

# Business Strategy of the Health & Crop Sciences Sector

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- 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)

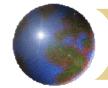
#### Pharmaceutical Business

- Active Pharmaceutical Ingredients(APIs), Intermediates.









# Long-Term vision of the Health & Crop Sciences Sector

Food

Increase of Food Production Sustainable Agriculture Safer Agricultural Produce

**Ensuring Public Health** and Hygiene



Sumitomo Chemical R&D

Improvement of QoL & the Environment



Health

**Environment** 

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

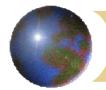
Differentiation

Differentiate our business from multinational and generic competitors

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



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

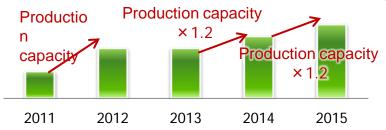
#### **Future growth drivers**

- 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

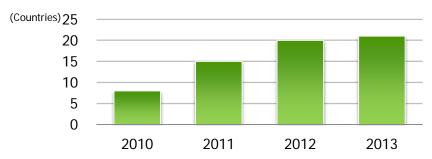
#### **Trends in Sales and Operating Income**

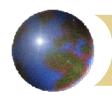


#### Flumioxazin Herbicide Production Capacity



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





# Current situation and forecast for FY2014

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

(Billions of yen)

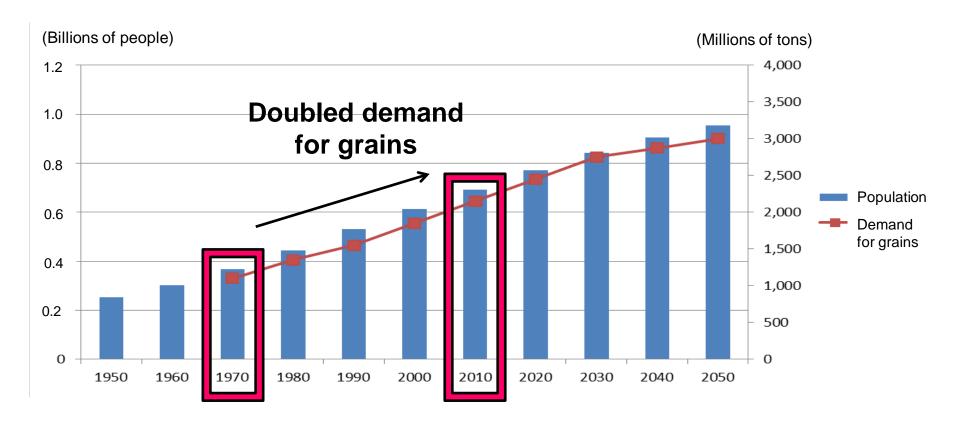
	FY2013 1 <sup>st</sup> Quarter (Actual)	FY2013 YTD (Actual)	FY2014 1 <sup>st</sup> Quarter (Actual)	FY2014 YTD (Forecast)
Net Sales	76.0	327.0	77.4	355.0
Operating Income	8.1	38.2	5.9	45.0



# 2. Global Trends in Agriculture related business



# World Population and Demand for Grains



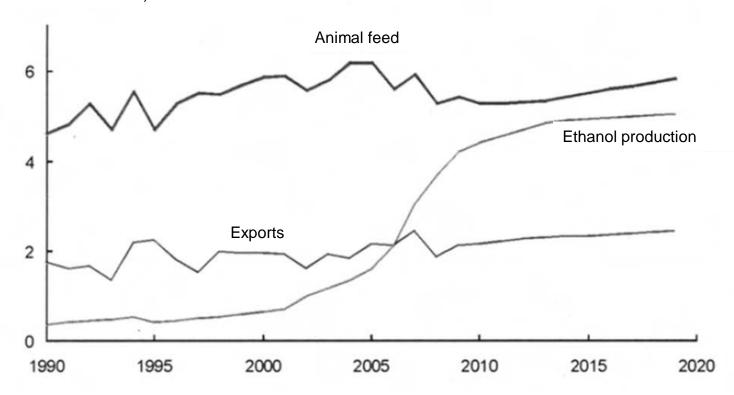
- **◆**The world population is expected to grow from the current 7.2 billion to 9.3 billion by 2050.
- ◆Grain production has been doubled between 1970 and 2010, becoming 2.2 billion ton.



# Increase of Bioethanol production in U.S.

# **Corn Demand by Usage**

(Billions of bushels)

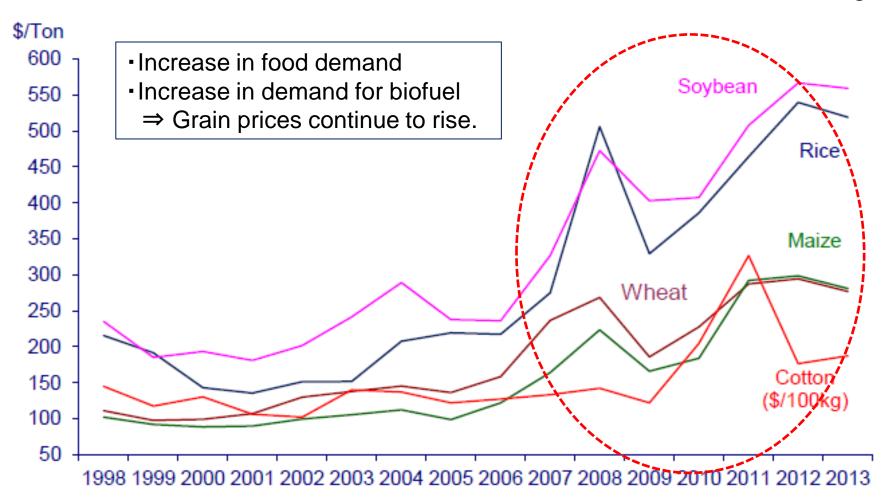


Corn demand for bioethanol production is expected to surge from the late 2000s



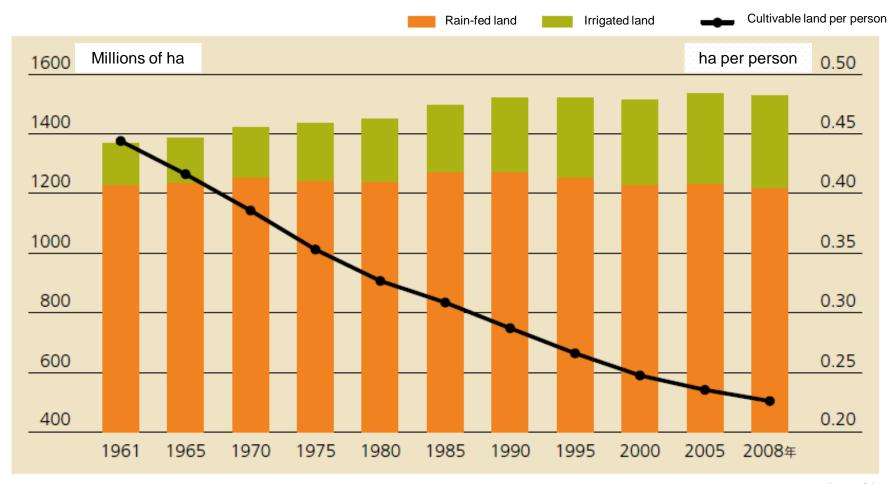
# Grain Prices (1998~2013)

# **Annual Average**





# World total cultivated area and cultivated area per Person



Source : FAO (2010b)

- **♦**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)

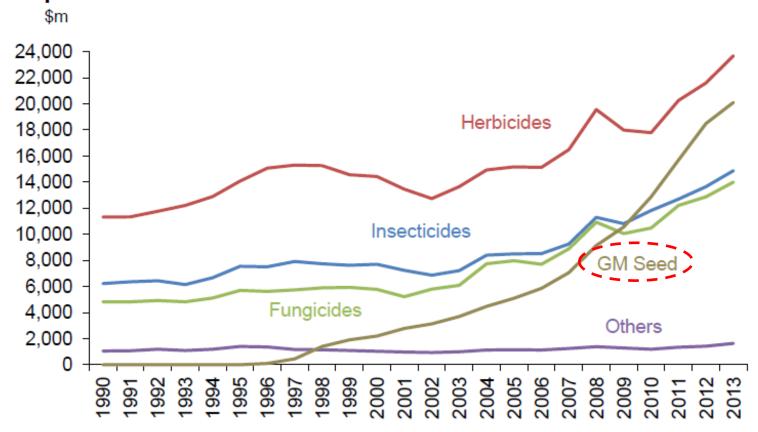
	2008	2013	2013/2008	2018	2018/2013
	(\$m.)	(\$m.)	(%p.a.)	(\$m.)	(%p.a.)
Brazil	5,932	10,013	11.0	11,078	2.0
USA	6,585	7,387	2.3	7,581	0.5
China	3,191	4,831	8.6	6,140	4.9
Japan	3,177	3,389	1.3	3,534	0.8
France	3,224	2,857	-2.4	2,934	0.5
Germany	2,016	2,121	1.0	2,191	0.7
Canada	1,326	1,967	8.2	2,066	1.0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

Source: Phillips McDougall



# Expansion of the GM seed market

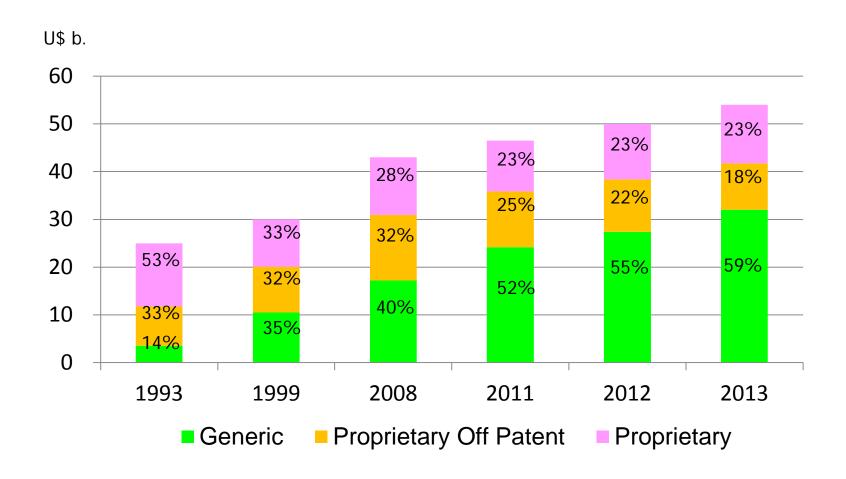
#### Crop Protection Product Sector Performance Since 1990



**◆The GM seed market has grown significantly, compared with other agrochemicals markets.** 



# Expansion of the Off-Patent Agrochemical Market





# Global Trends in Pesticide Regulation (1)

# Europe

## New regulation (Regulation 1107/2009, which took effect in <u>June 2011</u>)

- > 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

# Japan

## Harmonization of regulations (global harmonization)

- Increase in costs due to revision of data requirements s 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)

U.S.

- ➤ 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

# Brazil

# New draft regulations published for consultation (Public Consultation No.2, in <u>2011</u>)

- ➤ 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)



# Long-Term Trends in Global Agribusiness Market

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%

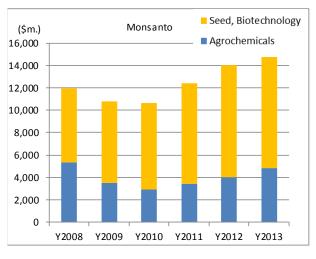
Factor: Increased presence of off-patent products

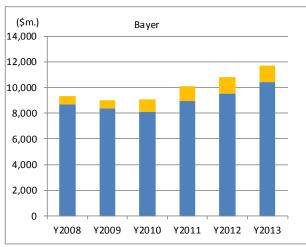
Further growth of generic companies

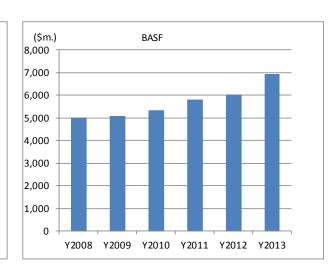
4. Increase in cost of doing business due to tighter regulations

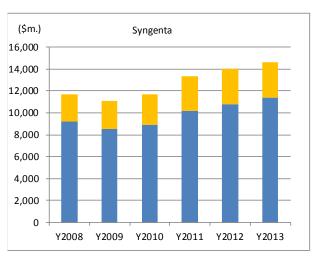


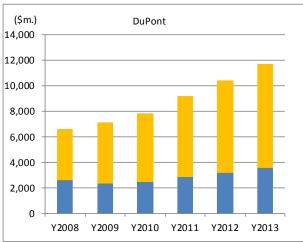
# Trends of multi-national companies

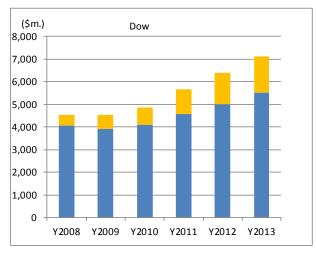










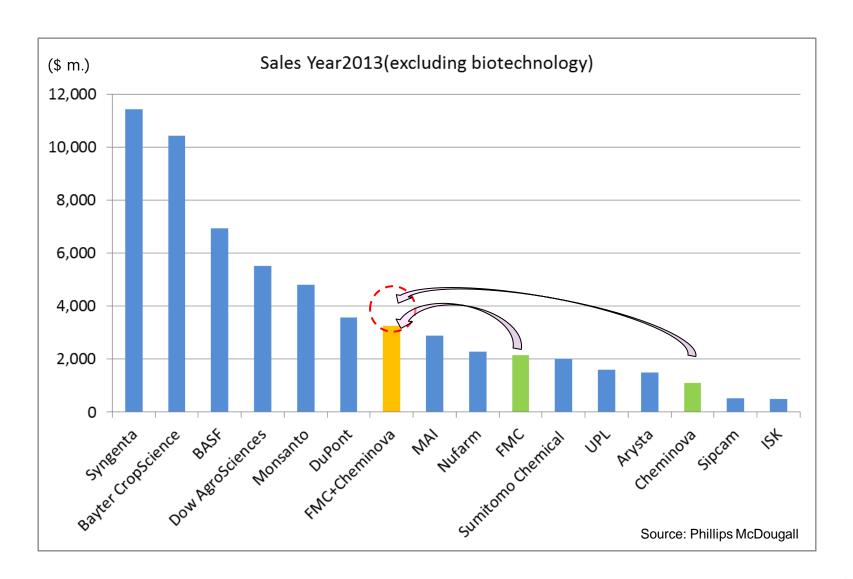


Source: Phillips McDougall

<sup>♦</sup> Manufacturers of biotechnological products are expanding their biotechnology businesses.



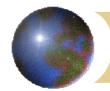
# Sales of agrochemicals by Company (2013)





# 3. Global Strategy for the Agriculture related business (1)Expand Overseas Business





# Key Strategies for Overseas Business

- Integration of traditional chemicals and bio-rational technology
- ◆Create unique and innovative solutions

## Under these policies, the following are key strategies for overseas business

- 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)

- PI CM
- **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

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# Pursue synergies with Nufarm

# <Corporative Business with Nufarm>

Area	Overview	Short- Term	Medium -Term	Long- Term
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

Sumitomo Chemical and Nufarm have sales alliance in 21countries

#### **Others**

- Outsourcing production to Nufarm
- Utilization of distribution bases



#### Future Business Alliance with Nufarm

# Product development

Mixed formulation New chemicals

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

#### **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



# Expand strategic alliance with overseas major manufacturer

# Sumitomo Chemical (Valent U.S.A.)

Collaborating to utilize both companies' strengths

#### **Monsanto**

# 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)

Agreement entered on October, 2010

**⇒** Extension of the contract to 2020

「Joint Weed Management Agreement」

Our chemicals maintain the value of RoundUp Ready(GMO)

#### **Effects**

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

# Top company in the world in Seeds & Non-selective herbicides

- RoundUp Ready (genetically modified organism)
- RoundUp (non-selective herbicides)

but

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

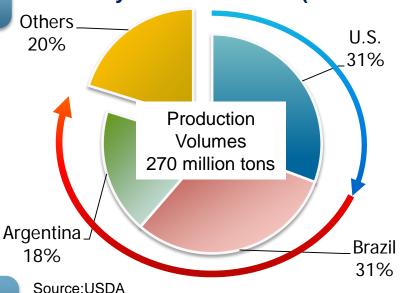
Expanding collaboration in these three markets, which produce 80% of the world soybean output

#### **Decision to expand Flumioxazin production capacity**

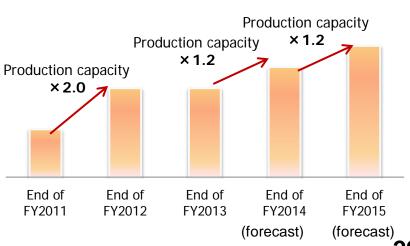
- Increase Flumioxazin production capacity by about 50%, in stages, from FY2014 to FY2015
- To triple the production capacity from FY2011 yearend level by the end of FY2015

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

#### World Soybean Production (2012/2013)



#### Flumioxazin Production Capacity





# Expand Business Domain to Downstream and Other Surrounding Areas

Seeds

Seed treatment

In-season pest control fertilization

Postharvest

#### 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



#### **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

Sales of seed treatment
At present: approximately 5 billion
In 2 to 3 years: 10 billion yen

#### **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

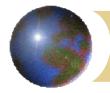
#### Initiative to expand business scope

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

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**

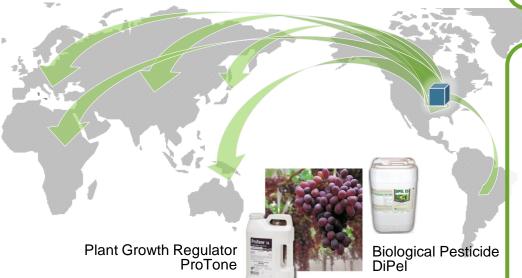
US\$400 Million

#### **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



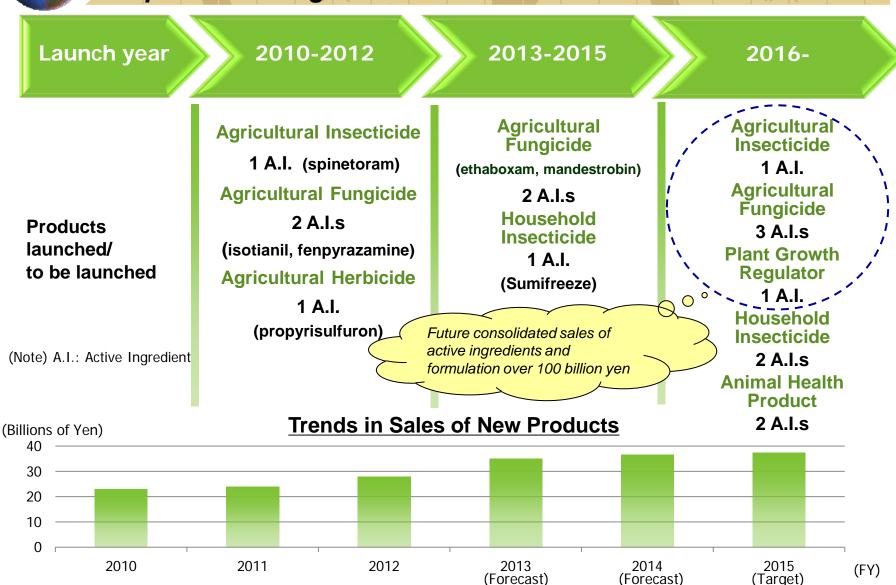
Completion ceremony was held in Osage, Iowa, on June 27, 2014

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-



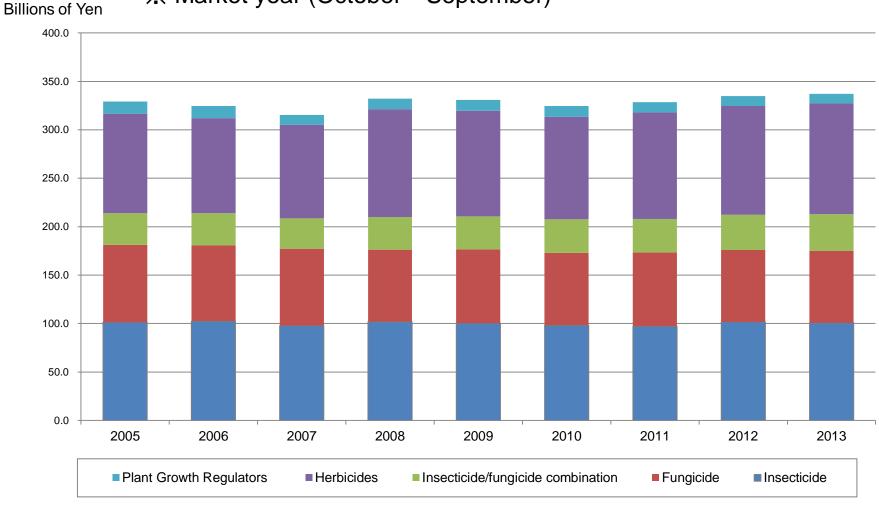
(Note) Sales of new products: Sales of crop protection chemicals and household insecticides launched (including new applications) within the past five years

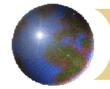


# 3. Global Strategy for the Agriculture related business (2) Expand Domestic Business



# Agrochemicals Market in Japan





# 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 2013 43% → 51%

Reduction in number of farmers:

2005 2013 3.35 mil → 2.39 mil Reduction in cultivated land area:

2005 2013 4.69 mil ha → 4.54 mil ha (ha=hectare)

Increase in average age of farmers:

2005 2013  $63 \rightarrow 66$ 

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)



# Changes in Japan's Agricultural Structure (2)

#### **Current Situation**

High cost Aging/Lack of successors Inefficiency

# 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

#### **Near future**

Larger-scale Labor-saving Higher yields Lower costs

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

 $\rightarrow \underline{\text{Labor-saving/mechanization}}$ 

**Distribution margin** 

→ Retail price competition

Diversification of distribution channels

Shrinking agricultural materials market

→ Selection of suppliers

**Small/medium operations** 

→ Corporate farming

Depend on application calendar for agrochemicals

→ Own technology platform



### Key Strategies for Domestic Operations

◆No. 1 business entity to contribute diversifying domestic agriculture

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

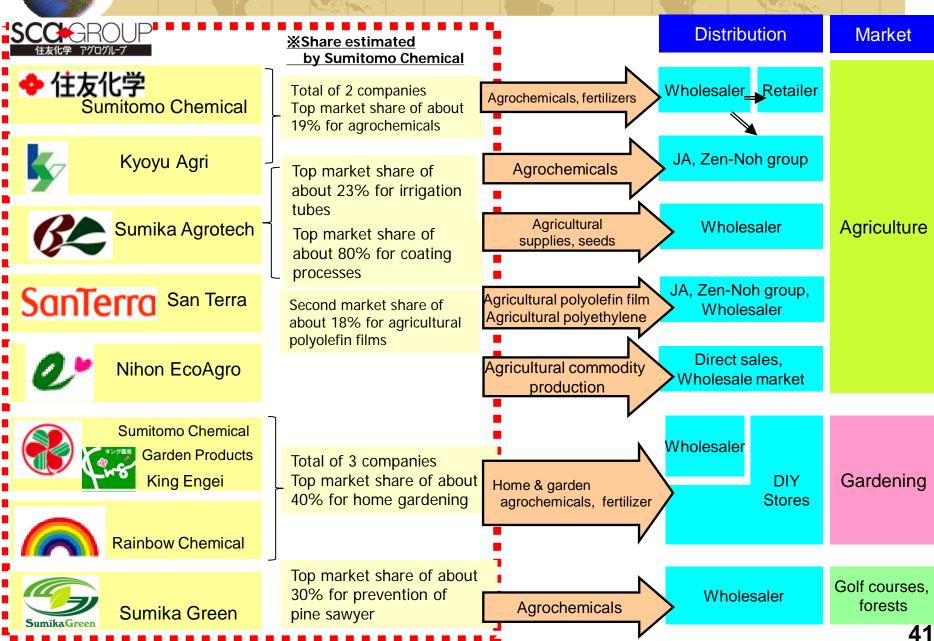
Support farmers with our broad product portfolio and advanced technologies



Enhance farmers' competitiveness and help their improvement in product safety and quality

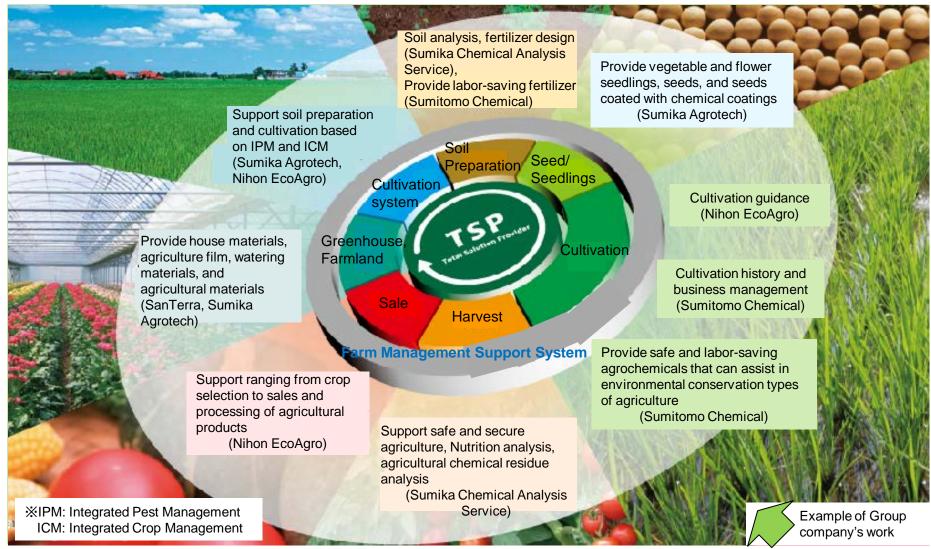


## Comprehensive Crop Protection Business in Japan





## Model of the Total Solution Provider (TSP)





#### Overview of our New Rice Business

Scale of business (in 5 years)

Area: 10 thousand ha Sales: 10 billion yen

Cooperation with relevant parties

Contracted farms

Sell rice for use in the restaurants and delicatessens

Cultivation technology Farm operation management

Rice seeds

Agricultural materials
Agrochemicals and fertilizer

R&D

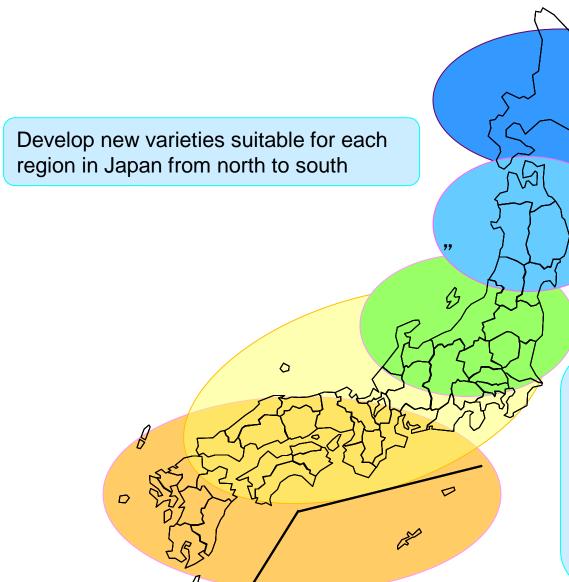
**Cultivation** technology

Development of new rice varieties

Agrochemicals and fertilizer



# Development of new varieties of rice



Key qualities: High-yield, good taste, short culm
Geographical characteristic:
Early/Late maturing

Enable labor-saving, low-cost cultivation
Propose good-tasting rice



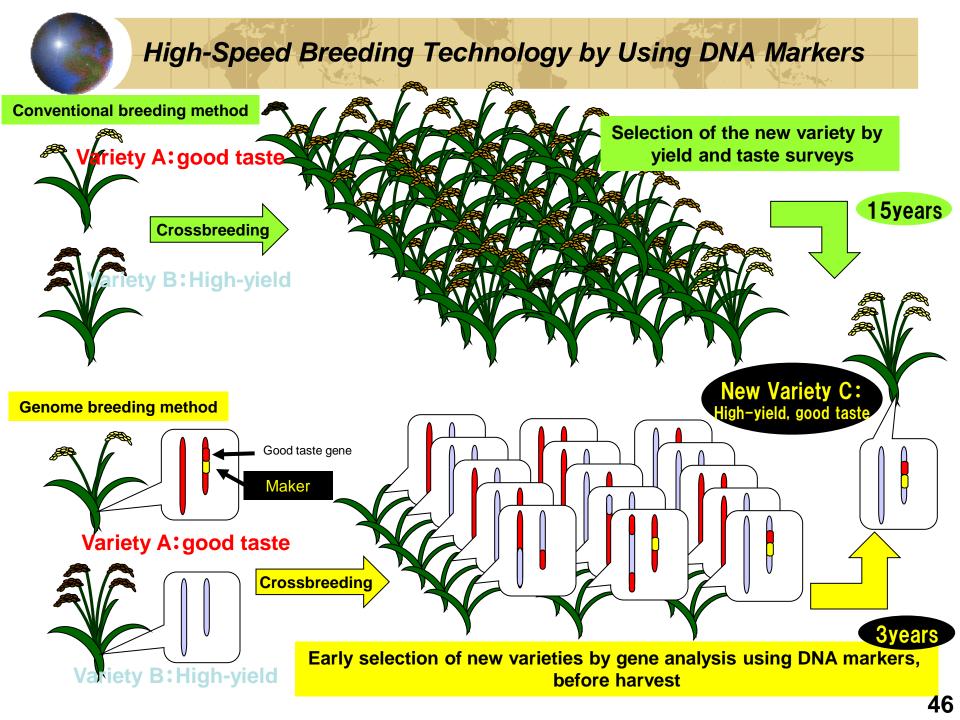
#### R&D on new varieties of rice

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 largescale farming, in combination with new rice varieties

# **Enhance research system:**

Establish a research team to develop new varieties Strengthen existent relevant research teams





# 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

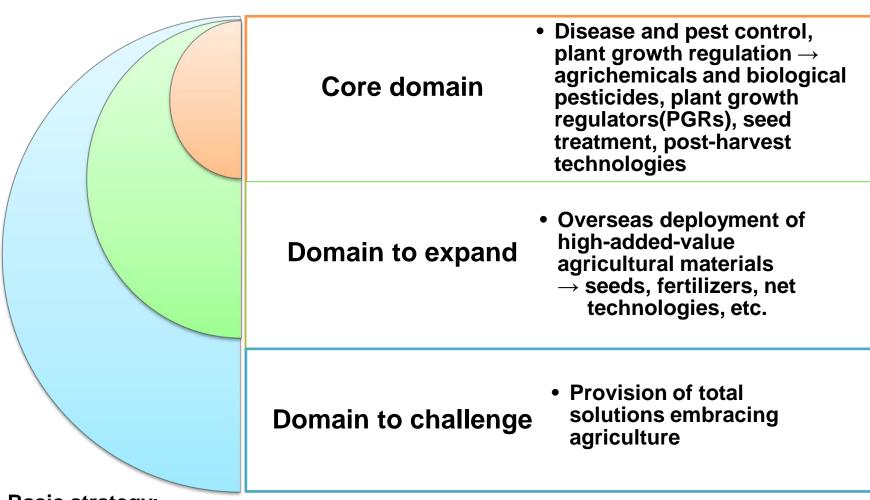


Solutions through advanced agriculture

How can Sumitomo Chemical contribute?



# Sumitomo Chemical's Business Domains and Potential for Contributing to Agriculture



**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)

# Domain to expand: Next 5 Years

#### **Highly functional coated fertilizers**

**Tropical plantations** 

(banana, pineapple, oil palm)

Cash crops in Africa

(natural pyrethrum, coffee, paddy rice, etc.)

#### Application of net technology to agriculture

Develop technologies to repel stored grain insect pests in Africa

Control insects harmful to plantations

#### Agricultural developments in China

**Seed coating business** 

Highly functional agricultural PO film business

# Domain to Challenge: 3-10 years from now

# Rice seeds (expand functions of Asia R&D Center)

Examine business models, develop suitable varieties

**Develop F1 hybrid seeds** 

**Explore business development in Asia and Africa** 

#### <u>Comprehensive agricultural production</u> <u>technologies</u>

Research and trials on our own oversee farms

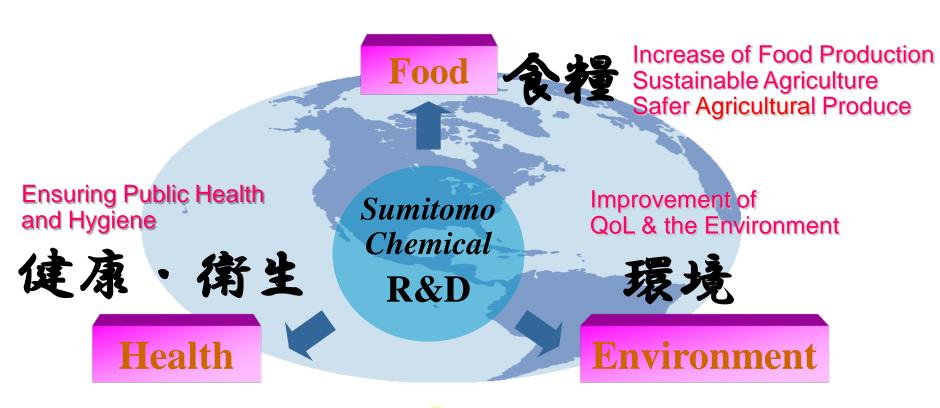
(e.g., Sumitomo Chemical Group farm in Brazil scheduled to begin operation in 2016 or later)

#### **Expand agricultural business in Africa**

**Expand activities of Sumitomo Chemical East Africa and Africa Technical Research Center(ATRC)** 

**Explore development in West Africa** 





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.