Agricultural Outlook System in South Korea

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Overview

➢ **Necessity**: Characteristics of Ag. products
   A small shift in supply worsen the price fluctuation of Ag. products.
   → Need to **voluntarily adjust supply & demand** based on **accurate information**

➢ **Forward-looking information** on cultivation acres, production amount, market prices, etc, which **helps farmers make certain farming decisions** plus is used to **stabilize supply & demand as well as price**

➢ Based on **comprehensive analysis of supply and demand conditions**

➢ Ag. products with **large production value** or **wide fluctuation of price**

➢ **Requirements**: Reliability / Objectivity / Timeliness
Ag. Outlook In South Korea

- **Legal basis**: Article 42, the laws of agriculture and food industry
  - Article 5 of the Act on Distribution and Price Stabilization of Ag. Products
  - Enforcement Rules: designated KREI to establish an outlook organization

- In 1999, initiated with 12 experts (staff) on 9 products

- The number of outlook products has increased, **now 35 products**
  - 31 domestic products with large production values / wide fluctuation of price
  - 4 international grains affecting domestic food prices (soybeans, wheat, corn, rice)

- The project **budget: 15 million US$ in 2021**

- Around **80 staff** are made up of 8 teams
Main tasks of Ag. Outlook

➢ Short-term Outlook information
  → Supply & Demand, and price forecast for upcoming 1~2 months
  → Monthly report, contents that farmers need the most (price, yields, cultivated acres, etc.)

➢ Mid-term Outlook information
  → Summarizes supply and demand trends & forecasts
  → Quarterly magazines, 『Agriculture and Rural Economic Trends』

➢ Long-term Outlook information
  → Overall agricultural projection for upcoming 10 years
  → Published with 『Agricultural projections』 in every January

➢ Policy Analysis & Model Study
  → Supporting the operation of government policy projects
  → Simultaneous structure model, predictive model, etc.
Contents of Short-term Outlook

➢ (Intended) Cultivational Acres
  → Help farmers decide which product to grow and how much to grow
    (Intended acres are announced 2~3 months before sowing.)
  → Help government decide whether to implement supply control measures
    (Estimated acres are announced monthly before harvest.)

➢ Yields, Output, and shipment amount
  → Help government to prepare for concrete control measures
  → Be used to estimate the market price in the future

➢ Import and Storage volume
  → Be very important in predicting the market prices

➢ Market price and shipment volume
  → Enable farmers to establish the proper shipping plan by themselves
  → Be useful for government to take preemptive actions
Procedure for Short-term Outlook Info.

➢ Step 1. Data Collection
  → Surveys of sample farming households (over 15,000), and local product experts
  → On-site investigation (actually measures the cultivation acres & growth situation)
  → Using Drones
    (information such as cultivation acres, shipping acres, & crop conditions)
    (R&D to advance the technology of crop identification and vegetation index)
  → Regional Advisory Meeting (when special issues occur)
  → Statistical data produced by various organizations
    (National Statistical Office, Korea Customs Service, etc.)

➢ Step 2. Analysis & Estimation
  → Extract the estimated forecasts in the future with the secured data
  → Econometrically predictive models are also used
    (cultivation area reaction function, yields function, & inverse demand function, etc.)
  → Determine the figures by comparing several estimates
total area (2,268ha)
garlic (3.4%)
onion (26.5%)
Chinese cabbage (6.9%)
not in use (54.4%)
Procedure for Short-term Outlook Info.

➢ Step 3. Review(National Advisory Council) & Finalize
→ Write a draft monthly report based on the estimated figures
→ Review and confirm the figures with national advisory committee (producer group, specialist at the wholesale & retail stage, auctioneer, distributor, person in charge of the product from Central government and Statistical Office)
→ Make a final report after determining the final figures by reflecting the advisory opinions

➢ Step 4. Distribution
→ Distribute to farmers and policymakers through various routes
→ The monthly reports are placed in various places so that farmers can easily access the outlook information
## Examples of using Short-term Outlook Info.

<table>
<thead>
<tr>
<th>Information type</th>
<th>Time of provision</th>
<th>Utilization Institution</th>
<th>Utilization method</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Intention of cultivation</td>
<td>- 3 months before seeding &amp; planting</td>
<td>- Producer(organization), local autonomous entity</td>
<td>- Seeding &amp; planting area adjustment</td>
</tr>
<tr>
<td>- Area of cultivation</td>
<td>- Right after seeding &amp; planting</td>
<td></td>
<td>- Contract cultivation area adjustment</td>
</tr>
<tr>
<td>- (Cultivation intention for next cropping pattern)</td>
<td>- (Right after finalizing the previous crop pattern)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Estimated Water supply cut and Yield amounts</td>
<td>- Monthly after planting</td>
<td>- Producer(organization), local autonomous entity</td>
<td>- Shipment control</td>
</tr>
<tr>
<td>- Estimated monthly shipment</td>
<td>- 3 Months Before Shipment</td>
<td>- aT, The Republic of Korea Ministry of Agriculture, Food and Rural Affairs, etc.</td>
<td>- Purchase and Market Isolation</td>
</tr>
<tr>
<td>- Estimated monthly price</td>
<td></td>
<td>- Import stockpiling</td>
<td>- Import stockpiling</td>
</tr>
<tr>
<td>- Storage and Consumption amounts</td>
<td>- Monthly after harvest</td>
<td>- Producer(organization), distribution company</td>
<td>- Timing of Storage and Selling</td>
</tr>
<tr>
<td>- Estimated price for Off crop season</td>
<td>- Monthly after storage</td>
<td>- aT, The Republic of Korea Ministry of Agriculture, Food and Rural Affairs, etc.</td>
<td>- Releasing</td>
</tr>
</tbody>
</table>
Examples of using Short-term Outlook Info.

➢ **Government uses the information as basic data for stabilization policy**
(1) Spring cabbage last year
   - Outlook: production increase by 11%, and the price is expected to fall sharply
   - Government: stock 7,000 tons away from market to ease the price downward trend
   - Results: stabilize the price, prevent farmers from large income loss
(2) Rice last year
   - Outlook: price downward trending due to slumping consumption
   - Government: transfer the estimated amount of over-supply to public reserve
   - Results: mitigate the price downward trend
(3) Cultivation area of seasoning vegetables
   - Outlook: cultivation acres decrease considerably based on the intention survey
   - Government: carried out regional tours (6 times) focusing on main producing areas
   - Results: prevent the situation of production shortage in advance
Long-term Outlook Information

➢ **Agricultural Projection**
  → Forecast the agricultural macro-variables in Korea for the next 10 years
  → Derived from KREI-KASMO (Korea Agricultural Simulation model)
    ➢ Developed through a two-year joint study (’07~’08) with FAPRI (Food & Agriculture Policy Institute)
    ➢ Revised and supplemented annually from 2009

➢ **Advancement of KREI-KASMO over 12 years**
  → Quality improvements
    ➢ Develop various modules reflect new internal & external policy variables
  → Quantitative expansion
    ➢ Build and add a model for new Ag. product that can collect data, 48 → 69 products

➢ **Overview of KREI-KASMO**
  → Dynamic Partial Equilibrium Model limited to the Korean Ag. Sector
  → A system of simultaneous equation
    ➢ Derives a market price that balances supply and demand for each Ag. product
Each sector is interlinked in the model.
Examples of using Long-term Outlook Info.

➢ Provide guidelines for the government’s direction of agricultural administration
  (1) Projection: stagnant demand for traditional Ag. Products
    ➢ Government: devises various plans to expand demand
  (2) Projection: reduction & aging of agricultural workforce
    ➢ Government: policies can be formulated to expand the Ag. workforce for the young.

➢ Provide the effects of policy alternatives and external shocks
  (1) How will the FTA cause Korean agriculture to change in the future?
    ➢ Evaluate by simulating tariff cut-off scenarios, compared to baseline projection
    ➢ Government: prepares for an FTA negotiation proposal based on the results
  (2) How much is the impact of COVID-19 into Korean agriculture?
    ➢ Evaluate by simulating the change of macroeconomic indicators such as GDP
    ➢ Government: decides whether and how much subsidies are paid to farmers
Technical Assistance to other countries

➢ Sharing know-how & techniques of outlook process accumulated over 30 years

(1) Short-term Outlook
☞ Design method of sample farm-household
☞ Estimation method including statistical as well as modelling techniques
☞ Distribution method of the Outlook information to farmers

(2) Long-term Outlook
☞ How to develop & operate a dynamic partial equilibrium (structure) model
☞ How to derive long-term projection using the model
☞ How to use the model to analyze the impact such as tariff cuts or new policy

(3) Generally speaking
☞ How to operate & organize the overall work
Thank you for your attention.

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