Business Strategy of the Health & Crop Sciences Sector

Ray Nishimoto
Director & Managing Executive Officer
Sumitomo Chemical
September 19, 2014
1. Overview of the Health & Crop Sciences Sector
2. Global Trends in Agriculture
3. Global Strategy for Agriculture related business
   (1) Expand Overseas Business
   (2) Expand Domestic Business
4. Long-term Prospects
1. Overview of the Health & Crop Sciences Sector
Overview of Health & Crop Sciences Sector’s Business

- **Crop Protection Business**
  - Chemical and Biorational products
  - Fertilizers
  - Variety of Agricultural Material

- **Environmental Health Business**
  - Household insecticides • PCO (Pest Control Operation)
  - Moth proofer, termite control agents
  - Animal Health Products

- **Vector Control Business**
  - Products for Control of Infectious Diseases Such as OLYSET Net

- **Animal Nutrition Business**
  - Feed Additives
    • Methionine
    (Essential amino acid feed additives)

- **Pharmaceutical Business**
  - Active Pharmaceutical Ingredients (APIs), Intermediates.
Long-Term vision of the Health & Crop Sciences Sector

- **Ensuring Public Health and Hygiene**
- **Food**
- **Health**
- **Environment**
- **Sumitomo Chemical R&D**

**Increase of Food Production**
- Sustainable Agriculture
- Safer Agricultural Produce

**Improvement of QoL & the Environment**

**Strengthen high-profitability businesses**
- Expand business globally
- Ensure compliance & maintain safe operations

**Differentiation**
- Differentiate our business from multinational and generic competitors

**Business Creation**
- Expand brand-name products business/Expand into downstream and related areas/Expand sales area to Central Europe and South America

**Innovation**
- R&D of compounds in pipeline/Expand sales of new products/Accelerate launch of new products/Strengthen intellectual property strategy/Establish a global research system/Establish global optimum production systems/Reduce SCM and all other costs/Improve asset efficiency
Characteristics of the Health & Crop Sciences Sector

Features and advantages

- Strong R&D capabilities and robust product pipeline
- Product lines differentiated from major competitors
- Products with largest market share in Japan*1 and with large global market shares*2
- Global sales network
  *1 Crop protection chemicals, pharmaceutical chemicals and others
  *2 Household insecticide, methionine and others

Future growth drivers

- Achieve greater synergy*1
- Expand into new business areas
- Enhance business in niche areas
- Continuously launch new products
  *1 Expand alliance with Monsanto and other partners and achieve greater synergy with Nufarm

Trends in Sales and Operating Income

(Flillions of Yen)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
<th>Operating Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>250.8</td>
<td>23.3</td>
</tr>
<tr>
<td>2011</td>
<td>264.1</td>
<td>26.5</td>
</tr>
<tr>
<td>2012</td>
<td>262.6</td>
<td>26.3</td>
</tr>
<tr>
<td>2013</td>
<td>327.0</td>
<td>38.2</td>
</tr>
<tr>
<td>2014</td>
<td>355.0</td>
<td>45.0</td>
</tr>
<tr>
<td>2015</td>
<td>350.0</td>
<td>45.0</td>
</tr>
</tbody>
</table>

(※) Assumed exchange rate: ¥80.0/$

Flumioxazin Herbicide Production Capacity

Product capacity × 1.2

2011-2015

Number of Countries in which Sumitomo Chemical has formed Sales Alliance with Nufarm

<table>
<thead>
<tr>
<th>Year</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>5</td>
</tr>
<tr>
<td>2011</td>
<td>15</td>
</tr>
<tr>
<td>2012</td>
<td>20</td>
</tr>
<tr>
<td>2013</td>
<td>25</td>
</tr>
</tbody>
</table>
## Current situation and forecast for FY2014

### <Net sales and Operating income in the Health & Crop Sciences Sector>

<table>
<thead>
<tr>
<th></th>
<th>FY2013 1st Quarter (Actual)</th>
<th>FY2013 YTD (Actual)</th>
<th>FY2014 1st Quarter (Actual)</th>
<th>FY2014 YTD (Forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Sales</strong></td>
<td>76.0</td>
<td>327.0</td>
<td>77.4</td>
<td>355.0</td>
</tr>
<tr>
<td><strong>Operating Income</strong></td>
<td>8.1</td>
<td>38.2</td>
<td>5.9</td>
<td>45.0</td>
</tr>
</tbody>
</table>

(Billions of yen)
2. Global Trends in Agriculture related business
◆ The world population is expected to grow from the current 7.2 billion to 9.3 billion by 2050.
◆ Grain production has been doubled between 1970 and 2010, becoming 2.2 billion ton.

Source: FAO, "World agriculture: towards 2030/50"; UN Population Fund
Increase of Bioethanol production in U.S.

Corn Demand by Usage
(Billions of bushels)

- Corn demand for bioethanol production is expected to surge from the late 2000s

Source: USDA Agricultural Projections to 2019
Grain Prices (1998～2013)

- Increase in food demand
- Increase in demand for biofuel

⇒ Grain prices continue to rise.

Source: Phillips McDougall
◆ The world's cultivated area has little increased.
◆ Cultivated area per person has continued to decrease due to population growth
## Agrochemical Market Size by Country (excluding genetically modified crops)

<table>
<thead>
<tr>
<th>Country</th>
<th>2008 ($m.)</th>
<th>2013 ($m.)</th>
<th>2013/2008 (%p.a.)</th>
<th>2018 ($m.)</th>
<th>2018/2013 (%p.a.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>5,932</td>
<td>10,013</td>
<td>11.0</td>
<td>11,078</td>
<td>2.0</td>
</tr>
<tr>
<td>USA</td>
<td>6,585</td>
<td>7,387</td>
<td>2.3</td>
<td>7,581</td>
<td>0.5</td>
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<tr>
<td>China</td>
<td>3,191</td>
<td>4,831</td>
<td>8.6</td>
<td>6,140</td>
<td>4.9</td>
</tr>
<tr>
<td>Japan</td>
<td>3,177</td>
<td>3,389</td>
<td>1.3</td>
<td>3,534</td>
<td>0.8</td>
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<tr>
<td>France</td>
<td>3,224</td>
<td>2,857</td>
<td>-2.4</td>
<td>2,934</td>
<td>0.5</td>
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<tr>
<td>Germany</td>
<td>2,016</td>
<td>2,121</td>
<td>1.0</td>
<td>2,191</td>
<td>0.7</td>
</tr>
<tr>
<td>Canada</td>
<td>1,326</td>
<td>1,967</td>
<td>8.2</td>
<td>2,066</td>
<td>1.0</td>
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<tr>
<td>Argentina</td>
<td>1,026</td>
<td>1,747</td>
<td>11.2</td>
<td>1,974</td>
<td>2.5</td>
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<tr>
<td>India</td>
<td>1,437</td>
<td>1,732</td>
<td>3.8</td>
<td>2,105</td>
<td>4.0</td>
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<tr>
<td>Italy</td>
<td>1,172</td>
<td>1,303</td>
<td>2.1</td>
<td>1,377</td>
<td>1.1</td>
</tr>
<tr>
<td>Australia</td>
<td>1,143</td>
<td>1,107</td>
<td>-0.6</td>
<td>1,556</td>
<td>7.0</td>
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<tr>
<td>Spain</td>
<td>937</td>
<td>996</td>
<td>1.2</td>
<td>1,049</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43,187</strong></td>
<td><strong>54,208</strong></td>
<td><strong>4.7</strong></td>
<td><strong>61,506</strong></td>
<td><strong>2.6</strong></td>
</tr>
</tbody>
</table>

Source: Phillips McDougall
The GM seed market has grown significantly, compared with other agrochemicals markets.
Expansion of the Off-Patent Agrochemical Market

Source: Phillips McDougall
New regulation (Regulation 1107/2009, which took effect in June 2011)
- Cancellations of registration due to hazard-based cut-off criteria
- Decrease in registered products due to the strong tendency toward safer agrochemicals

Request for new data items (took effect in 2013)
- Increase in costs due to data requirements on additional toxicity, ecology, and fate of the environment

Pollinator issue (Restriction of the use of neonicotinoids in 2013)
- Growing concerns over not only neonicotinoids, but also all other agrochemicals
- Increase in data requirements to protect pollinators

Endocrine disrupter issue (Direction to be determined after 2015)
- Concerns over cancellations and reduction of registrations due to additional registration criteria

Harmonization of regulations (global harmonization)
- Increase in costs due to revision of data requirements for pesticide residues in crops, such as compliance with GLP and an increase in necessary data
- Possible restrictions on use or additional data requirements due to the introduction of acute reference dose (ARfD)
Global Trend in Pesticide Regulation (2)

Reregistration (Registration Review, since 2007)
- Reevaluation every 15 years based on the Food Quality Protection Act (FQPA)
- Additional data requirements on new items, which took effect in 2007, such as neurotoxicity, immunotoxicity, ecology, and fate of the environment
- Increase in lawsuits and difficulty in maintaining registration due to the Endangered Species Act (ESA)

Endocrine Disrupter Screening Program (EDSP)
- Tier I test orders were issued in 2009 for initial list of 67 chemicals, data currently under evaluation
- Second list of 134 chemicals was announced in November 2010, data requirements planned

Bee/pollinator issue
- Requirement for a large amount of data mainly on neonicotinoid

New draft regulations published for consultation (Public Consultation No.2, in 2011)
- The Brazilian Health Surveillance Agency (ANVISA) is considering introduction of cut-off criteria like that in Europe
- Very slow system for registration and approval (It takes at least four years to obtain approval)
1. Agrochemicals: Stable annual growth rate of 2-3%
   Factor: food production increase
   biofuels increase

2. GMO crops (seeds): Annual growth rate of about 10%
   Factor: Business expansion of leading multinational firms

3. Generic agrochemicals: Annual growth rate of about 5%
   Factor: Increased presence of off-patent products
   Further growth of generic companies

4. Increase in cost of doing business due to tighter regulations
Manufacturers of biotechnological products are expanding their biotechnology businesses.

Source: Phillips McDougall
Sales of agrochemicals by Company (2013)

($ m.)

Source: Phillips McDougall
3. Global Strategy for the Agriculture related business

(1) Expand Overseas Business
Under these policies, the following are key strategies for overseas business:

1. Pursue synergies with Nufarm
   Maximize synergy from wide-ranging cooperation in sales, manufacturing and R&D

2. Broaden alliance with major multi-national companies
   Expand sales of Flumioxazin by collaboration with Monsanto

3. Expand business domain
   Expand into the seed treatment and postharvest business

4. Develop next-generation blockbuster products
   Develop new products for future business
Aim of Alliance with Nufarm

SUMITOMO CHEMICAL

- Technological innovation for new active ingredients
- Strong direct sales channels in Japan, North America, India and Europe
- Bio-rational business
- Postharvest business
- Broad product lineup of fertilizers and agricultural supplies
- Agriculture (crop production)

- PLCM
- Promote differentiation by improvement of formulation and development of mixed formulation
- Application development capability
- Seed treatment business
- Capability to procure low-cost raw materials

- Strong direct sales channels in South America, Central and Eastern Europe, and Australia
- Access to off-patent active ingredients and know-how in development and registration
- Phenoxy and other herbicide business
- Seed business (canola, sorghum, sunflower)
- Know-how in the global supply chain network

Drastically improve our company's position in the fast-growing food and agriculture-related market by supplementing and increasing each other’s strengths
## Area Overview

<table>
<thead>
<tr>
<th>Area</th>
<th>Overview</th>
<th>Short-Term</th>
<th>Medium-Term</th>
<th>Long-Term</th>
</tr>
</thead>
</table>
| Distribution          | Distribution of Sumitomo’s products through Nufarm’s sales channels  
                       | Distribution of Nufarm’s products through Sumitomo’s sales channels                                                                                                                                   |            |             |           |
| R&D                   | Blend formulations  
                       | (Sumitomo’s products + Nufarm’s products)  
                       | New formulation development  
                       | Seeds and Seed treatment  
                       | Registration  
                       | Early stage evaluation of pipeline compounds                                                                                                                     |            |             |           |
| Logistics             | Shared warehousing and utilization of distribution networks & channels                                                                                                                                   |            |             |           |
| Sourcing/Manufacturing | Manufacturing of active ingredients and intermediates  
                       | Procurement of low-cost raw materials                                                                                                                                                                   |            |             |           |
Current Business Alliance with Nufarm

Distribution

- Distribution of Nufarm’s products through Sumitomo’s sales channels
  - All products: Italy, Mexico
  - Some products: South Africa, Vietnam, Japan

- Distribution of Sumitomo’s products through Nufarm’s sales channels
  - All products: Canada
  - Some products: Brazil, etc.

- Supply of Products

Others

- Outsourcing production to Nufarm
- Utilization of distribution bases

Sumitomo Chemical and Nufarm have sales alliance in 21 countries
Future Business Alliance with Nufarm

- Development of mixed formulations by blending products of Sumitomo and Nufarm
- Sumitomo’s products
- Cooperation in formulation technology

Product development
- Mixed formulation
- New chemicals

Distribution
- U.S. non-crop land: Distribution of Sumitomo’s products through Nufarm (starting from February 2012).
- Europe: Consider sale arrangements in Western Europe.
- Paddy rice herbicide, Bromuconazole, etc.

Others
- Business alliances by country and region, Australia, China, Argentina, Turkey, Africa, etc.
- Business alliances by field
  - Postharvest, bio-rational, seed treatment

<Synergies>
Achieved, approximately 5 billion yen per year so far, mainly in sales
⇒ Aim for approximately 10 billion yen per year, including development and other operations
Background and Effects of Collaboration with Monsanto

**Sumitomo Chemical (Valent U.S.A.)**
- **Top company in U.S. in selective herbicides for soybeans**
  - Flumioxazin (SCC’s)
  - Clethodim (Valent’s)
  - flumiclorac-penty (SCC’s)
  - Lactoferrin (Valent’s herbicides for soybeans)

**Monsanto**
- **Top company in the world in Seeds & Non-selective herbicides**
  - RoundUp Ready (genetically modified organism)
  - RoundUp (non-selective herbicides)

**Collaborating to utilize both companies’ strengths**

**Effects**
- Expansion in the area of soybeans and cotton
- Expansion of crop protection business in the Americas
- Enhance strategy of post patent for Flumioxazin

Agreement entered on October, 2010
⇒ **Extension of the contract to 2020**

「Joint Weed Management Agreement」

Our chemicals maintain the value of RoundUp Ready (GMO)

ROUNDUP resistance problem is expanding
Expand Sales of Flumioxazin Herbicide

Expanding collaboration with Monsanto

2010: Started collaboration in the U.S.
2013: Expanding collaboration into Brazil and Argentina

Expanding collaboration in these three markets, which produce 80% of the world soybean output

Decision to expand Flumioxazin production capacity

- Increase Flumioxazin production capacity by about 50%, in stages, from FY2014 to FY2015
- To triple the production capacity from FY2011 year-end level by the end of FY2015

Expansion of market share will boost consolidated sales by 20 billion yen through the collaboration

World Soybean Production (2012/2013)

- U.S.: 31%
- Brazil: 31%
- Argentina: 18%
- Others: 20%

Source: USDA

Flumioxazin Production Capacity

<table>
<thead>
<tr>
<th>Year</th>
<th>Production capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of FY2011</td>
<td>× 2.0</td>
</tr>
<tr>
<td>End of FY2012</td>
<td></td>
</tr>
<tr>
<td>End of FY2013</td>
<td>× 1.2 (forecast)</td>
</tr>
<tr>
<td>End of FY2014</td>
<td></td>
</tr>
<tr>
<td>End of FY2015</td>
<td></td>
</tr>
</tbody>
</table>

Expansion of market share will boost consolidated sales by 20 billion yen through the collaboration
Expand Business Domain to Downstream and Other Surrounding Areas

Seeds
- Sunflower
- Rapeseed
- Sorghum
- (Rice)

Agricultural chemicals
- Insecticide, fungicide

Formulation and application technology
- Insecticide and plant growth regulator for seed treatment
- Seed treatment technology

Agricultural chemicals
- Insecticide, fungicide, herbicide

Bio-rational
- Microbial pesticide
- Plant growth regulator

Fertilizer
- Coating fertilizer

Formulation technology
- Microcapsule

Products
- Fungicide
- Preservative
- Coating agent
- Plant growth regulator

Services
- Postharvest treatment
- Pre-shipment treatment
- Residue analysis

Expand Business domain of seed treatment and postharvest business
Seed treatment and Post-harvest

(New Business Areas)

Seed treatment

(Existing Business Areas)

Cultivation, Pest control, Fertilization

Post-harvest

**Market size**

US$4.5 billion (as of 2013), growing 10% per year

**Business**

Provide crop protection chemicals for seed coating that improve crop yields (seed germination rates) and help make farm work more efficient

**Initiative to expand business scope**

Planning to expand sales area from North America into other regions

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**Market size**

US$0.4-0.5 billion (as of 2013), growing 10% per year

**Business**

Provide products and services that are used after harvest to help maintain the quality of crops

**Initiative to expand business scope**

Acquired Pace International, a U.S. post-harvest solutions company, in December 2012

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**Sales of seed treatment**

At present: approximately 5 billion

In 2 to 3 years: 10 billion yen

**Sales of Post-harvest**

At present: approximately 6 billion yen

→ In the future: 10 billion yen
Expansion of the Biorational Business

Overview of Valent BioSciences

Established: In 2000 (acquired from Abbott Laboratories)
Business: Production and sales of biological pesticides and plant growth regulators
Shareholding: 100% (subsidiary of Valent USA)
Headquarters: Illinois, USA
Sales regions: Over 90 countries worldwide

Biological Pesticides

Market Size
US$400 Million

Business
Provide natural, micro-derived pesticides that can be used in organic farming

Initiatives to expand business scope
Constructing a plant to produce active ingredients for biological pesticides (to be operational in 2014)

Plant Growth Regulators

Market Size
US$800 Million

Business
Provide crop protection chemicals that improve crop yields and quality

Initiatives to expand business scope
Expand into new areas such as rice and pasture grass; explore the expansion into crop stress management
Constructing a Plant to Produce Active Ingredients for Biological Pesticides

Completion ceremony was held in Osage, Iowa, on June 27, 2014

The plant will expand the existing biological pesticides business, and will also contribute to production in new fields, such as a product that provides resistance to environmental stress.
Development and Launch of Next Generation Blockbuster Products
-Pipeline of New agrochemicals-

Launch year | 2010-2012 | 2013-2015 | 2016-
---|---|---|---

**Agricultural Insecticide**
1 A.I. (spinetoram)

**Agricultural Fungicide**
2 A.I.s (isotianil, fenpyrazamine)

**Agricultural Herbicide**
1 A.I. (propyrisulfuron)

**Agricultural Fungicide**
(ethaboxam, mandestrobin)
2 A.I.s

**Household Insecticide**
1 A.I. (Sumifreeze)

**Agricultural Insecticide**
1 A.I.

**Agricultural Fungicide**
3 A.I.s

**Plant Growth Regulator**
1 A.I.

**Household Insecticide**
2 A.I.s

**Animal Health Product**
2 A.I.s

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**Trends in Sales of New Products**

(Note) A.I.: Active Ingredient

(Note) Sales of new products: Sales of crop protection chemicals and household insecticides launched (including new applications) within the past five years

(FY)
3. Global Strategy for the Agriculture related business

(2) Expand Domestic Business
Agrochemicals Market in Japan

※ Market year (October～September)

Source: Estimated from data by Japan Crop Protection Association
Changes in Japan’s Agricultural Structure (1)

End of rice acreage reduction policy (in 4 years)

TPP

Imported crop

Aging of farmers/lack of successors

Subdivided farmland (inefficient)

Increase farmland cultivated by large-scale farmers (5 hectare or more):
- 2005: 43%
- 2013: 51%

Reduction in cultivated land area:
- 2005: 4.69 mil ha
- 2013: 4.54 mil ha

Increase in average age of farmers:
- 2005: 63
- 2013: 66

Reduction in number of farmers:
- 2005: 3.35 mil
- 2013: 2.39 mil

Changes mainly in rice farming

Larger-scale farms

Corporate farming

Labor-saving

Cost reductions

Enhance competitiveness of crops

[Ministry of Agriculture, Forestry and Fisheries]
- Assistance to take up farming
- End of rice acreage reduction policy, establishment of intermediary institutions for efficient use of farmland
- Concentration of farmland (into units of 20–30 ha or more)
- Support for “sixth-sector industrialization” (*)

[JA group]
- Facilitation of establishing farmland management entities (for rice-paddy farming)
- Concentration of farmland to community-based farming and farmer groups
- Collaboration with the business community
- Reform of Zen-Chu (Central Union of Agricultural Co-operatives) and Zen-Noh (National Federation of Agricultural Cooperative Associations)

(*): primary producers’ diversification into processing and distribution
**Current Situation**
- High cost
- Aging/Lack of successors
- Inefficiency

**Near future**
- Larger-scale
- Labor-saving
- Higher yields
- Lower costs

**End of rice acreage reduction policy**
- Larger-scale farms
- Concentration of farmland (assistance for those giving up farming)
- Support for those taking up farming
- Sixth-sector industrialization
- Farming technology innovation

**Transformation of 3 million family farms into several hundred thousand corporate-style businesses**

**Larger-scale operations are essential, especially for rice-paddy farming**

**Trend toward large-scale operations**
- Labor-saving/mechanization

**Shrinking agricultural materials market**
- Selection of suppliers

**Distribution margin**
- Retail price competition

**Small/medium operations**
- Corporate farming

**Diversification of distribution channels**

**Depend on application calendar for agrochemicals**
- Own technology platform
Key Strategies for Domestic Operations

Under this policy, the following are key strategies for domestic operations

1. Respond to changes in agricultural structure
2. Maximize sales of new products (agrochemicals and fertilizers)
3. Expansion of the new business

⇒ In particular, regard response to changes in agricultural structure as an important business opportunity and focus on building new business models.
Responding to Changes in Japan’s Agriculture Market

Features of Agriculture in Japan
- High level of quality control (rigorous safety and quality assurance measures)
- Large consumer market

Issues for Agriculture in Japan
- Aging farm workers; lack of successors
  - Average age of farmers: 66 (2013)
  - 30% decrease in the number of farm workers between 2005 and 2013
- High-cost social infrastructure based on small-scale farmers

Agricultural Policy
Structural reform to make Japan’s agriculture attractive and competitive
- End of rice acreage reduction policy
- Encourage the merger of small farms into larger integrated farms
- Promote the use of new technologies
- Support for “sixth-sector industrialization”

Our Business Opportunities and Plans
- Strengthen marketing capabilities in Japan
  - Enhance technical support
  - Integrate the sales organizations for crop protection chemicals and fertilizers in order to be better able to offer comprehensive proposals
- Offer a labor-saving fertilizer application and crop protection system
  - Enhance product portfolio for paddy rice cultivation
  - Seed treatment
- Promote “total solution provider” business
  - In addition to selling crop protection chemicals, fertilizers and agricultural supplies, provide related services, including farm management consulting and assistance services, agriculture business management support systems, and agricultural produce sales support
  - Managing “Sumika Farm” agricultural corporations

Support farmers with our broad product portfolio and advanced technologies
Enhance farmers’ competitiveness and help their improvement in product safety and quality
Comprehensive Crop Protection Business in Japan

Share estimated by Sumitomo Chemical

Sumitomo Chemical
- Total of 2 companies
- Top market share of about 19% for agrochemicals
- Top market share of about 23% for irrigation tubes
- Top market share of about 80% for coating processes
- Second market share of about 18% for agricultural polyolefin films

Kyoyo Agri

Sumika Agotech

San Terra

Nihon EcoAgro

Sumitomo Chemical
- Total of 3 companies
- Top market share of about 40% for home gardening
- Top market share of about 30% for prevention of pine sawyer

Garden Products

King Engei

Rainbow Chemical

Sumika Green

Distribution
- Wholesaler to Retailer
- JA, Zen-Noh group
- JA, Zen-Noh group, Wholesaler
- Direct sales, Wholesale market

Market
- Wholesaler
- DIY Stores
- Golf courses, forests

Agriculture
- Agrochemicals, fertilizers
- Agrochemicals
- Agricultural supplies, seeds
- Agricultural polyolefin film
- Agricultural polyethylene
- Agricultural commodity production

Gardening
- Home & garden agrochemicals, fertilizer
- Agrochemicals

※Share estimated by Sumitomo Chemical
Model of the Total Solution Provider (TSP)

- **Soil analysis, fertilizer design (Sumika Chemical Analysis Service), Provide labor-saving fertilizer (Sumitomo Chemical)**
- **Provide vegetable and flower seedlings, seeds, and seeds coated with chemical coatings (Sumika Agrotech)**
- **Cultivation guidance (Nihon EcoAgro)**
- **Cultivation history and business management (Sumitomo Chemical)**
- **Provide house materials, agriculture film, watering materials, and agricultural materials (SanTerra, Sumika Agrotech)**
- **Support ranging from crop selection to sales and processing of agricultural products (Nihon EcoAgro)**
- **Support safe and secure agriculture, Nutrition analysis, agricultural chemical residue analysis (Sumika Chemical Analysis Service)**
- **Support soil preparation and cultivation based on IPM and ICM (Sumika Agrotech, Nihon EcoAgro)**
- **Provide safe and labor-saving agrochemicals that can assist in environmental conservation types of agriculture (Sumitomo Chemical)**

※IPM: Integrated Pest Management
ICM: Integrated Crop Management

Example of Group company’s work
Overview of our New Rice Business

Cooperation with relevant parties

Contracted farms

Scale of business (in 5 years)
Area: 10 thousand ha
Sales: 10 billion yen

Sell rice for use in the restaurants and delicatessens

R&D
- Cultivation technology
- Development of new rice varieties
- Agrochemicals and fertilizer

Cultivation technology
Farm operation management
Rice seeds
Agricultural materials
Agrochemicals and fertilizer

Overview of our New Rice Business

Scale of business (in 5 years)
Area: 10 thousand ha
Sales: 10 billion yen

Sell rice for use in the restaurants and delicatessens

R&D
- Cultivation technology
- Development of new rice varieties
- Agrochemicals and fertilizer
Develop new varieties suitable for each region in Japan from north to south

Key qualities: High-yield, good taste, short culm
Geographical characteristic: Early/Late maturing
Enable labor-saving, low-cost cultivation
Propose good-tasting rice
Develop new varieties: 
Aim to develop low-cost, good-tasting rice varieties suitable for each region in Japan

Improve cultivation techniques: 
Propose direct sowing, various advanced technologies and cultivation system for large-scale farming, in combination with new rice varieties

Enhance research system: 
Establish a research team to develop new varieties 
Strengthen existent relevant research teams
High-Speed Breeding Technology by Using DNA Markers

Conventional breeding method

Variety A: good taste

Variety B: High-yield

Crossbreeding

Selection of the new variety by yield and taste surveys

15 years

Genome breeding method

Variety A: good taste

Variety B: High-yield

Crossbreeding

Good taste gene

Maker

Early selection of new varieties by gene analysis using DNA markers, before harvest

3 years

New Variety C: High-yield, good taste
4. Long-term Prospects
Higher Expectations of Agriculture = Business Opportunities

Opportunities

- Global population in 2014: 7.2 billion (Asia 4.3 billion, Africa 1.0 billion)
- By 2025, 53% will be middle-class
- Global population in 2050: 9.3 billion (Asia 5.4 billion, Africa 1.5 billion)

Issues

- Localization of arable land (Brazil, Africa)
- Boosting yields of existing cultivated land
- Food safety, security, quality
- Monopolization of seed supply

Solutions through advanced agriculture

How can Sumitomo Chemical contribute?
Sumitomo Chemical’s Business Domains and Potential for Contributing to Agriculture

<table>
<thead>
<tr>
<th>Core domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Disease and pest control, plant growth regulation → agrichemicals and biological pesticides, plant growth regulators (PGRs), seed treatment, post-harvest technologies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain to expand</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Overseas deployment of high-added-value agricultural materials → seeds, fertilizers, net technologies, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain to challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provision of total solutions embracing agriculture</td>
</tr>
</tbody>
</table>

Basic strategy:
Prioritize reinforcement and growth of core domains while exploring new possibilities (for domains for expansion and fresh challenges, see next slide)
Exploring New Possibilities
(Domain to Expand and Challenge)

<table>
<thead>
<tr>
<th>Domain to expand: Next 5 Years</th>
<th>Domain to Challenge: 3-10 years from now</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly functional coated fertilizers</td>
<td>Rice seeds (expand functions of Asia R&amp;D Center)</td>
</tr>
<tr>
<td>Tropical plantations</td>
<td>Examine business models, develop suitable varieties</td>
</tr>
<tr>
<td>(banana, pineapple, oil palm)</td>
<td>Develop F1 hybrid seeds</td>
</tr>
<tr>
<td>Cash crops in Africa</td>
<td>Explore business development in Asia and Africa</td>
</tr>
<tr>
<td>(natural pyrethrum, coffee, paddy rice, etc.)</td>
<td></td>
</tr>
<tr>
<td>Application of net technology to agriculture</td>
<td>Comprehensive agricultural production technologies</td>
</tr>
<tr>
<td>Develop technologies to repel stored grain insect pests in Africa</td>
<td>Research and trials on our own oversee farms (e.g., Sumitomo Chemical Group farm in Brazil scheduled to begin operation in 2016 or later)</td>
</tr>
<tr>
<td>Control insects harmful to plantations</td>
<td></td>
</tr>
<tr>
<td>Agricultural developments in China</td>
<td>Expand agricultural business in Africa</td>
</tr>
<tr>
<td>Seed coating business</td>
<td>Expand activities of Sumitomo Chemical East Africa and Africa Technical Research Center (ATRC)</td>
</tr>
<tr>
<td>Highly functional agricultural PO film business</td>
<td>Explore development in West Africa</td>
</tr>
</tbody>
</table>
Change & Innovation

**Sumitomo Chemical R&D**

- **Health**: Ensuring Public Health and Hygiene
- **Environment**: Improvement of QoL & the Environment
- **Food**: Increase of Food Production, Sustainable Agriculture, Safer Agricultural Produce

**Strengthen high-profitability businesses**

**Expand business globally**

**Ensure compliance & maintain safe operations**
Cautionary Statement

Statements made in this document with respect to Sumitomo Chemical’s current plans, estimates, strategies and beliefs that are not historical facts are forward-looking statements about the future performance of Sumitomo Chemical. These statements are based on management’s assumptions and beliefs in light of the information currently available to it, and involve risks and uncertainties.

The important factors that could cause actual results to differ materially from those discussed in the forward-looking statements include, but are not limited to, general economic conditions in Sumitomo Chemical’s markets; demand for, and competitive pricing pressure on, Sumitomo Chemical’s products in the marketplace; Sumitomo Chemical’s ability to continue to win acceptance for its products in these highly competitive markets; and movements of currency exchange rates.