizing farm income. For red pepper, which is seriously affected by tariff reduction, it is necessary to reduce the cultivated acreage of vulnerable farms but, at the same time, maintain a self-sufficient production level. Improving the quality level of the fruit farming sector is essential. Fruit farms should be concentrated and specialized to reach a proper scale under which they can be operated effectively by family labor. For the livestock sector, it is necessary to improve price competitiveness by attaining a proper farming scale, producing high-quality meat through the promotion of excellent brands, and producing safe livestock products through a safe and sanitary management system. Creating a sustainable livestock industry is also essential.

Researchers: Sei-Kyun Choi(Ph.D.), Yun-Shick Kim(Ph.D.),
Yong-Sun Lee(Ph.D.), Joo-Ho Song(Ph.D.),
Min-Kuk Jeong(Ph.D.), Gyu-Dae Cho(Ph.D.)
Yong-Su Cho(Ph.D.), Dong-Kyu Park(Ph.D.),
Byung-Ryul Kim(Ph.D.) and Kyung-Phil Kim(Ph.D.)
Report No: C2006-57/Dec. 2006
E-mail: skchoi@krei.re.kr

Preparatory Research on Korea-India Comprehensive Economic Partnership Agreement

India is the economical and political center of the south-western region of Asia. In consideration of India's strategical importance, Korea has been preparing for a free trade agreement (FTA) with India. In the summit held in October, 2004, the two countries announced that they reached an agreement in which the two countries make a joint study group to analyze the effect of the Comprehensive Economic Partnership Agreement (CEPA). Based on the agreement, the joint study group met four times from January, 2005, to January, 2006. In the last meeting, the group adopted a final report prepared for each government. According to the final report, the two countries announced the opening of CEPA negotiations in February, 2006, and initiated the first negotiation in March, 2006.

In order to measure the effect of the CEPA on the domestic products, a partial equilibrium model was developed. The partial equilibrium models used in the previous research assumed that imported goods are homogeneous with domestic goods. This assumption led to the overestimation of FTA effect because domestic price falls to import price when tariff is not levied. Unlike the previous models, this model deals with an import good as a substitute, that is, a heterogeneous good. Then, the domestic industry is affected by the substitution effect between an import good and a domestic good. The substitution effect is measured as a cross price elasticity in an econometrics model. The larger the cross elasticity, the bigger the domestic influence by the FTA. The difference in quality between foreign goods and domestic goods is reflected in the model without any additional assumption or variables.

Import from India happened within 10 years and the trade pattern is very unstable. In some years, a large quantity is imported, and nothing is imported in other years. Thus, economic analysis is not easy because of the lack of trade data. In this research, most cross elasticities are assumed based on the cross

elasticities of other countries. Beef, sesame, onion, and chillies are included in the analysis.

Most of the beef exported from India is buffalo. Buffalo does not directly substitute domestic beef. Thus, the cross elasticity of Indian beef is likely to be very small. When the cross elasticity of 0.01-0.03 is applied, the production amount of the domestic beef industry decreases by 8 billion won to 24 billion won. For sesame, the production amount falls to 45 billion won from 66 billion won when the cross elasticity of 0.2-0.3 is adopted. For onion and chillies, the domestic industry is affected by from 3 to 14 billion won and from 15 to 46 billion won, respectively.

Several tariffs and levies are charged when a good is imported through an Indian port, such as Basic Duty (BD), Countervailing Duty (CVD), special Countervailing Duty (spl CVD), and Education Cess (EC). Thus, we need to put all tariffs and levies on the table. In addition, it is necessary to clarify the definitions of “origin” and “most-favored nation.”

It is a good opportunity for Korean agriculture to export some fruits and foods. For example, apples and pears have quality competitiveness in the Indian market. It is a good strategy to export goods in the period of Diwali. Diwali is celebrated by all Indian people, irrespectively of region. During this period, the Indian people buy high quality goods, including imported foods. The companies that try to show their products to Indian consumers may use AAHAR, the international food fair held in Delhi every year.

Researcher: Yun-Shick Kim(Ph.D.)
Report No: C2006-22/Jul. 2006
E-mail: yunshik@krei.re.kr

Evaluation of the Impact of the Korea-Chile FTA on Korean Agriculture

This research is designed to evaluate the impact of the FTA with Chile on Korean agriculture since the FTA has been in effect since 2004. In the evaluation, the exchange rate and the export prices of Chilean products are considered. The products considered in this research include grapes, wine, pork, and kiwi because the total import value of these four products amounted to $120 million in 2005, taking over 95% of the total imports from Chile.

Chile's share in Korea's total imports has been increasing. The share of Chilean products in total agricultural imports had increased from 0.2% in 2001 to 0.6% in 2005. The share of Chile's meat had risen from almost 0% in 2001 to 3.4% in 2005.

It should be noted that all increases in imports from Chile are not caused by the Korea-Chile FTA.

Researchers: Sei-Kyun Choi(Ph.D.) and Yun-Shick Kim(Ph.D.)
Report No: C2006-23/Sep. 2006
E-mail: skchoi@krei.re.kr

Structural Adjustment and FTA Strategies of the Agricultural Sector

The GDP of agriculture has increased in the process of industrialization in Korea, but its GDP share has kept declining. The agricultural production structure has changed. The share of grain production has reduced, while those of vegetables and livestock have risen. Agricultural income has been lagging after the 1990s and the portion of rice income has increased while those of vegetables, fruits, and livestock have decreased.

Farm incomes are rising, while the income gap between urban and rural areas has been expanding because urban income has increased more rapidly than rural income. Farm population has been declining, while the number of the elderly people over 65 years old has increased. As a result, the portion of the population of the elderly people has been rising. Total farm land has decreased. However, the average farm size has increased due to the significant decrease in the number of farm households.

Total agricultural income will be decreased by 6.7%~26.4% in 2020 from the current level if Korea signs an FTA with China after the DDA and FTA with the U.S. In particular, if the medium-level FTA, in which tariffs for all agricultural products except rice will be eliminated within 10 years, is executed, agricultural income will be 9.8 trillion won. The income is smaller than that of 2005 by 5.3 trillion won.

When the Korea-China FTA is signed, despite no rice tariff elimination, it is expected that rice income will be reduced to the 60%~80% level of current income because the rice price is projected to go down due to rice tariffication and the DDA agreements. Therefore, it is necessary that rice should be excluded from the country schedule for food safety, multifunctionality, and ecological environmental preservation, etc.

When tariffs are eliminated, it is expected that incomes from soybeans, radish, pears, grapes, peaches, and pork will be kept on the level of 50% of the current income. That means farm size should be expanded around two-fold in order to keep the cur-

rent level of income.

Incomes from items such as potatoes, red peppers, onions, apples, mandarine, ginseng, and beef will be reduced to below 50% of the current level with the tariff elimination. These items are expected to keep the incomes on the 50% level of the current incomes if a 50% tariff is maintained after the FTA. Therefore, a 50% reduction, rather than tariff elimination, and about two-fold expansion of the farm size are required to maintain the current incomes from these items.

However, the incomes from the items such as garlic, radish, sesame, and persimmon are expected to be cut to below 50% even under the 50% reduction of tariffs. Therefore, it is necessary to allow a longer period before implementation along with a 50% tariff reduction for these items.

Barley, water mellon, green onions, and most greenhouse vegetables, such as strawberry, tomato, cucumber, melon, lettuce, and pumpkins, will not bring about income in spite of the 50% tariff reduction. Their revenue may not cover the managing costs. These items have considerable shares in domestic agricultural production. Moreover, the farmers of these items are relatively young with competitive quality advantages through high technology. Therefore, it is necessary to boost price competitiveness and quality along with a support policy for the structural adjustment of these products.

Researchers: Myong-Keun Eor(Ph.D.), Jeong-Ho Kim(Ph.D.), Seong-Jae Park(Ph.D.), Bae-Sung Kim(Ph.D.), Hyun-Joo Lee and Jin-Kyo Suh(Ph.D.)
Report No: C2006-25/Sep. 2006
E-mail: myongeor@krei.re.kr

KREI Quarterly Agricultural Trends in North Korea

The purpose of this research is to help the administrators who establish policies and the people who are concerned with North Korea by providing an analysis on agricultural trends in North Korea. “KREI Quarterly Agricultural Trends in North Korea” is issued quarterly and is comprised of “Focus”, “Analysis on the Agricultural Trends”, “The Trends of the Trades and the Cooperations in Agriculture” and “Agricultural Data”.

“Focus” has four articles: “Outlook of 2006 Agriculture in North Korea and Inter-Korean Cooperation”, “Direction and Strategies for Inter-Korean Cooperation”, “Changes in Agricultural Policy and Prospects of Food Supply and Demand in North Korea”, “The Meaning and Issues of the Committee for Inter-Korean Agricultural Cooperation”.

Agricultural trends in North Korea were similar as last year. The basic goal was to increase food production through the production of qualified seeds, increase of potato production, expansion of double cropping area, and small animal raising. In agricultural infrastructure, North Korea put emphasis on land arrangement undertaking and irrigation canal construction. In the agricultural production sector, it allocated more farmland for potatoes and beans. The cultivated land for grains is stable. In the livestock sector, the country concentrated its efforts on increasing the production of small animals such as rabbit, goat, and poultry. In the agricultural management sector, it devoted to making better the supply of agricultural labor power, machinery, and fertilizers.

Agricultural trade and inter-Korean cooperation were quite active before the nuclear test. However, South Korea’s governmental assistance to the North was halted completely after the nuclear test. Food aid through concession basis was not realized in 2006, although 350,000 tons of fertilizers were delivered to the North early last year. The quantities of trade in agricultural, forestry, and marine products increased.

The international aids to North Korea were shrunk because

the North Korean government denied the United Nations Consolidated Appeal Process (CAP). The international community's response is negative although North Korea had appealed it to switch emergency humanitarian assistance to development assistance.

Researchers: Tae-Jin Kwon(Ph.D.), Young-Hoon Kim(Ph.D.) and In-Bae Ji
Report No: M46-8-1~4/Dec. 2006
E-mail: kwontj@krei.re.kr

2006 FANEA Annual Report

The Forum for Agricultural Policy Research in Northeast Asia (FANEA) was established jointly by the Korea Rural Economic Institute (KREI), the Chinese Academy of Agricultural Sciences (CAAS), and the Policy Research Institute under the Ministry of Agriculture, Forestry, and Fisheries of Japan (PRIMAFF) in October 2003. This forum was launched to establish a collaborative relationship in agricultural research and related fields among Korea, China, and Japan as part of their joint commitment to foster mutually beneficial research and development in the Northeast Asian countries.

The major activities of FANEA in 2006 were the 4th FANEA International Symposium, joint studies between Korea and China, invitation seminars, homepage management, and other related activities.

The 4th FANEA International Symposium was held under the theme of "Northeast Asian Agriculture under Economic Transition" from Sept. 4th through Sept. 6th in Seoul, Korea. In this symposium, hosted by the Korea Rural Economic Institute, nine papers dealing with three subordinate themes such as "Recent Agricultural Policy Reforms in Northeast Asia," "FTA Implications on Northeast Asian Agriculture," and "Emerging Issues in Recent Agricultural and Rural Development" were presented and debated by participants from the three countries.

Also participating at the symposium were three observer institutes: the Japan International Research Center for Agricultural Sciences (JIRCAS), the Research Center for Rural Economy under the Ministry of Agriculture in China (RCRE), and Seoul National University.

As a joint research project, FANEA conducted a study entitled "Study on China's Agricultural Policies Before and After Joining the WTO" with the Research Center for Rural Economy under the Ministry of Agriculture in China.

FANEA has also hosted an invitation seminar entitled "Analysis on Changes and Adjustment of China's Agricultural

Policies Before and After Joining the WTO." Besides, FANEA has performed several activities such as the attending of a seminar hosted by the IAED/CAAS and the publishing of research materials, etc.

Researchers: Myong-Keun Eor(Ph.D.), Hyun-Joo Lee,
Chung-Gil Chung(Ph.D.) and Keun-Soo Han
Report No: M78/Nov. 2005
E-mail: myongeor@krei.re.kr

SPECIAL RESEARCH 7

The Expansion of Crop Insurance in the U.S. and Its Policy Implications for Korea

The main purpose of this report is to review the expansion of crop insurance programs in the U.S. since 1938 and to investigate the implications for our country, which has been implementing crop insurance since 2001. This report has focused especially on the development progress of the mid-1990s, in which many programs had been developed in the U.S.

From the experience of the crop insurance history of the U.S., we can derive some policy implications as the following:

- The U.S. government had given greater weight to the crop insurance (including revenue insurance programs) among the agricultural risk management policies supporting farmers facing several risks.
- All crops were included in reviewing the feasibility study and the decision was made to step forward with the next process on the basis of the study.
- Various insurance programs were developed and implemented for a crop. The programs consist of yield-guaranteed, revenue-guaranteed, and asset-guaranteed ones.
- From the late 1990s, many entities (especially private insurance companies) have been participating in the research and development of insurance programs under the support of the government.
- The development process of crop insurance programs usually includes a feasibility study, program development, a pilot program, an evaluation, and regulations. Generally, normal processes needed 7.5～10 years. Through a step-by-step process, they aimed to minimize unexpected errors.
- In addition to the development of new programs, they have been improving the current programs through continuous R&D.

Also the RMA (Risk Management Agency), which is authorized to manage federal crop insurance, has been strengthening the risk management education to help farmers in dealing with various risks during farming.

Finally, the government has been substantially intervening in the maintenance and expansion of crop insurance. It has subsidized farmers' premiums, assumed reinsurance, supported the operating costs for private insurance companies, and reimbursed the R&D expenses.

Researcher: Kyeong-Hwan Choi
Report No: D217/Apr. 2006
E-mail: kyeong@krei.re.kr

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인 쇄 2007. 5.
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발행인 최정섭
발행처 한국농촌경제연구원
130-710 서울특별시 동대문구 회기동 4-102
02-3299-4000 팩시밀리 02-959-6110 http://www.krei.re.kr
인 쇄 (주)문원사
02-739-3911~5 팩시밀리 02-739-3940 E-mail: munwonsa@chol.com