

Q2/FY2019

# Earnings Conference

May 29, 2019

 **NIHON NOHYAKU CO., LTD.**

Chemical **Innovator**   
for Crop & Life

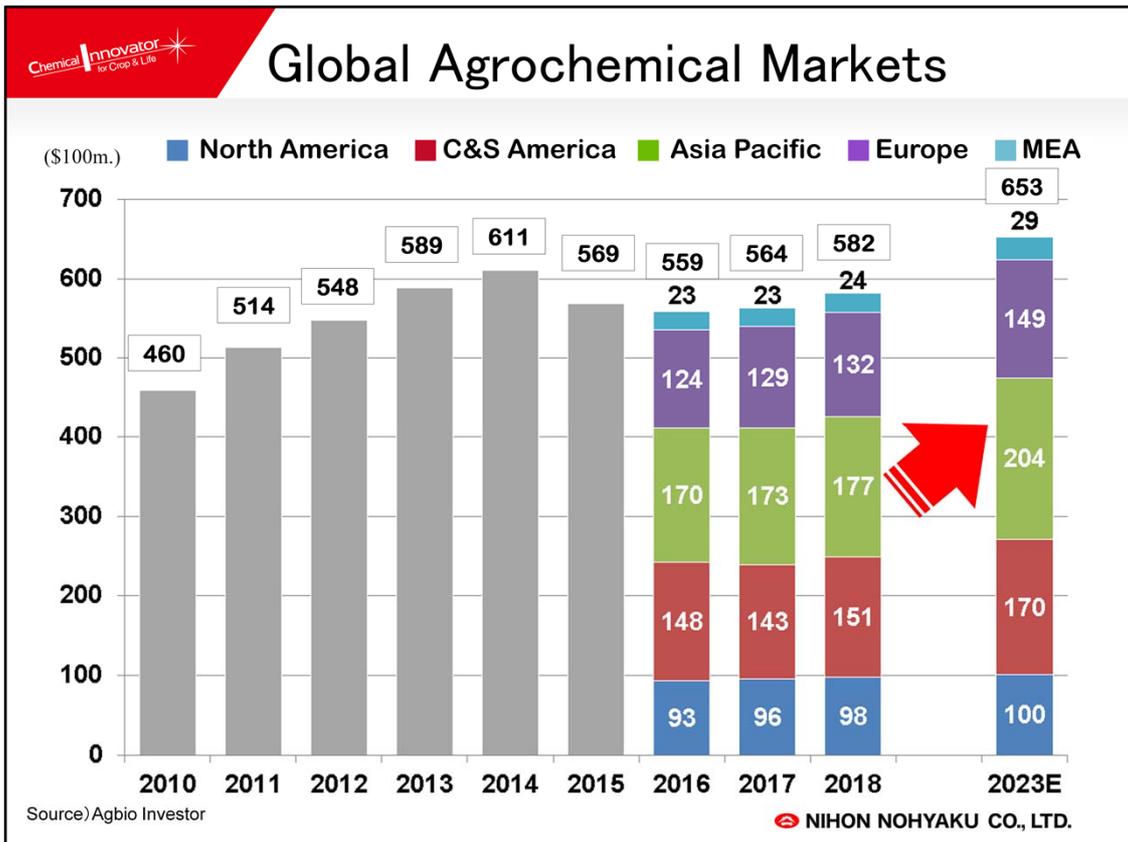
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# I. Global Agrochemical Markets

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The graphs in this section show the global agrochemical markets performance from 2010 to 2018 and forecasts for 2023.

The global agrochemical market grew from \$46 billion in 2010 to \$61.1 billion in 2014, reflecting population growth and economic development in emerging countries.

Over the past few years, sales have been weak due to the impact of small-scale pests in some regions and the impact of inventories in the past fiscal year due to unseasonable weather.

However, sales in major markets such as Brazil and North America have been on an uptrend again in 2018.

According to the study by AgbioInvestor, the global agrochemical market is expected to grow at an average annual rate of 2.5% over the next five years to reach \$65.3 billion in 2023.

## North America

Demand for agrochemical stayed firm due to the warm weather and frequent occurrence of pests.

## Latin America

Argentina was affected by the drought, but Latin America's market increased as the world's largest Brazilian market progressed to consume inventory from the previous year.

## Europe

Demand for agrochemical grew.  
In the hot and humid Mediterranean coast, pests frequently occurred.

## Asia

Demand for agrochemical grew, due to India's frequent occurrence of pests, and China's favorable weather.

## Japan

Gradually declining due to the aging of farmers, lack of successors, increase in abandoned farmland, etc.

In North America, agrochemical demand was firm due to the persistence of warm weather, and increase of pest outbreaks.

In Latin America, despite the effects of the drought in Argentina, the market as a whole has turned to an upward trend as the world's largest Brazilian market progressed to consume inventory from the previous year.

Demand for agrochemical grew in Europe. Particularly, in the hot and humid Mediterranean coast, pests frequently occurred.

India and China, the main markets of Asian agrochemical demand grew.

Although Indian monsoon rainfall fell below normal, frequent outbreaks of pests and favorable weather in China led to growth.

On the other hand, Japanese agrochemical market is gradually declining due to the aging of farmers, shortage of successors, and the increasing number of abandoned farmland.

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## II. Q2/FY2019 Earnings

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## Increase in Revenues and Income

(¥100m./%)

|   | 2Q/FY2019 | 2Q/FY2018 | YoY | Growth % |
|---|-----------|-----------|-----|----------|
| Net Sales                               | 372       | 370       | 2   | 0.6      |
| Domestic                                | 139       | 140       | △ 1 | △ 0.5    |
| Overseas                                | 192       | 197       | △ 5 | △ 2.3    |
| Agrochemical Sales                      | 22        | 20        | 1   | 6.6      |
| Chemical Products/                      | 10        | 4         | 5   | 128.5    |
| Pharmaceuticals                         | 9         | 9         | 1   | 8.9      |
| Revenues from                           |           |           |     |          |
| Licensing                               |           |           |     |          |
| Other                                   |           |           |     |          |
| Cost of Sales                           | 247       | 247       | △ 1 | △ 0.4    |
| Gross Profit                            | 125       | 122       | 3   | 2.6      |
| SG&A                                    | 84        | 85        | △ 0 | △ 0.5    |
| Operating Income                        | 41        | 37        | 4   | 9.6      |
| Ordinary Income                         | 41        | 40        | 1   | 3.2      |
| Profit attributable to owners of parent | 30        | 25        | 5   | 18.0     |

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Q2 net sales were ¥37.2 billion, increased by ¥0.2 billion, or 0.6%, year on year.

Mainly due to growth in the pharmaceuticals business and an increase in royalty, despite sluggish growth in both domestic and overseas sales in the core agrochemical business.

Operating income rose 9.6%, or 4 billion, year on year to 4.1 billion, mainly due to an increase in know-how technology fees. Ordinary income was 4.1 billion yen, an increase of 0.1 billion yen, or 3.2%, year on year. Profit attributable to owners of parent was 3.0 billion yen, an increase of 0.5 billion yen, or 18.0%, year on year, due in part to the recording of a gain on the sale of shares of parent company as extraordinary income.

## Q2/FY2019 Earnings (YoY comparison)

Net sales ¥37 bn → ¥37.2 bn (+ ¥0.2 bn)

Operating income: ¥3.7 bn → ¥4.1 (+ ¥0.4 bn)

(operating income)

Increase in know-how technical fees +0.5 bn

Increase in sales in the pharmaceutical business +0.2 bn

Growth of proprietary products in domestic agrochemical sales +0.1 bn

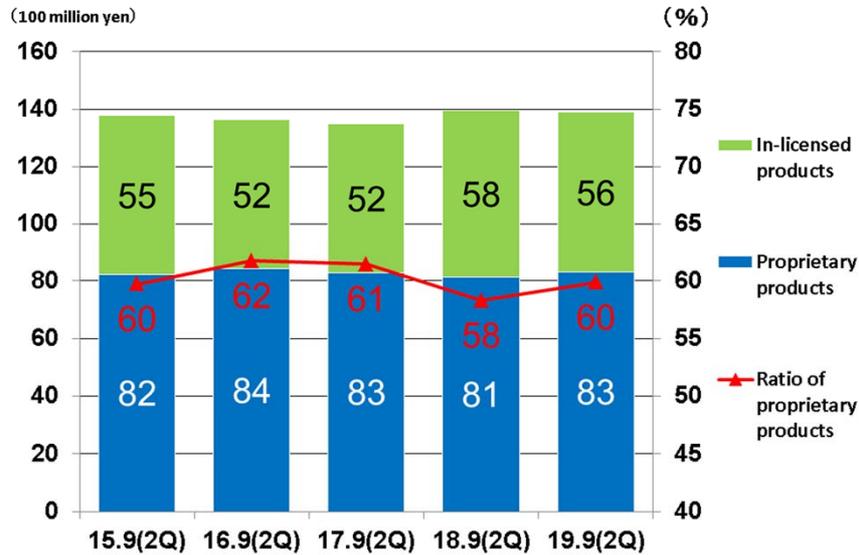
Decrease in sales of overseas agrochemical -0.4 bn

Operating income for the six months ended was ¥4.1 billion, an increase of ¥0.4 billion year on year. The main factors behind this increase are as follows.

Profit growth was attributable to ¥0.5 billion increase in know-how technical fees, ¥0.2 billion increase in sales in the pharmaceutical business, and ¥0.1 billion increase in profit from Nihon Nohyaku (NNC) products growth in domestic agrochemical sales. However, profit decline was attributable to ¥0.4 billion decrease in sales of overseas agrochemical, resulting in ¥0.4 billion increase in profit.

# Domestic agrochemical Sales -Composition of Net Sales

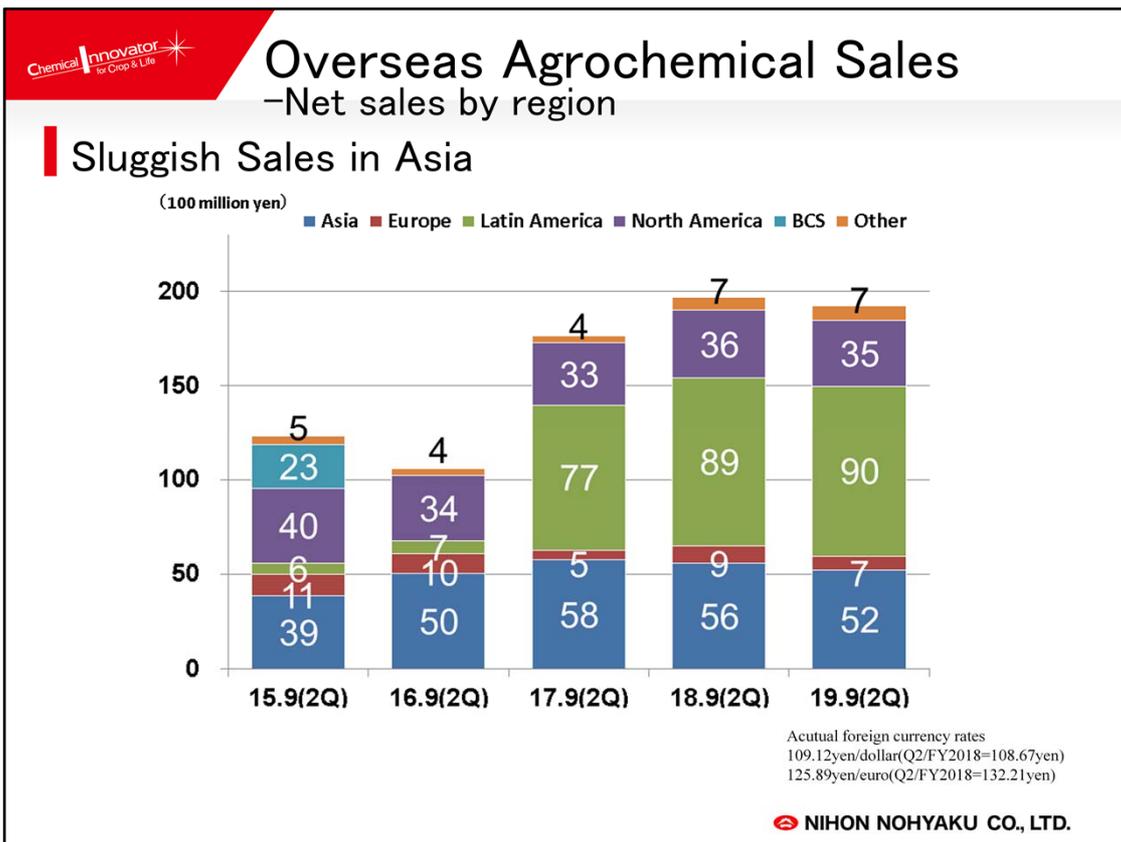
## Impact of Distribution Inventories



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This graph shows transitions in net sales composition for domestic agrochemical sales. This fiscal year, we began selling three new products and expanded our product portfolio. We worked to expand sales of our proprietary products, including the miticide “DANIKONG” (pyflubumide) and the insecticide “PHOENIX”(flubendiamide). The sales of fungicide “PARADE”(pyradiflumid), launched in the previous fiscal year, also went well.

However, due to the discontinuation of some products and the impact of decrease in pesticide application which was caused by a series of natural disasters last year, total domestic sales were ¥13.9 billion, a decrease of ¥0.1 billion year on year.



The chart below presents net sales by region for overseas agrochemical sales.

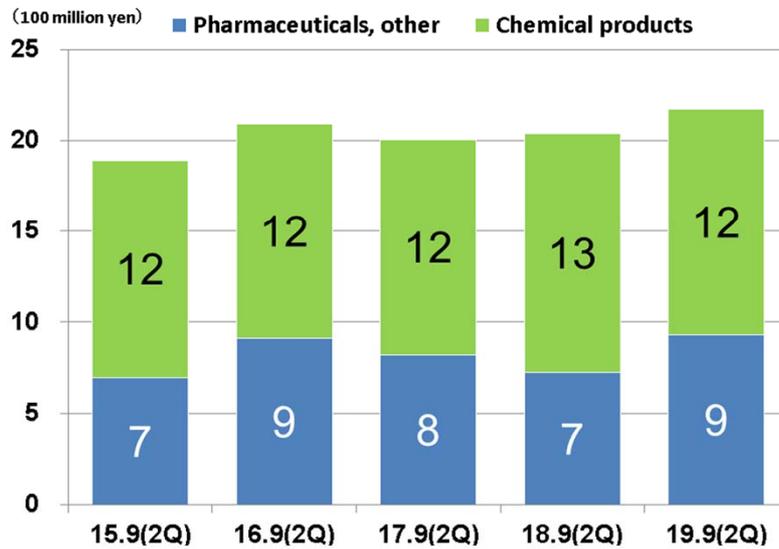
During the second quarter, sales in Latin America were firm due to a recovery in the Brazilian market.

On the other hand, sales in South Korea and China, which are the main agrochemical marketing countries in Asia, were sluggish due to the impact of distribution inventories and other factors. Furthermore, in India, where precipitation was low in the second half of the rainy season, sales fell year on year due to delays in planting and other factors.

As a result, overseas agrochemical sales decreased by ¥0.5 billion year on year to ¥19.2 billion.

# Chemical, Pharmaceutical Products, and others –Sales by Business Segment

## Growth in the Pharmaceutical Business



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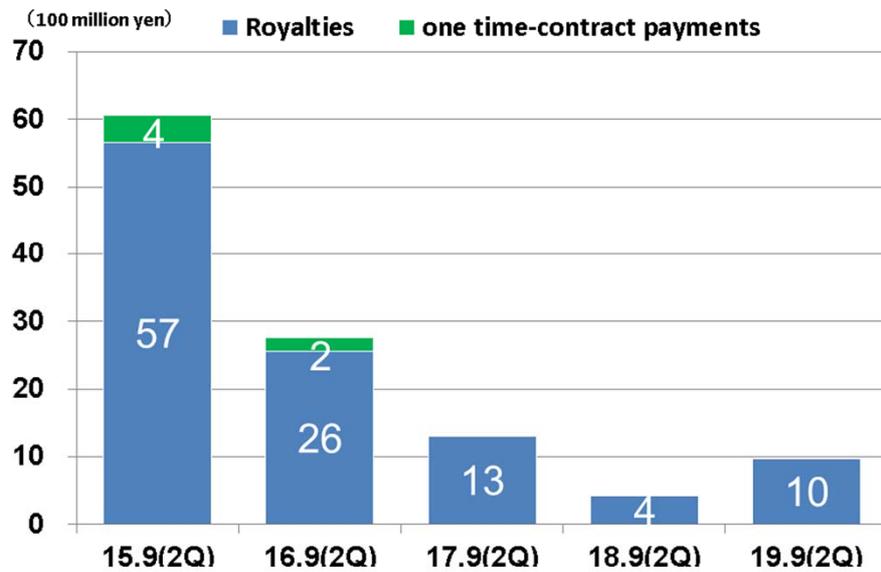
This graph shows the transitions in net sales of chemical, pharmaceutical products, and others.

This fiscal year, net sales of the chemical, pharmaceutical and others segment increased by ¥0.1 billion year on year to ¥2.2 billion.

This is due to an increase in sales of the onychomycosis field of the topical antifungal agent luliconazole in the pharmaceutical field.

## Revenues from Licensing

### Increases in Royalty



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This graph shows the transitions in revenues from licensing.

In this fiscal year, royalty increased mainly due to the good sales of Bayer, whom we licensed out flubendiamide, and overall revenues from licensing were ¥1.0 billion, an increase of ¥0.5 billion year on year.

## Major Earnings of Domestic Group Companies

(¥m. / %)

|                 |                  | 2Q/FY2019 | 2Q/FY2018 | YoY  | Growth % |
|-----------------|------------------|-----------|-----------|------|----------|
| Nichino Service | Net sales        | 1,954     | 1,994     | Δ 39 | Δ 2.0    |
|                 | Operating income | 108       | 107       | 1    | 1.6      |
|                 | Net profit       | 72        | 63        | 8    | 13.3     |
| Nichino Ryokka  | Net sales        | 864       | 725       | 138  | 19.1     |
|                 | Operating income | 29        | Δ 23      | 53   | -        |
|                 | Net profit       | 16        | Δ 12      | 29   | -        |
| Nihon Ecotech   | Net sales        | 398       | 380       | 17   | 4.7      |
|                 | Operating income | 27        | 6         | 20   | 304.2    |
|                 | Net profit       | 23        | 6         | 17   | 262.7    |
| AgriMart        | Net sales        | 743       | 664       | 78   | 11.7     |
|                 | Operating income | 103       | 72        | 30   | 42.5     |
|                 | Net profit       | 67        | 46        | 20   | 43.7     |

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This table shows this fiscal year's major earnings of NNC's domestic consolidated subsidiaries.

Nichino Ryokka began selling a new grass-use fungicide, "DISIDE", and worked to select profitable orders for greening landscape construction, and as a result, their profitability improved.

## Major Earnings of Overseas Group Companies

(¥m. / %)

|                       |                  | 2Q/FY2019 | 2Q/FY2018 | YoY   | Growth % |
|-----------------------|------------------|-----------|-----------|-------|----------|
| Nichino America       | Net sales        | 3,512     | 3,578     | △ 65  | △ 1.8    |
|                       | Operating income | 335       | 466       | △ 131 | △ 28.1   |
|                       | Net profit       | 249       | 335       | △ 86  | △ 25.7   |
| Taiwan Nihon Nohyaku  | Net sales        | 171       | 156       | 14    | 9.5      |
|                       | Operating income | 24        | 15        | 9     | 64.4     |
|                       | Net profit       | 21        | 13        | 8     | 62.5     |
| Nichino India         | Net sales        | 2,767     | 3,014     | △ 247 | △ 8.2    |
|                       | Operating income | △ 37      | △ 30      | △ 5   | -        |
|                       | Net profit       | 34        | △ 14      | 48    | -        |
| Sipcam Nichino Brasil | Net sales        | 8,350     | 7,993     | 356   | 4.5      |
|                       | Operating income | 1,003     | 1,086     | △ 83  | △ 7.7    |
|                       | Net profit       | 453       | 598       | △ 144 | △ 24.1   |

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This table shows 2019 Q2's major earnings of NNC's overseas consolidated subsidiaries.

In Sipcam Nichino Brasil (SNB), net sales increased year on year due to a recovery of demand in the Brazilian market, but profits were sluggish due to factors such as an rising cost rates and deteriorating financial balances.

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## III. Plan of FY2019

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## Plan of FY2019 (YoY comparison)

### Increase in Revenue but Decrease in Profit (¥b. / %)

|   | Fiscal 2019 Plan | Fiscal 2018 | YoY | Growth % |
|---|------------------|-------------|-----|----------|
| Net Sales                               | 680              | 612         | 68  | 11.1     |
| Domestic Agrochemical Sales             | 199              | 201         | △ 2 | △ 0.9    |
| Overseas Agrochemical Sales             | 397              | 338         | 59  | 17.4     |
| Chemical Products/Pharmaceuticals       | 52               | 49          | 3   | 6.4      |
| Revenues from Licensing                 | 12               | 7           | 5   | 81.6     |
| Other                                   | 20               | 18          | 2   | 13.2     |
| Cost of Sales                           | 455              | 393         | 62  | 15.8     |
| Gross Profit                            | 225              | 219         | 6   | 2.7      |
| SG&A                                    | 187              | 177         | 10  | 5.4      |
| Operating Income                        | 38               | 42          | △ 4 | △ 8.9    |
| Ordinary Income                         | 34               | 37          | △ 3 | △ 6.9    |
| Profit attributable to owners of parent | 25               | 25          | △ 0 | △ 0.3    |

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The forecast for the FY2019 remains unchanged from the beginning of the fiscal year under review.

Net sales are forecast to increase ¥6.8 billion, or 11.1%, year on year to ¥68.0 billion, mainly due to the growth in overseas agrochemical sales.

In terms of profit, despite an increase in revenues from licensing, operating income is projected to decline by ¥0.4 billion, or 8.9%, to ¥3.8 billion, and ordinary income will decline by ¥0.3 billion, or 6.9%, to ¥3.4 billion. This is attributable to factors including a ¥1.0 billion increase in SG&A expenses to expand business and improve earnings in line with the Medium-Term Business Plan.

Profit attributable to owners of parent is expected to remain at the same level as the previous fiscal year at ¥2.5 billion.

## Plan of FY2019 (YoY comparison)

Net sales: ¥ 61.2 bn → ¥68.0 bn (+¥6.8 bn)

Operating income: ¥ 4.2bn → ¥3.8 bn (–¥0.4 bn)

(operating income)

Increase in profits from SNB and NIL (effect of high revenues, etc.) + ¥0.7 bn

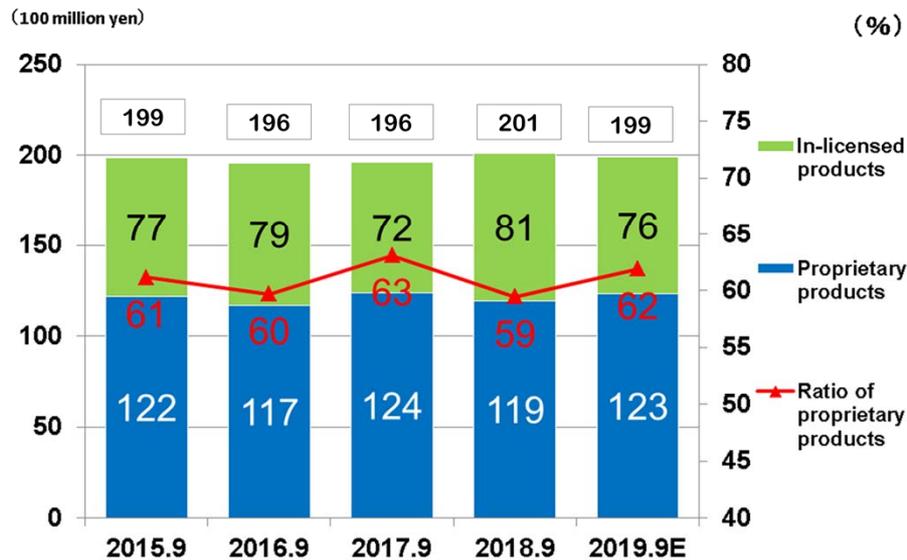
NNC non-consolidated lower income  
(Change in product composition, higher raw material costs, etc.) – ¥0.6 bn

Income decrease in NAI (effect of increase in SG&A expenses, etc) – ¥0.5 bn

This year's plan calls for increasing revenues while our operating income target for the current fiscal year is, ¥3.8 billion, a year-on-year decrease of ¥0.4 billion. Looking at the major factors impacting revenues and income, factors resulting in income growth include ¥0.7 billion in earnings growth from Sipcam Nichino Brasil (SNB) and Nichino India (NIL). Factors causing decreased income include a change in the NNC nonconsolidated product composition and increased raw material costs, resulting in decreased income in ¥0.6 billion, and ¥0.5 billion in increased SG&A expenses at Nichino America (NAI). As a result, income decreased by ¥0.4 billion.

## Domestic agrochemical Sales -Composition of Net Sales

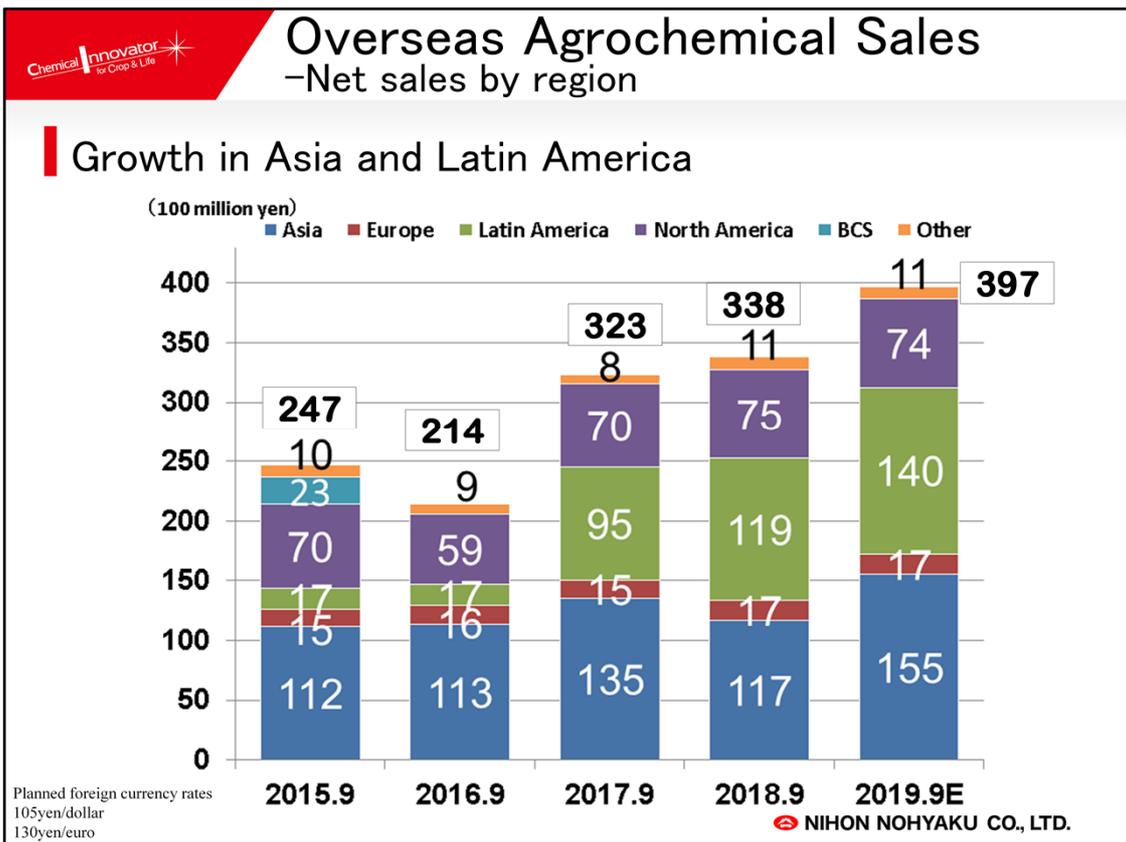
### Increase in Proprietary Products Despite Decline in Sales



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This graph shows transitions in net sales composition for domestic agrochemical sales. In the current fiscal year, we will work to expand sales of fungicide “PARADE” (pyradiflumid), which will mark the second year of sales, and to expand sales of our proprietary products, such as flubendiamide, pyflubumide, and pyrifluquinazon, an horticultural insecticides.

On the other hand, due to the impact of the discontinuation of certain products, net sales are forecast to decline ¥0.2 billion year on year to ¥19.9 billion.



This graph shows net sales by region for overseas sales.

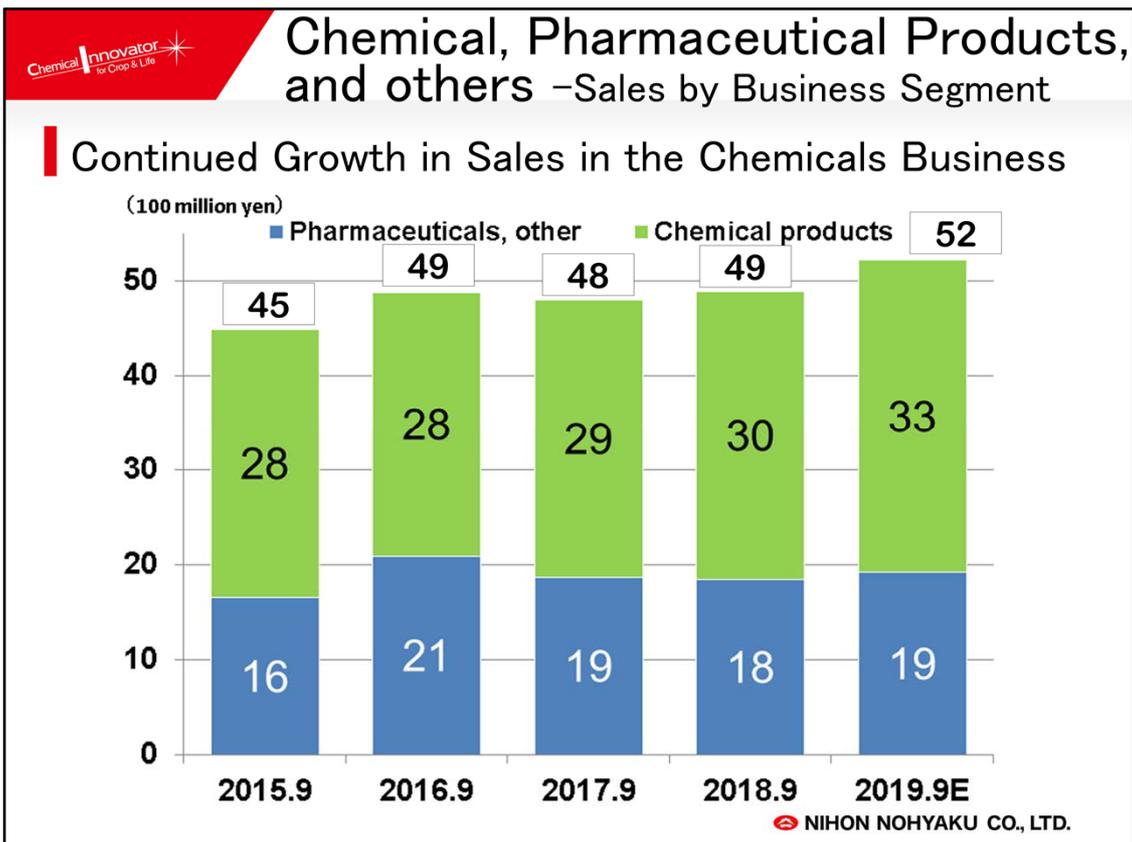
In the Asian region, we will work to promote and expand sales of our core products such as “PHOENIX”(flubendiamide), and in India, Nichino India (NIL) will expand sales of NNC-developed products and strengthen its TG manufacturing functions.

In the Americas, we aim to expand sales by expanding the application of the horticulture insecticide “HACHI-HACHI”(tolfenpurad) in Nichino America, Inc(NAI).

Also, as part of efforts to maximize synergies within the group, we will promote the development of “PHOENIX”(flubendiamide) by Nichino do Brasil Agroquimicos Ltda.(SNB).

In addition, we will continue to support operations in Sipcam Nichino Brasil (SNB), striving to strengthen our distribution and sales system in Brazil, and aim to expand sales of our products under development.

As a result, the plan for overseas sales is ¥39.7 billion, an increase of ¥5.9 billion year on year.



This graph shows the current net sales of chemical, pharmaceutical products, and others.

In the chemicals business, we will work to promote and expand sales of the fungicide “DISIDE” in the greenery chemicals field.

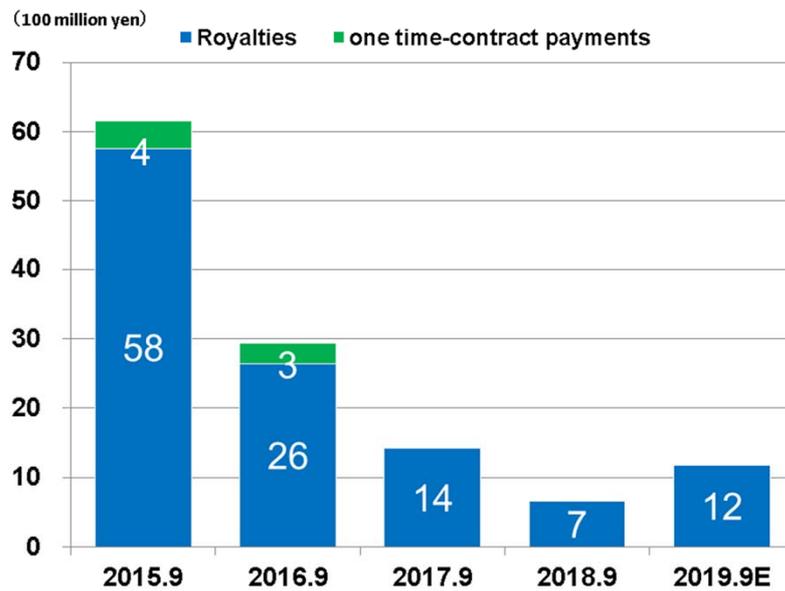
In the termite drug field, we will strengthen collaboration with AgriMart Corporation and aim to expand our business base by expanding sales of core products and developing new sales channels.

In the pharmaceuticals business, we will strengthen the provision of information to medical institutions through collaboration with distributors and aim to expand sales of luliconazole.

As a result, the chemicals, pharmaceuticals and others segment is projected to record net sales of ¥5.2 billion, an increase of ¥0.3 billion year on year.

## Revenues from Licensing

### Increase in Royalty



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This graph shows the plan for revenues from licensing.

As explained earlier, sales of Bayer, whom we licensed out flubendiamide, are expected to increase, therefore revenues from licensing is planned to increase.

## Main Plans of Domestic Group Companies

(¥m. / %)

|                 |                  | Fiscal<br>2019<br>Plan | Fiscal<br>2018 | YoY  | Growth % |
|-----------------|------------------|------------------------|----------------|------|----------|
| Nichino Service | Net sales        | 4,335                  | 4,378          | Δ 43 | Δ 1.0    |
|                 | Operating income | 138                    | 158            | Δ 20 | Δ 12.7   |
|                 | Net profit       | 96                     | 126            | Δ 30 | Δ 23.9   |
| Nichino Ryokka  | Net sales        | 1,968                  | 1,694          | 273  | 16.1     |
|                 | Operating income | 18                     | 25             | Δ 7  | Δ 28.8   |
|                 | Net profit       | 10                     | 15             | Δ 5  | Δ 33.9   |
| Nihon Ecotech   | Net sales        | 800                    | 757            | 42   | 5.6      |
|                 | Operating income | 39                     | 3              | 35   | 1015.3   |
|                 | Net profit       | 29                     | 7              | 21   | 281.5    |
| AgriMart        | Net sales        | 1,544                  | 1,536          | 7    | 0.5      |
|                 | Operating income | 135                    | 147            | Δ 12 | Δ 8.8    |
|                 | Net profit       | 82                     | 92             | Δ 10 | Δ 11.1   |

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This table shows the main plans for the current fiscal year of domestic consolidated subsidiaries.

## Main Plans of Overseas Group Companies

(¥m. / %)

|                          |                  | Fiscal<br>2019<br>Plan | Fiscal<br>2018 | YoY   | Growth % |
|--------------------------|------------------|------------------------|----------------|-------|----------|
| Nichino America          | Net sales        | 7,414                  | 7,479          | △ 65  | △ 0.9    |
|                          | Operating income | 312                    | 823            | △ 511 | △ 62.1   |
|                          | Net profit       | 199                    | 598            | △ 399 | △ 66.8   |
| Taiwan Nihon<br>Nohyaku  | Net sales        | 522                    | 468            | 53    | 11.3     |
|                          | Operating income | 74                     | 63             | 10    | 17.0     |
|                          | Net profit       | 62                     | 53             | 8     | 16.8     |
| Nichino India            | Net sales        | 9,882                  | 6,405          | 3,476 | 54.3     |
|                          | Operating income | 257                    | 182            | 74    | 40.9     |
|                          | Net profit       | 238                    | 38             | 199   | 519.4    |
| Sipcam Nichino<br>Brasil | Net sales        | 14,627                 | 10,094         | 4,532 | 44.9     |
|                          | Operating income | 1,604                  | 963            | 640   | 66.4     |
|                          | Net profit       | 460                    | 235            | 224   | 95.6     |

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This table shows the main plans of overseas consolidated subsidiaries for the current fiscal year. As explained earlier, we expect performance growth at both Nichino India (NIL) and Sipcam Nichino Brasil (SNB).

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## IV. Progress in Implementation of Growth Strategy

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### Nichino Group – Growing Global To become an outstanding globally competitive group

We contribute to the future of mankind through protecting crops and improving our living environment by further improvement of our technology that has arisen through agrochemical business.

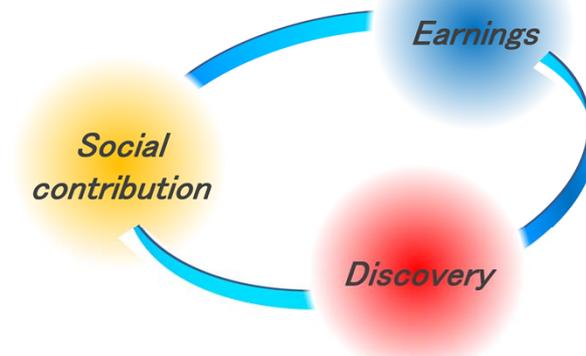
We contribute to society through supporting agriculture by providing new agrochemicals & technology continuously.

In 2012, we formulated the NNC Group Vision which envisions our ideal form, based on the recognition that we needed to expand our business scale and strengthen our financial base to support it in order to survive the intense competition and achieve sustained high growth.

Our Group Vision motto is: Nichino Group – Growing Global: To Become an Outstanding Globally Competitive Company.

The basic policy of our vision is: We contribute to the future of mankind through protecting crops and improving our living environment by further improvement of our technology that has arisen through agrochemical business. Our main goals: We contribute to society through supporting agriculture by providing new agrochemicals & technology continuously.

### Mission and Business Objectives



**To contribute to society  
through continuous discovery of drugs**

It is necessary to become a R&D-oriented company with sales of ¥200bil size(next to “Big 4 Companies”) that ensures stable business propulsion and presence.

Our goal is to become an R&D-oriented company ranking next to the “Big 4” multinational companies, with net sales of ¥200 billion.

This is because we believe that a certain scale of operations is necessary to ensure a stable business promotion and presence in order to contribute to society through continuous drug discovery.

## Initiatives to achieve Group Vision

### Product acquisition

- ✓ Acquisition of herbicide, orthosulfamuron (Oct. 2013)

### Investments and partnerships

- ✓ AgriMart Acquisition (Jan. 2014)
- ✓ Invested in SNB (Sep. 2014)
- ✓ Invested in NIL (Mar. 2015)
- ✓ Additional investment in Sipcam Europe S.p.A. (10% ⇒ 20%) (Sep. 2015)

### Strengthening of overseas offices

- ✓ Establish of Nichino Vietnam (NVC) (Mar. 2017)
- ✓ Acquisition of Nihon Nohyaku Andica (NAS) (Feb. 2018)

During the period of our two Medium –Term Business Plans from FY Sep. 2013 to FY Sep 2018, we advanced strategies focused on business scope expansion, including product acquisition, investments, and partnerships. More specifically, we acquired the herbicide orthosulfamuron, and executed capital partnerships or acquisitions for AgriMart Corporation, Nichino India (NIL), Sipcam Nichino Brasil (SNB), and established local subsidiaries in Vietnam and Colombia. These efforts resulted in a certain level of success in expanding our business.

## Initiatives to achieve Group Vision

### Pursuit of group synergy

- ✓ **Nichino India Pvt. Ltd. (NIL)**
  - Started technical grade(TG) synthesis of “FUJI-ONE”(isoprothiolane) and “APPLAUD”(buprofezin)
  - Started sales of “APPLAUD”(buprofezin) TG to Indian domestic sales company
  - Started sales of “FUJI-ONE”(isoprothiolane) in India
- ✓ **Sipcam Nichino Brasil S.A. (SNB)**
  - Started sales of “APPLAUD”(buprofezin) , “DANITRON”(fenpyroximate), and orthosulfamron

### Improve capability of creating new AIs

- ✓ Miticide “DANIKONG”(pyflubumide)  
(launched in Japan in Mar. 2015, launched in South Korea in Mar. 2017)
- ✓ Horticultural fungicide agent “PARADE”(pyradiflumid)  
(Launched in Japan in Apr. 2018)

Through efforts to increase investment synergies, we also promoted establishment of proprietary product production and direct-sales structures at overseas subsidiaries. Specifically, at Nichino India (NIL) we synthesize the TG of “FUJI-ONE”(isoprothiolane) and “APPLAUD”(buprofezin) , and began sales of the “APPLAUD”(buprofezin) TG, and from last year, we began sales of “FUJI-ONE”(isoprothiolane) to Indian domestic sales company. At Sipcam Nichino Brasil (SNB), we launched full-scale sales of proprietary products such as “APPLAUD”(buprofezin) , “DANITRON”(fenpyroximate), and orthosulfamron. As part of new product development, we launched the miticide “DANIKONG”(pyflubumide) in Mar. 2015 in Japan and South Korea in Mar. 2017. We also launched sales of the horticultural fungicide agent “PARADE” in Apr. 2018 in Japan. “PARADE” is expected to offer superior performance in a wide range of applications, including horticulture, rice paddy, and turfgrass.

## Progress of Growth Strategy

- 1) Launch new agents amid increasing difficulty in creation of new active ingredients
- 2) Invest 10% of annual net sales in R&D

| Product Name                  | Peak net sales         | 2019~2021                                  | 2022~2024 | 2025~2027 | 2028~2030 |
|-------------------------------|------------------------|--|-----------|-----------|-----------|
| Orchestra®<br>(benzpyrimoxan) | Domestic: 1billion yen | → (Plan to launch to market in Japan 2021) |           |           |           |
|                               | India: 6billion yen    | → (Plan to launch to market in India 2023) |           |           |           |
| insecticide A                 | 4billion yen           | → (Plan to launch to market 2026)          |           |           |           |
| fungicide                     | 5billion yen           | → (Plan to launch to market 2027)          |           |           |           |
| insecticide B                 | 8billion yen           | → (Plan to launch to market 2028)          |           |           |           |

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Next, efforts to strengthen research and development capabilities, which is one of our growth strategies.

In recent years, discovering new bioactive compounds (creation of new AIs) has become more difficult. At the same time, safety assessment standards have risen and the cost of maintaining existing registrations has increased, resulting in a dramatic increase in research and development expenses. Amid such conditions, we are investing over 10% of annual net sales into research and development (R&D) in order to further enhance our R&D capabilities. Details on new agent development and respective launch schedules are as shown.

The decision was made to conduct simultaneous development in Japan and India for the new rice paddy insecticide “Orchestra” (benzpyrimoxan), and developing in both countries with the goal of launching to market in 2021 and 2023, respectively. We are anticipating peak net sales of 1.0 billion yen on the Japanese market and 6.0 billion yen in India.

In addition, as a result of our efforts to quickly expand our pipeline with the goal of launching one agent every three years, we are currently developing two new products, two insecticides and fungicide, which are in the process of being developed following the “Orchestra”, with the goal of launching sales at the site.

## Progress in fiscal 2019 Q2

### Newly developed products

#### Completion of agrochemical registration of new pesticide “Orchestra®” (benzpyrimoxane)

- ✓ In Feb. 2019, agrochemical registration in Japan and India were completed.
- ✓ Working to advance sales in India ahead of schedule (2023 ⇒ 2021-22),
- ✓ Mixtures with various pesticides and fungicide are under development.
- ✓ Registration is under consideration in Southeast Asian countries, etc.

### Expansion of existing products

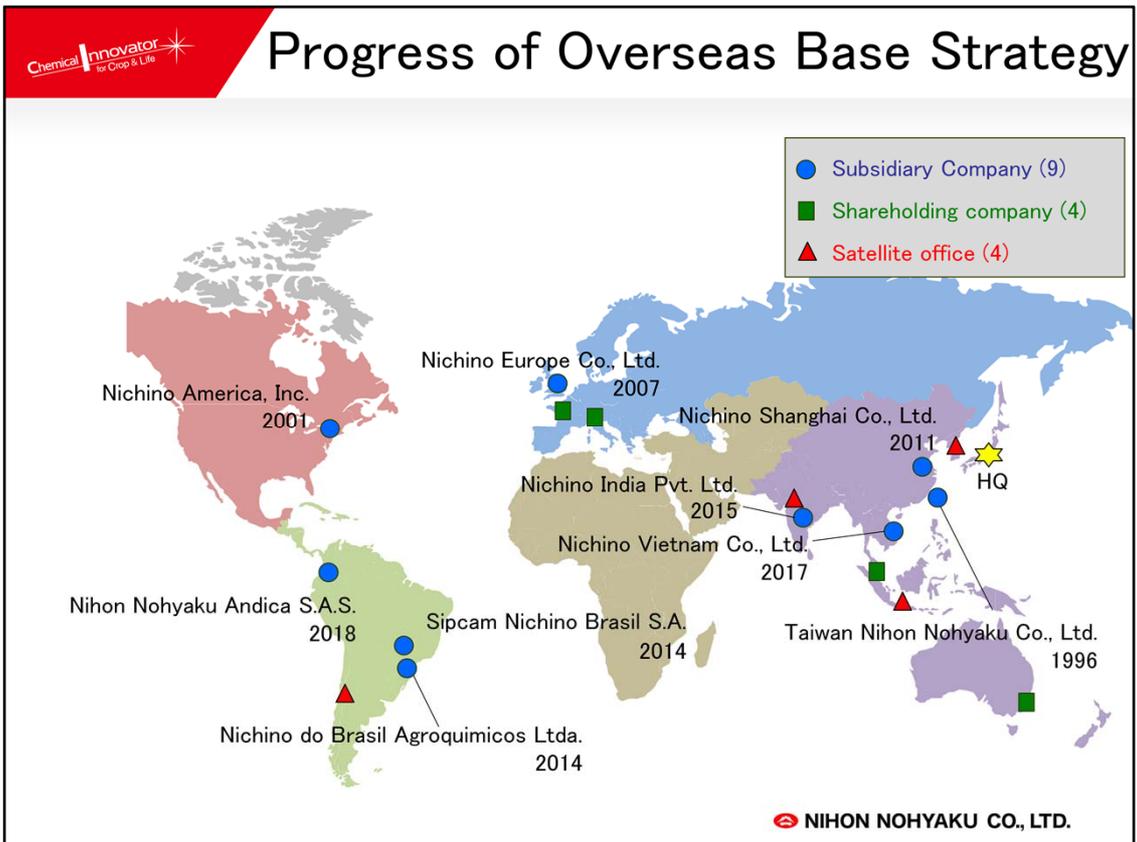
#### Acquired U.S. Food Registration for horticulture insecticide “Colt®” (pyrifluquinazon)

- ✓ Registered in November 2018, launched sales via Nichino America Inc.(NAI)
- ✓ Peak U.S. sales of ¥0.5billion to ¥1billion

Next, the results of our R&D in this fiscal year.

In February this year, we completed the agrochemical registration for “Orchestra®” in Japan and India. As explained earlier, sales in India are scheduled to begin in 2023 but we are working diligently to contribute to earnings at an early stage by moving forward this plan from 2021 to 2022. We are also developing a mixture product of “Orchestra®” with various insecticides and fungicides. In addition to Japan and India, we are also considering acquiring registrations in Southeast Asian countries and other countries, and we will cultivate this product as one of our key global products in the field of paddy rice.

In November last year, we acquired a U.S. food registration for “Colt®” (pyrifluquinazon), a horticulture pesticide, and began selling it in this field from Nichino America(NAI). We expect peak sales in the U.S. of ¥0.5 billion to ¥1 billion.



This map shows our overseas locations.

We have development and marketing bases, sales and production bases all around the world, including three major overseas group companies,

Nichino America(NAI), Nichino India(NIL), and Sipcam Nichino Brasil(SNB). Also there are sales company in Taiwan, five non-consolidated subsidiaries and four invested companies.

Our globalization is progressing steadily.

## Progress of Overseas Base Strategy

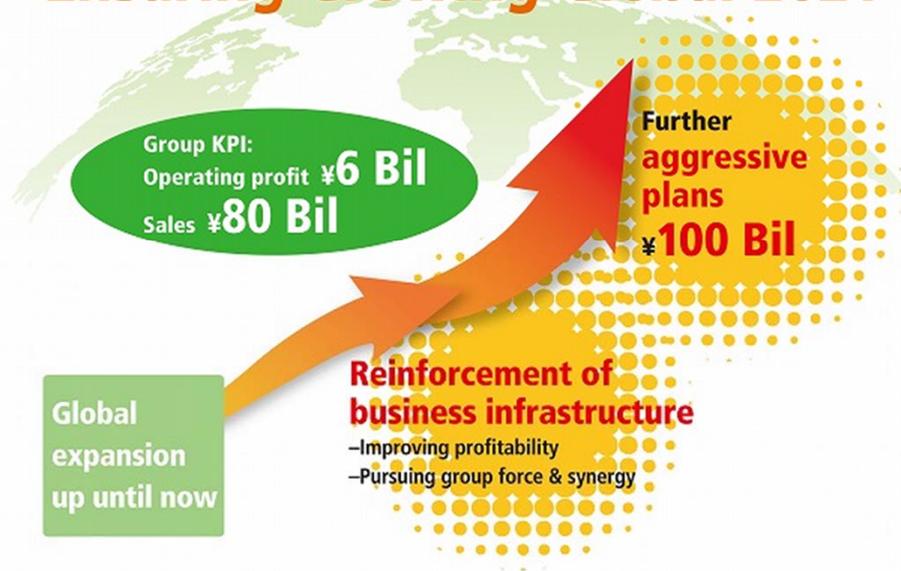
| Conventional Crop Protection Sales Performance (2013-2018-2023F) |              |               |               |               |               |                       | (\$ m.) |
|--|--------------|---------------|---------------|---------------|---------------|-----------------------|---------|
| Rank   | Country      | Value 2013    | Value 2017    | Value 2018    | Value 2023F   | NNC Group Companies   | NNC Rep |
| 1  | Brazil       | 10,367        | 7,929         | 8,927         | 9,477         | NBA,SNB               |         |
| 2  | USA          | 7,210         | 7,868         | 8,104         | 8,197         | NAI                   |         |
| 3  | China        | 6,997         | 5,975         | 6,387         | 7,611         | Nichino Shanghai      |         |
| 4  | Japan        | 3,850         | 3,294         | 3,342         | 3,284         | NNC                   |         |
| 5  | India        | 2,093         | 2,417         | 2,471         | 3,010         | NIL                   | ○       |
| 6  | Argentina    | 2,402         | 2,599         | 2,445         | 3,015         |                       | ○       |
| 7  | France       | 2,714         | 2,320         | 2,333         | 2,437         | (Philagro),(NEU)      |         |
| 8  | Canada       | 1,666         | 1,709         | 1,691         | 1,849         | (NAI)                 |         |
| 9  | Germany      | 1,954         | 1,722         | 1,670         | 1,914         | (NEU)                 |         |
| 10   | Australia    | 1,652         | 1,713         | 1,583         | 1,852         | (Sipcam Pacific)      |         |
| 11   | Russia       | 954           | 1,459         | 1,477         | 1,910         |                       |         |
| 12   | Italy        | 1,082         | 1,132         | 1,231         | 1,256         | Sipcam Europe,(NEU)   |         |
| 13   | Spain        | 929           | 1,046         | 1,112         | 1,155         | (NEU),(Sipcam Europe) |         |
| 14   | Mexico       | 958           | 866           | 869           | 1,050         | (NAI)                 |         |
| 15   | Vietnam      | 602           | 729           | 741           | 887           | NVC                   |         |
| 16   | South Korea  | 751           | 698           | 724           | 736           |                       | ○       |
| 17   | UK           | 765           | 727           | 711           | 761           | NEU,(Sipcam Europe)   |         |
| 18   | Poland       | 488           | 597           | 575           | 723           | (NEU)                 |         |
| 19   | Romania      | 345           | 499           | 548           | 652           | (NEU)                 |         |
| 20   | Chile        | 449           | 515           | 536           | 640           |                       | ○       |
|  | <b>World</b> | <b>58,886</b> | <b>56,355</b> | <b>58,165</b> | <b>65,291</b> |                       |         |

Source) Agbio Investor

 NIHON NOHYAKU CO., LTD.

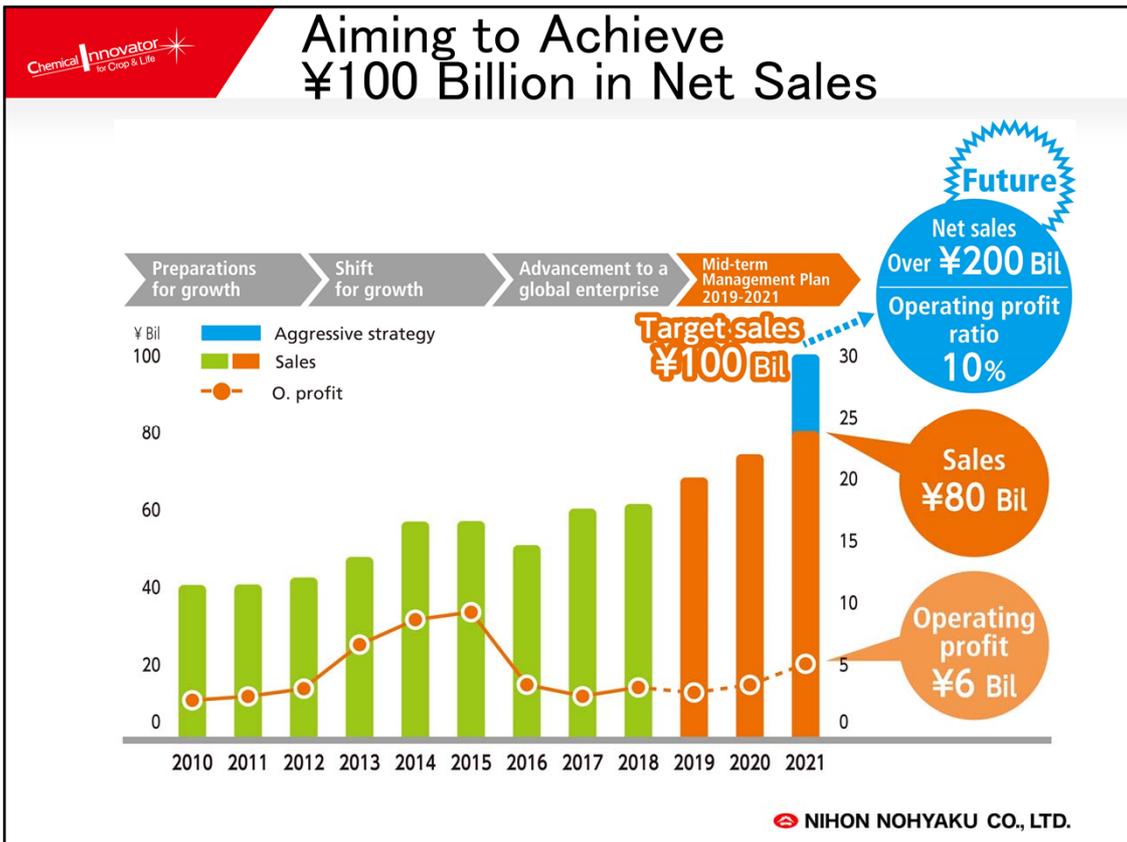
The table shows the 20 countries with top agrochemical sales in the world, listed with our overseas bases. As you can see, we are proactively assigning sales bases and extension staff to countries with high demand of agrochemicals, to promote the spread of agrochemical and contribute to stable global food production.

## Ensuring Growing Global 2021



Based on the results of initiatives aimed at achieving this vision and the results of our previous Medium-Term Business Plan, we drafted a new three-year Medium-Term Business Plan to begin this fiscal year. The theme of this plan is "Ensuring Growing Global 2021" and we are positioning this Medium-Term Business Plan period as a period for strengthening our business infrastructure. During the period of this Medium-Term Business Plan, we will focus on the two core pillars of "Improving profitability" and "Pursuing group force & synergy".

We will accelerate the income contributions of growth strategies implemented thus far and strengthen business infrastructure to ensure our ability for growing global. We also will continue with M&A, partnerships, and product acquisition as part of initiatives to expand business scope. In fiscal 2021, the final year of the plan, we aim to achieve operating income of ¥6.0 billion from existing businesses, net sales of ¥80 billion, and net sales of ¥100billion through the realization of new growth strategies.



The graph shows the results and plans for net sales and operating income for fiscal years 2010 through 2021.

Nichino Group sees fiscal 2021 sales of ¥100 billion as a milestone and aims to become an R&D oriented company with sales of ¥200 billion, meaning lining next to the four major multinational companies.

## Progress of Capital Partnership with ADEKA

### Established the Partnership Promotion Committee and started specific deliberations

- ✓ Both companies kicked off the business alliance promotion committee in December 2018.
- ✓ Organized R&D efforts of both companies, started discussion about future cooperation theme.
- ✓ Promoting further active human resource exchanges among young researchers
- ✓ Started examining the utilization of production bases, cooperation in purchasing and logistics, and sharing of production technologies and know-how.



NIHON NOHYAKU CO., LTD.

Last Sep., ADEKA acquired 51% of our stock through a TOB and a third-party capitalization, making us a consolidated subsidiary of ADEKA. The main purpose of this capital partnership is to maximize the corporate value of both companies by cooperating with ADEKA towards implementing and promoting strategic plans and activities related to our agrochemicals business and the life sciences business. To achieve this goal, the two companies established a partnership promotion committee in 2018 Dec. The committee organized the R&D activities of both companies and started discussions on future joint themes. In addition, we are actively promoting exchanges among young researchers, and have begun examining ways to share production technologies and know-how, such as by utilizing mutual production bases and by cooperating in purchasing and logistics.

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## V. Smart Agriculture Initiatives

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### **Rapid population decline and the advent of a super-aging society**

- Accelerating decline in the labour force.
- In all industries, there is a need to switch to super-labor-saving and high-quality production by using robotics technology, remote sensing technology using artificial satellites, and ICT, including cloud systems.
- Even in agriculture, labor shortages due to aging and a decline in new farmers are prominent.  
⇒ Labor saving and technical support for new farmers is necessary.

The labor force population in Japan continues to decline at an accelerating pace due to the declining birthrate, aging population, and population decline.

Therefore, in all industries, there is a need for a shift change to super-labor-saving and high-quality production by utilizing robotic technology, remote sensing technology utilizing artificial satellites, and ICT, including cloud systems.

In agriculture, labor shortages due to the aging of the population and the reduction in new farmers are conspicuous. There is a need to reduce labor and provide technical support to new farmers.

**Rapid population decline and the advent of a super-aging society**  
**Establishment and diffusion of smart agriculture**

- ① **Realize super-labor saving and large-scale production (automation)**
- ② **Maximizing Crop Capabilities**  
**(Precision farming, utilizing sensing technologies and big-data)**
- ③ **Liberation from hard and dangerous work**  
**(Robots, Assist Suits, etc.)**
- ④ **Realizing agriculture that is easy for everyone**  
**(Data compilation of agricultural machinery operation assisting equipment and cultivation know-how)**
- ⑤ **Providing peace of mind and trust to consumers**

Interim report of "Study Group for Realization of Smart Agriculture"

 **NIHON NOHYAKU CO., LTD.**

The policies of the Ministry of Agriculture, Forestry and Fisheries(MAFF) are to achieve super-labor-saving and large-scale production through automation, to maximize the capacity of crops through precision farming using sensing technology and big-data, and to liberate from hard and dangerous work by utilizing robots, assisted suits, etc., in order to secure labor and improve productivity.

# Smartifying in Farm Work

## Examples of Advanced Technology from Production to Shipment

plowing and leveling



Unmanned collaborative work of automated tractors



ICT agricultural construction equipment

transplanting and seeding



Automatic water management system



Remote control automatic mower

fertilization



Remote sensing and fertilization using drone

appropriate cultivation management by yield combine



Appropriate cultivation management by yield combine

business management



Tomato harvesting robot



Business management system

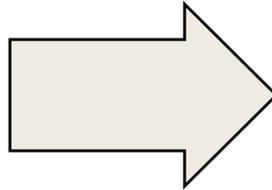
**Smartphone is a farm tool !**

MAFF has an image of promoting the efficiency of agriculture as the fourth industrial revolution by utilizing robots, artificial intelligence (AI), IoT, or using collected big data. As indicated here, technologies for smart agricultural work through the use of the IoT are already advancing in various situations, such as automatic tractor driving, remote sensing using drones, fertilizing, and agrochemical spraying.

In the future, it is said that an era will emerge in which all farm work can be managed inside home.

## The Change in the Procedure for Applying Agrochemical (e.g. drones)

Automatically receive occurrence and reconnaissance information



Diagnosis automatically

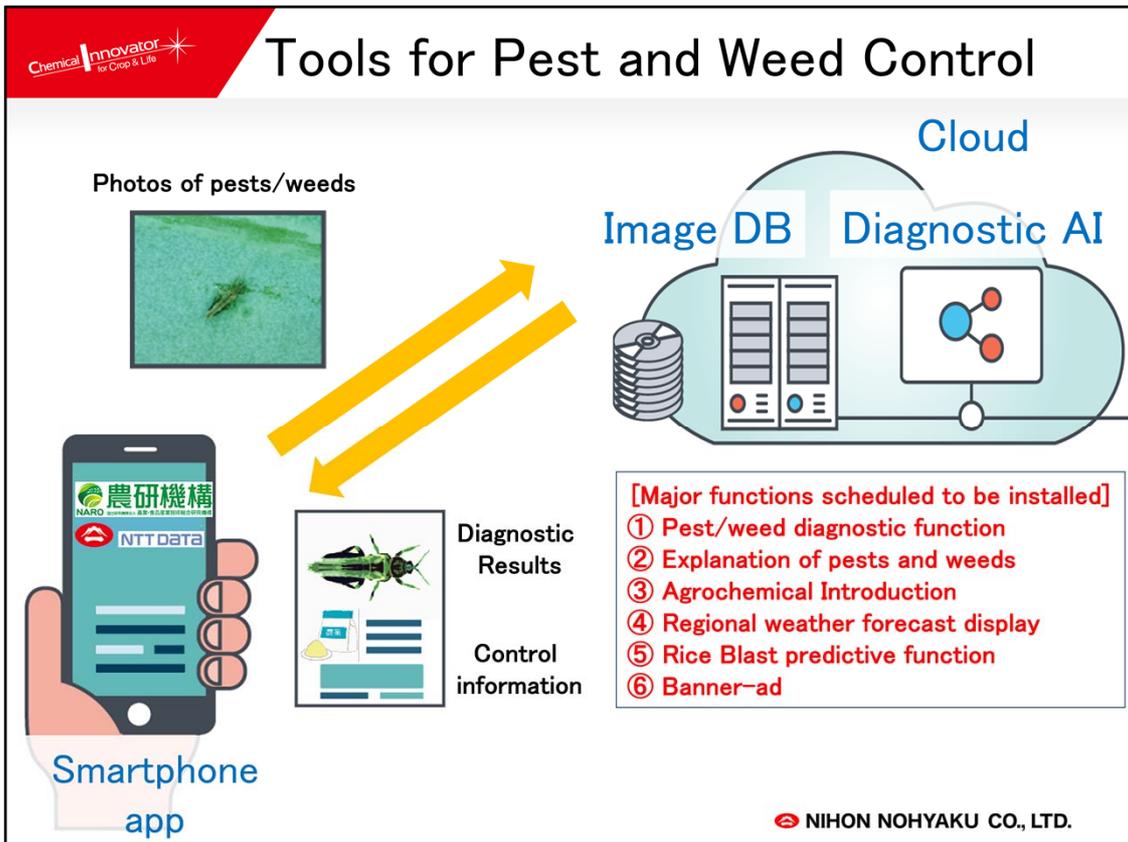


**We want to make this stage a platform.**

Automatic field patrol  
(existing)

Automatic agrochemical application  
(existing)

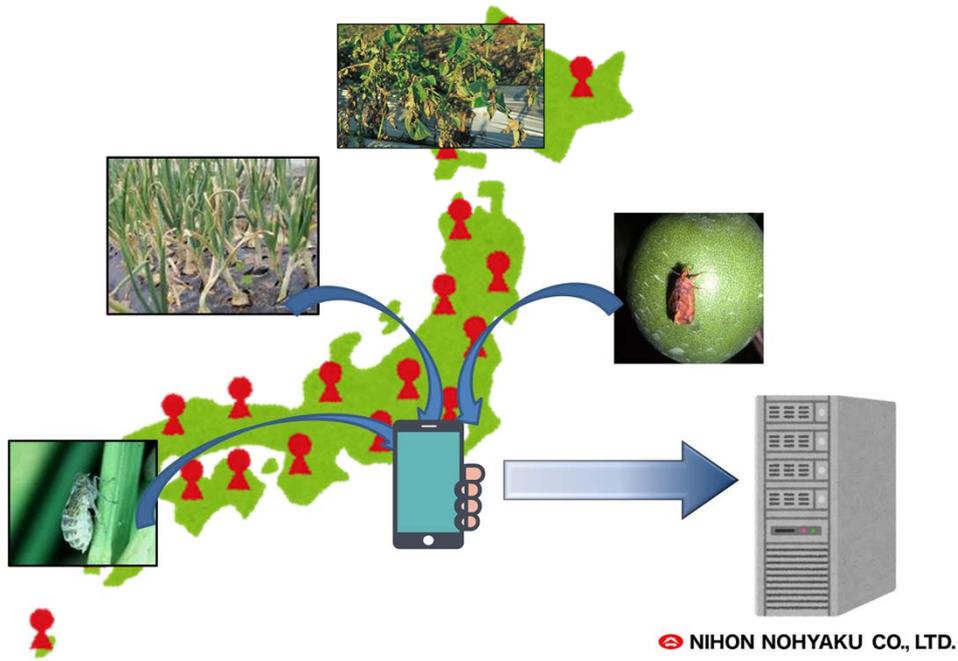
Agrochemical application is also being actively researched and experimented in the field, with the aim of becoming the future of automatically applying agrochemical by looking around the field with drones to determine the occurrence of pests and weeds.



We intend to create our own platform for the occurrence / prediction and diagnosis of pests and weeds, as well as the application of agrochemicals.

Specifically, we are currently developing and aiming to realize a smartphone app, which by taking photos of pests and weeds by smartphones, and our AI automatically responds, then informs the results of the diagnosis, and provides information on control. We are thinking to combine this with the remote sensing of drones that was mentioned earlier. In addition to diagnosing and explaining pests and weeds, we are also considering agrochemical referrals and predictive functions for smartphone apps.

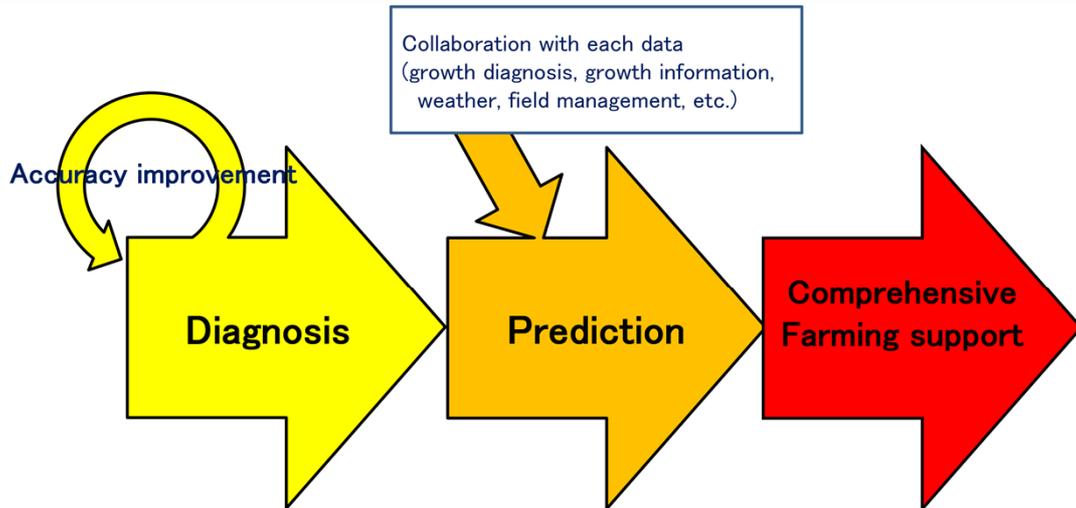
## Data-basing Nationwide Diagnosis Results



As the number of farmers using our app increases, the big data gathers information about where and what diseases and pests are occurring or convergence.

In the future, we intend to incorporate this into our business activities, such as using it for early recommendations on control, or providing information to the government.

## Utilization of Accumulated Data



**We hope to establish a platform at an early stage**

We intend to diagnose and predict pests and weeds, and use them on a comprehensive IoT basis. We do not yet know what scale of operations will be, but we hope to be able to provide a platform for automatic and optimal control proposals in the future by collaborating with each data.

## Participation in Projects of Ministry of Agriculture, Forestry and Fisheries

### Contract project research

“The Project for the Creation of Future Artificial Intelligence Agriculture  
(development of disease and pest early diagnostic technologies utilizing AI)”

FY2017– Development of pest diagnosis technology using AI

### Collaborative project

“The Project to Establish Agriculture Model for Improving Productivity Through  
Collaboration Between Agriculture Industry and the Economy”

Fiscal 2018– Workshop on Control Support Systems

We are participating in and promoting projects sponsored by the Ministry of Agriculture, Forestry and Fisheries to improve the efficiency and mitigate the burden of agricultural work using smart agricultural technology.

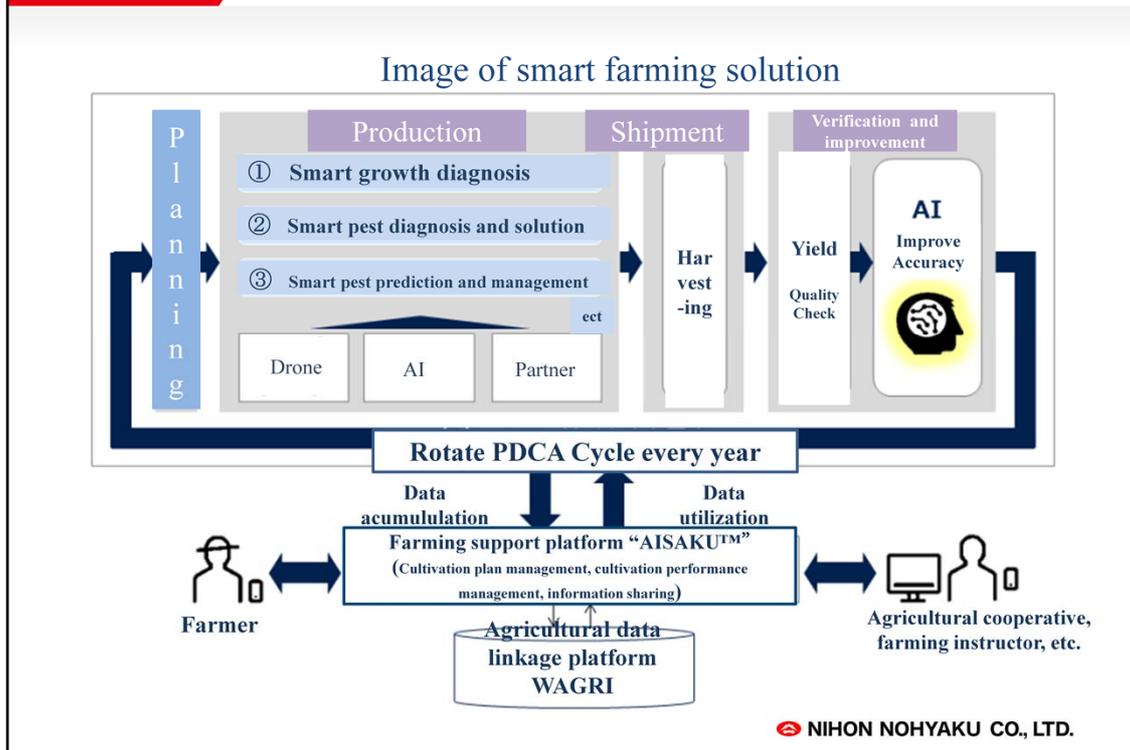
In the “Project for the Creation of Future Artificial Intelligence Agriculture”, we are developing pest diagnostics technology utilizing AI, mainly for fruit and vegetables, which have a large market.

In addition, the “Project to Establish Model Agriculture for Improvement of Productivity” conducted in collaboration between the agriculture industry and the political and business industries, we are developing a control support system for paddy rice farmers.



This is the image of the app we are developing. If you select “Diagnosis (診断)” and take a picture, we are thinking of a system that shows the diagnosis result of the disease, the agrochemical product suitable for controlling the disease, and the place of purchase.

## Participation in Demonstration Tests in Fukushima Prefecture



The Information was disclosed on our website on April 18 this year, the NTT Group was selected for the "Smart Agriculture Acceleration Demonstration Project", which was recruited by the Ministry of Agriculture, Forestry and Fisheries. The demonstration experiment was conducted in Fukushima Prefecture, and we decided to support this project by providing AI diagnostic imaging technology. This project aims to increase agricultural efficiency and improve crop yield and quality by making smarter rice growth diagnosis, pest diagnosis, and pest occurrence prediction.

### Project Promotion Structure

[Farms Implemented]  
Agritsurugai Co., Ltd.

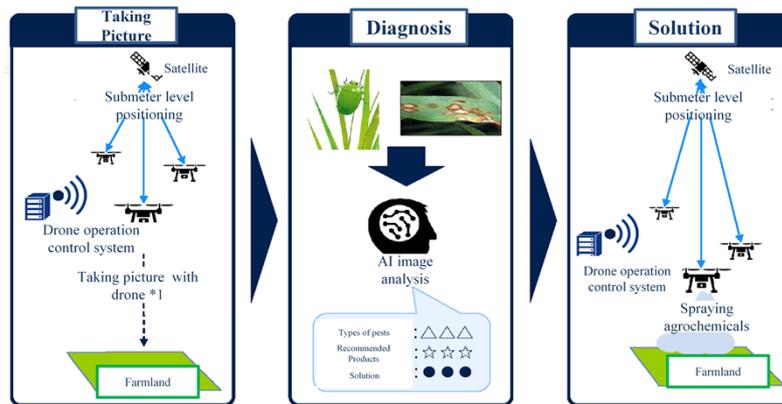
[NTT Group]  
NTT GEOSPACE CORPORATION, NTT DATA Corporation,  
NTT DATA CCS CORPORATION, NTT DOCOMO, INC.,  
QUNIE CORPORATION, Halex Corporation,  
NIPPON TELEGRAPH AND TELEPHONE CORPORATION,  
NIPPON TELEGRAPH AND TELEPHONE EAST CORPORATION

[Partner]  
New Fukushima Advanced Technology Promotion Organization,  
Enroute Co., Ltd., National University Corporation Fukushima University,  
Nihon Nohyaku Co., Ltd.,  
Fukushima Prefectural Federation of Land Improvement Association,  
JA Fukushima Mirai

This project is implemented by the NTT Group, with the participation of many partner companies and organizations. In these companies, we are providing AI diagnostic imaging technology such as foresight and diagnosis in the agrochemical scene.

## Smart Pest Diagnostics/Solution

- Instantly identify the types of pests and weeds and how to deal with them by taking pictures with drone compatible with “Quasi-zenith satellites” and AI technology ( The NTT Group has a track record in analyzing smartphone images).
- Multiple-machine control using drone operation control system enables quick and accurate agrochemical spraying



\*1 If it is difficult to take photos with a drone from above, use a smartphone or other photography.

In the smart pest diagnostics and response situations in which we are involved, we provide technologies to diagnose diseases and pests using drones or smartphones using the “Quasi-zenith satellites”, and to spray agrochemical in the required areas. We are actively involved in smart agriculture in anticipation of the future of Japan’s agriculture. The application for pest diagnosis, will be fully verified by introducing prototypes to the market around this summer, and we are aiming for full-fledged social implementation around 2021.