



**Responsible Care®**  
OUR COMMITMENT TO SUSTAINABILITY

**Chemical Innovator**  
for Crop & Life 



# CSR Report 2020

Corporate Social Responsibility Report 2020



**NIHON NOHYAKU CO., LTD.**

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About CSR (Corporate Social Responsibility)

CSR is the general term for activities focused on achieving sustainable development for the company and society based on the philosophy that the responsibility of a corporation is not simply to adhere to the law and pursue profits for the company, but also to fulfill responsibilities to society based on an ethical code.

Based on the above Basic Principles, the Nichino Group is pushing forward the establishment of a CSR promotion system.

Editorial Policy

This CSR Report summarizes The Nihon Nohyaku Group activities using the following as references: Environmental Reporting Guidelines (2018) by the Japanese Ministry of the Environment, Environmental Accounting Guidelines (2003) by the Japan Chemical Industry Association (JCIA), and JIS Z 26000: 2012 Guidance on Social Responsibility by the Japanese Standards Association, etc.

**[Scope of applicability]** Unless otherwise noted, performance data is from Nihon Nohyaku Co., Ltd. and Nichino Service Co., Ltd.

**[Data aggregation period]** Unless otherwise noted, the 2019 agrochemical fiscal year (the 120th fiscal year, October 2018 to September 2019, denoted in this text simply as “fiscal year”). Capital, numbers of employees, net sales, etc., displayed in this text are as of end of September 2019.

**[Issue]** March 2020 (Next: Planned for September 2020)

\* Pursuant to the Partial Amendment to the Articles of Incorporation approved at the 120th Ordinary General Meeting of Shareholders held on December 20, 2019, Nihon Nohyaku has changed its fiscal year end from September 30 to March 31, effective from the 121st fiscal year.

## Commitment of Top Management

# Creating Agrochemicals to Meet the Needs of the Times, and Improving the Quality of Life for All



Nihon Nohyaku has supported the evolution of Japan’s agriculture for over 90 years. Today, our businesses have expanded around the globe, to incorporate fields including chemicals and pharmaceuticals. The demands placed on us change with each new era, but our commitment remains the same: to ensure a safe and steady food supply and improve the quality of life for all. We will continue to contribute to society, taking pride in our mission as an agrochemical manufacturer.

**Yosuke Tomoi**

President

### ➤➤➤ Agrochemicals have dramatically increased the efficiency of agricultural production

Nihon Nohyaku was founded in 1928. Ever since its establishment as the first agrochemical manufacturer in Japan, Nihon Nohyaku has contributed to the modernization of agriculture by developing effective agrochemicals and promoting their appropriate use.

Many new agrochemicals appeared during the postwar period in particular, protecting crops from pest infections, maintaining quality and providing stable harvest quantities. Great advances were

also made in labor-saving in agriculture, thanks to the use of agrochemicals. They helped to shorten working hours and free large numbers of laborers from farm work to supply the factory workforce, supporting Japan’s rapid economic growth.

Since the time of our founding, we have worked as an R&D-focused enterprise and developed new agrochemicals to meet the needs of each successive era. Today, building upon our agrochemical technologies, we have expanded our business domains to include pharmaceuticals and products related to improvement of living environment. Under the “Basic Principles of the

## Commitment of Top Management

Nihon Nohyaku Group”, we continue to aspire to the creation of new value through technological innovation, with the mission of ensuring a safe and steady food supply and improving the quality of life for all.

The role of agrochemicals will become increasingly important in the era to come. Japan, with its aging and declining population and low birth rate, now faces a serious lack of people to carry out agriculture. Overseas meanwhile, the world population is increasing rapidly, and is predicted to reach 9.7 billion in 2050. There is a limit on the amount of arable land however, and it is therefore necessary to raise productivity, and increase the volume of crops that can be harvested per unit of area.

“Zero Hunger” is one of the Sustainable Development Goals (SDGs) adopted at the United Nations summit held in September 2015. We will contribute to society by providing the effective and low-risk agrochemicals necessary to achieve that goal.

## SUSTAINABLE DEVELOPMENT GOALS



### The Basic Principles of the Nihon Nohyaku Group

- We contribute to society by ensuring a safe and steady food supply and improving the quality of life for all.
- We fulfill market needs by creating superior values with innovative technologies.
- We commit to being a trustworthy company for all stakeholders through our fair and vigorous business activities.

### The Nihon Nohyaku Group Action Charter

1. We improve the quality of life for all by providing safe and effective products and services that satisfy our customers.
2. We conduct fair and transparent business operations, respecting social ethics and complying with related laws, regulations and the spirit thereof.
3. We contribute to the realization of a sustainable society, considering the global environment.
4. We actively communicate and contribute to our communities as a good corporate citizen.
5. We properly manage corporate information and disclose it in a timely and appropriate manner.
6. We recognize the importance of personal data, intellectual property and other information, and safeguard it under proper protection and management.
7. We ensure a safe and comfortable work environment for our employees, always respecting human rights and the diversity found among people and cultures.
8. We entirely exclude involvement with antisocial forces and organizations, and resolutely refuse unreasonable requests.
9. We respond to globalization of business activities by adhering to international rules and local laws. We conduct activities with respect for the cultures and customs of local societies, and contribute to the development of each country and region.
10. We promote the sound and sustainable development of the Nichino Group to ensure our social contribution.



The Nichino Group also applies “Chemical Innovator for Crop & Life” as a corporate statement that further solidifies the principles of our Basic Principles and Action Charter. Through this statement, we challenge ourselves to ensure a safe and steady food supply and to improve the quality of life for all through technical innovation.

## Continually developing new agrochemicals to supply the world’s major markets

Research & development is one of our areas of focus to achieve this mission. No matter how effective an agrochemical is, pest infections and weeds will eventually develop resistance to it after continued usage. The continued creation of new agrochemicals is vital for enhancing agricultural productivity through stable pest and weed control.

Nihon Nohyaku invests at least 10% of its net sales in research & development, one of the highest ratios in the industry. With our ambitious goal of launching “one new agrochemical active ingredient in every three years”, the search for new agrochemicals is our number one priority. Researchers across a range of fields are passionately engaged in research, aspiring to develop totally new chemical compounds and create unique agrochemicals.

At the same time, we are actively pushing forward with overseas expansion, moving ahead of our domestic competitors to establish manufacturing and sales bases in the world’s major agricultural countries. By strengthening the development of proprietary products through organic ties between research, manufacturing and sales systems, we are accelerating our creation of new active ingredients. We leverage our knowledge of the realities of agriculture around the world to develop new products to meet the needs of each market, for example by supplying warmer regions with products composed of less volatile agrochemical ingredients.

We are also focusing on educating farmers, our users, on appropriate ways to utilize agrochemicals to maximize their effectiveness. By ensuring that farmers have correct knowledge of topics such as effective application timing and application methods

that will not damage the surrounding environment, safer and more effective use can be achieved from the same agrochemicals. As a result, it can contribute to more economical agricultural management.

## Spreading understanding of agrochemicals through communication with stakeholders

Nihon Nohyaku responds swiftly to new developments such as smart agriculture. Apart from commencing operational testing of pest infections and weed diagnosis using AI in 2019, we have developed LeiMe’s Agrochemicals Chat Room, a chatbot service on our website since 2018 where a cartoon character will answer questions related to agrochemicals, and Agrochemical Preparation Support App which automatically calculates the amount and concentration of agrochemicals to be applied, and both are provided for free to all users.

By creating an environment where anyone can easily access information on agrochemicals, we hope to promote better efficiency in agricultural production, while at the same time spreading social understanding of agrochemicals.

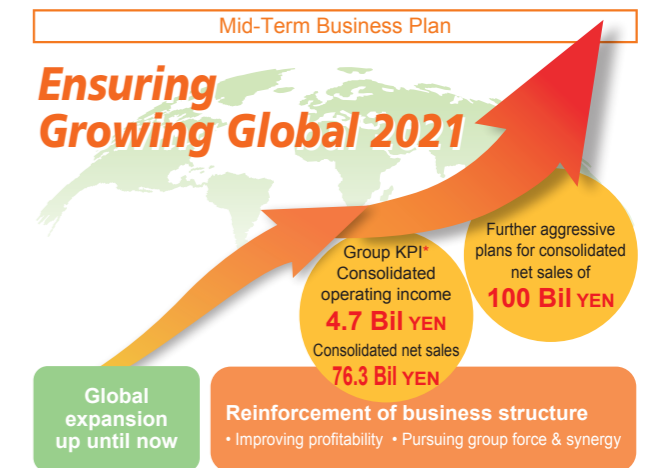
Many people in society still feel resistance to agrochemicals. Without the use of agrochemicals however, harvest volumes would fall dramatically, and agricultural production would be unfeasible from the perspective of ensuring a steady food supply. Strict criteria apply to the authorization of agrochemicals, and no safety issue exists if they are used correctly. As a specialized agrochemicals manufacturer, we hope to engage in broad communication with society, and dispel any anxiety or misunderstanding of agrochemicals.

As we take on all these various initiatives, what lies at the core is our employees. We promote diverse and flexible working styles, to allow every single one of our employees to make the most of their abilities. We adopted shortened working times and flextime early on, and also encourage employees to take time off. We launched an operation and workstyle reform project in 2018, and our employees themselves are engaged in reforms to create workplaces where they can work “*ikiiki-wakuwaku*” (meaning working with liveliness, excitement and joy).

The diversity of our workforce is also growing, partly due to our increasing number of overseas consolidated subsidiaries. Today, foreigners account for more than 50% of the employees on the consolidated Group basis. Within Japan and overseas, we are creating an environment where employees can make the most of their abilities and work with a sense of security, regardless of age, gender or life stage.

## Undertaking establishment of the CSR promotion system to continuously contribute to society

The Nichino Group will continue to develop outstanding new agrochemicals, even safer and more effective, to contribute to agriculture around the world. We aim for yet greater growth, to strengthen the capital base and implement the investment in research and development necessary to achieve this goal. In its Group Vision “Nichino Group - Growing Global to become an outstanding globally competitive group” which was established in 2013, we envisage our future to be the “No. 1 in the agrochemical industry in Japan” and “among the largest business scale worldwide (net sales of over 200 billion yen)”.



\* KPI: An abbreviation for “Key Performance Indicator”, which serves as an indicator for understanding the degree of achievement of targets of a company.

In order to realize this vision, we established the Mid-Term Business Plan “Ensuring Growing Global 2021 (EGG2021)” ending in FY2021. We are currently engaged in a range of initiatives around the plan’s two pillars of “improving profitability” and “pursuing group force & synergy”.

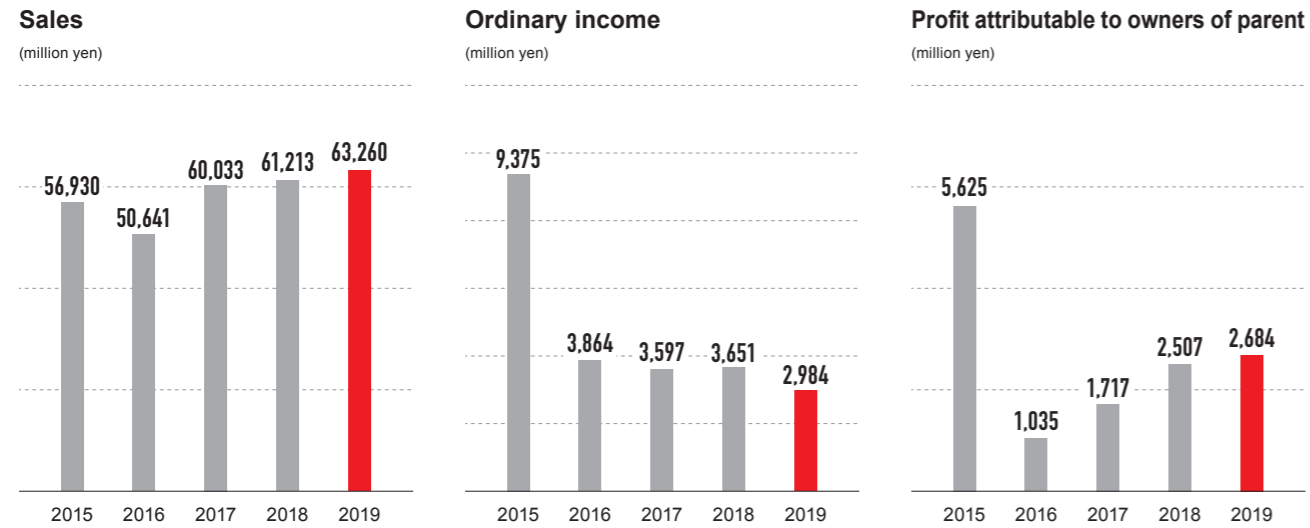
We also plan to strengthen the CSR structure in 2020. Based on the “Basic Principles of the Nihon Nohyaku Group”, in addition to establishing clearer CSR policies, we are also establishing the structure of CSR promotion system for these policies.

Nihon Nohyaku will continue to be a company that contributes to a sustainable society, through further technological innovation and support for agricultural production into the future.

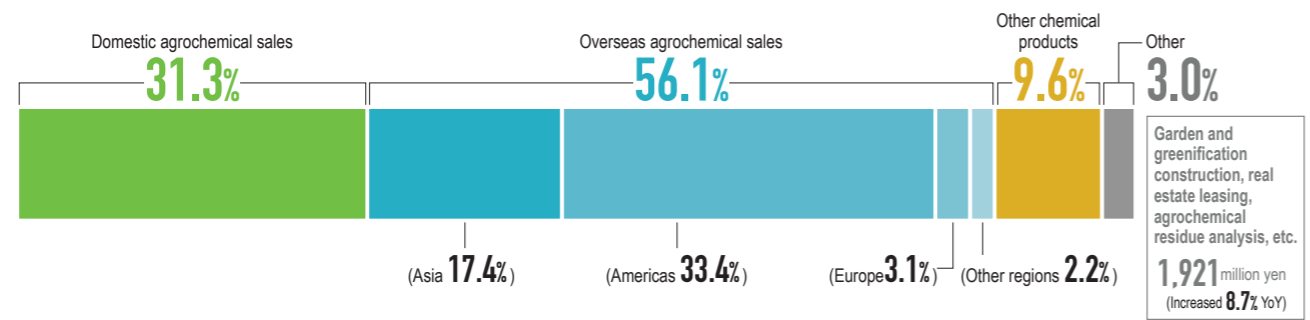
We will endeavor wholeheartedly to respond to the trust placed in us by all our stakeholders. Please look forward to our future success.

# Financial and Non-Financial Highlights

## Financial Information (consolidated)



## Status by business division



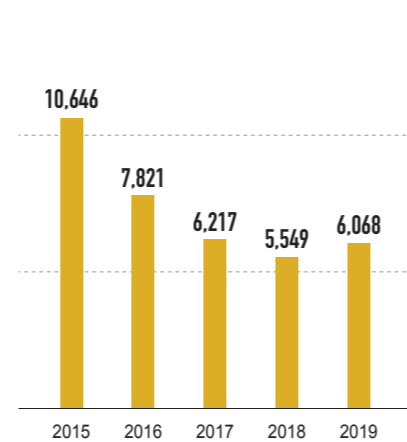
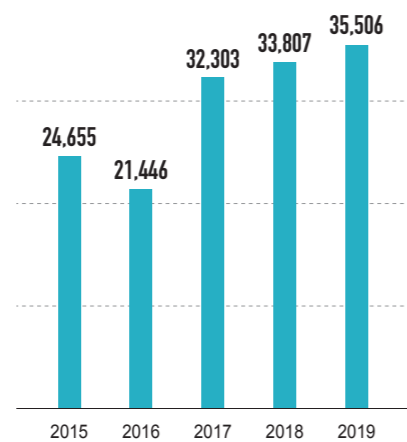
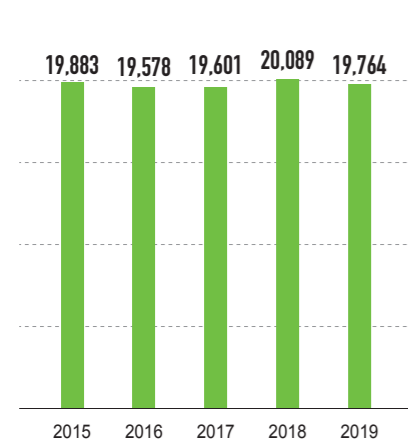
### Domestic agrochemical sales



### Overseas agrochemical sales

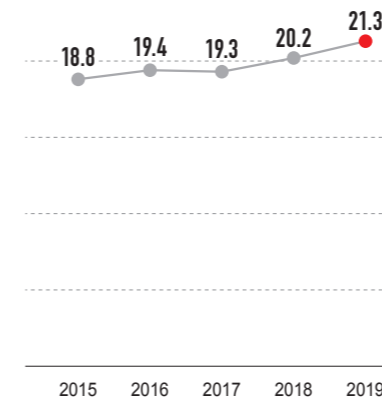


### Other chemical products

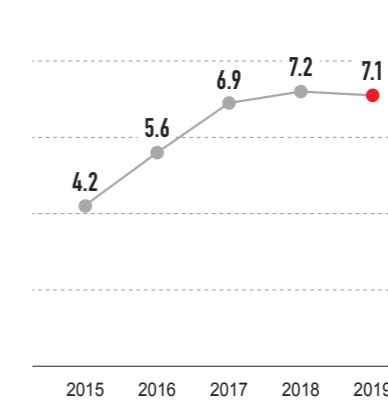


## Non-financial Information

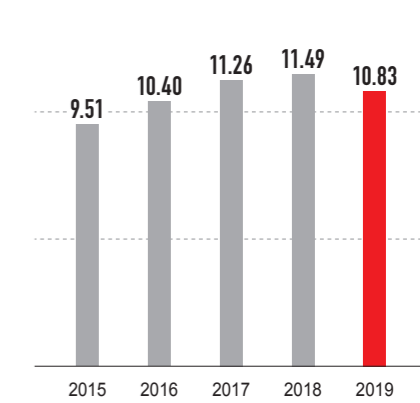
### Rate of female employees (Nihon Nohyaku Co., Ltd)



### Rate of female managers (Nihon Nohyaku Co., Ltd)



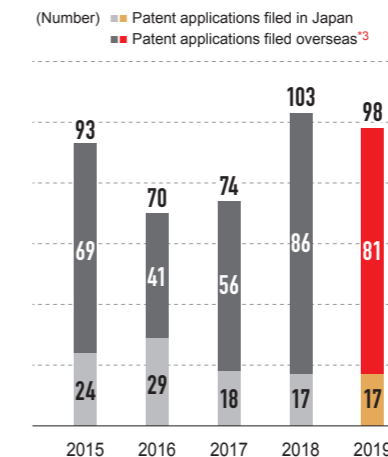
### Paid leave days used\*1 (Nihon Nohyaku Co., Ltd)



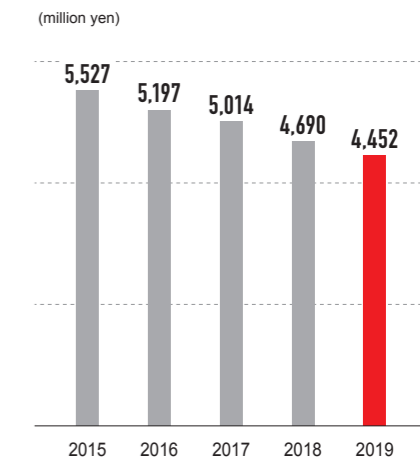
### Number of male employees taking paternity leave\*2 (Nihon Nohyaku Co., Ltd)



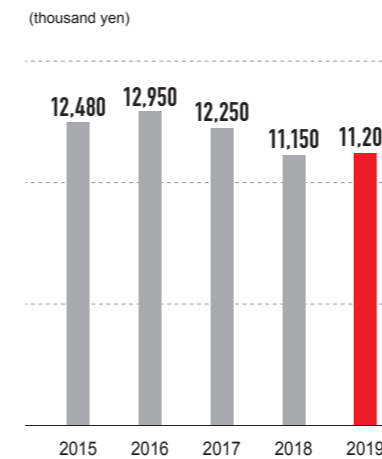
### Number of patent applications filed (Nihon Nohyaku Co., Ltd)



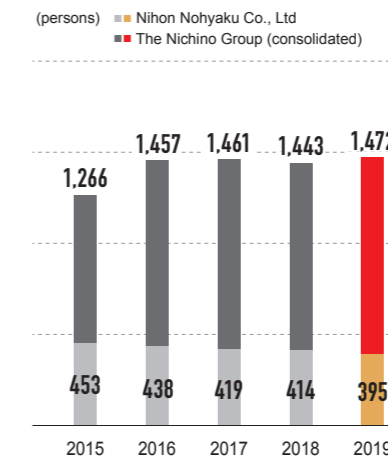
### R&D expenses (Group consolidated)



### Charitable donations (Nihon Nohyaku Co., Ltd)



### Number of employees



\*1 Applies to regular full-time and temporary full-time employees, and does not include contract employees.  
 \*2 Includes persons employed at that time who have since retired. Applies to full-time employees, and does not include contract employees.  
 \*3 Number of PCT international applications filed (by transfer country) + Paris route or Number of standard applications filed



# Increasing the Penetration of the “Nichino” Brand in the Strictly-regulated European Market, with the Aim of Establishing Direct Sales Channels

Nichino Europe Co., Ltd. (NEU) is Nihon Nohyaku's business base in Europe. It became a consolidated subsidiary of Nihon Nohyaku from the fiscal year ended September 30, 2019, and we aim to expand the business further.

**Manfred Hilweg**  
Nichino Europe Co., Ltd.  
President



## The strictly-regulated European agrochemical market

For many years, Nihon Nohyaku maintained a London liaison office as its business base in Europe. In 2007, it established Nichino Europe Co., Ltd (NEU), a wholly-owned subsidiary, in Cambridge, U.K., in order to accelerate the development of its European business.

Since its establishment, NEU has gradually increased its net sales, which reached 15.5 million pounds in FY2018. Net sales dropped slightly in FY2019 due to over-stocking by customers, but the company aims to achieve net sales of 20 million pounds or more through organic growth by the fiscal year ending March 31, 2021. Due to the increasing importance of NEU within the Nichino Group, it was made a consolidated subsidiary of Nihon Nohyaku from the fiscal year ended September 30, 2019. NEU, while maintaining its base in the U.K., is currently engaged in responding to the withdrawal of the U.K. from the European Union (Brexit), to ensure stable development of its business in Europe.

Europe is one of the important markets for agricultural crops, and accounts for more than 20% of the global agrochemical markets. Its major crops include grains, corn and potatoes, but it also grows a wide range of horticultural crops, such as grapes, pears, stone fruits, citrus fruits and olives. Demand for agrochemicals is primarily for herbicides, followed by fungicides, and then by insecticides.

Agrochemicals are subject to strict regulation in Europe, and must meet stringent safety criteria for registration. Consumers are also becoming increasingly concerned over the use of agrochemicals, and overall, while the market for biopesticides is growing, the quantity of agrochemicals used is decreasing.

Such market environment poses a major challenge, but we rather regard it as a new business opportunity for companies such as Nihon Nohyaku, that are based on outstanding, leading-edge research and development.

## Mainstay products well received by farmers

NEU is engaged in the development, registration, manufacturing, marketing and sales of Nihon Nohyaku's proprietary technical grades and products, in markets including the U.K., EU, Russia, Ukraine, Georgia, Turkey and Israel. Originally, the company was primarily focused on the sale of Nihon Nohyaku's technical grades, but today it is engaged in developing its own products based on Nihon Nohyaku's technical grades, with more than 90% of net sales attributable to final products manufactured in the U.K. and the EU region.

In many fields, Nihon Nohyaku's products have already become indispensable for farmers in Europe. Our mainstay products have achieved top-class status in their fields of usage, in competition with the products of other major manufacturers.

Pyraflufen-ethyl, an herbicide and plant growth regulator, and flutolanil, a fungicide, are widely used in potato production. Market changes have caused rapid growth in the use of pyraflufen-ethyl, and it is expected to contribute to 50% or more of NEU's net sales in the future. Flutolanil currently boasts the second largest share in the European market for black scurf control agents, with further growth forecast during the next fiscal year, due to the withdrawal of competitors.

Fenpyroximate, widely used on crops such as grapes, apples and tomatoes, is one of the few miticides that will control major pests including rust mites and tarsonemid mites. It has a wide range of applications, and it is popular not only because of excellent residual effectiveness, but also because it is suitable for Integrated Pest Management (IPM), due to its safety and selectivity.

Tebuconazole is an important miticide for soybean production in Russia and Ukraine. Buprofezin is an important method of controlling whiteflies on flowering plants.

## Partnering with customers

NEU aspires to be the “best partner for each product, in each country” for the distribution partners in each region that make up its customers (B to B) and conducts its marketing activities. With expertise in manufacture and logistics across Europe, it aims for yet greater regional business development.

Our great strength lies in the diversity of our staff. Presently, we employ staff of seven nationalities, with over half of these stationed and active in major markets such as the U.K., Spain, Germany and Austria. Each staff member has a different career history, with different experience, leveraging his/her broad knowledge of the diverse European agrochemicals market to provide powerful information to our distribution partners in each country.

We have also greatly expanded our contact with customers in recent years, with a focus on supporting customers' operations. As a result of these initiatives, on a customer survey carried out in 2018 NEU was highly rated as “outstanding compared to other companies, not only in terms of the products themselves, but also in terms of product registration and development, marketing and sales support”. We will continue to expand our cooperation with our distribution partners, and provide all farmers with even better products.



Workshops increased contact with customers, and were well received

## Promoting the introduction of new agrochemicals, and striving to expand the sales network

As a Nichino Group company, NEU is working towards achieving the Mid-Term Business Plan “Ensuring Growing Global 2021 (EGG2021)”. As such, we aim to exceed the

initial EGG2021 net sales and profit forecasts for the fiscal year ending March 31, 2021, by 10% or more.

Presently however, NEU's share of the European agrochemical market is still far below 1%. This is because not only is our product lineup limited, but we are also lacking large-scale herbicides and fungicides.

Our greatest challenge at present is applying for new agrochemical product registrations with the EU. In fact, under the EU's strict agrochemical registration regulations, Nihon Nohyaku has been unable to introduce any new agrochemicals since the 1990s. Nihon Nohyaku, however, has had the requirements of the EU regulations in its sights from an early stage of research and development, and expects to be able to launch new agrochemicals on the European market in the near future. We are also heavily invested in developing new uses for existing agrochemicals, as well as considering the introduction of other companies' products, in order to overcome this shortage of new agrochemicals.

Our vision, established in 2017, is to create direct sales routes for Nihon Nohyaku products in the European market. To this end, it is important for us to expand our product portfolio with new products based on Nihon Nohyaku's technical grades and other companies' products, and structure the portfolio to be balanced and not susceptible to changes in the environment.

In addition, we hope to continuously form strong relationships of trust with our customers, work together with them to firmly establish the “Nichino” brand in Europe, and increase our visibility in the agricultural field. Our aim is to bring about significant growth in the business, and expand our sales network until it stretches from Europe to the Middle East and Africa.

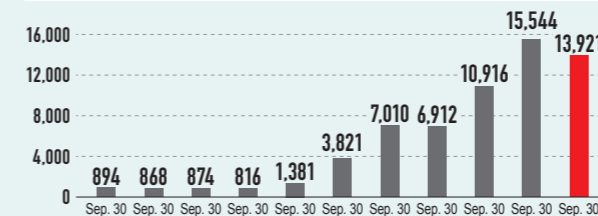


Staff of seven nationalities, stationed in major markets

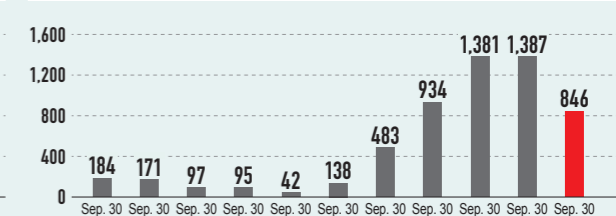
**Nichino Europe Co., Ltd.** Capital: 30,000 U.K. pounds

Number of employees: 12 (as of the end of September 2019)

Net Sales (1,000 pounds)



Operating Income (1,000 pounds)



# Corporate Governance

## 1 Corporate Governance Guidelines (Basic Approach)\*

The Nichino Group aims to be a group of companies that earns the trust of its shareholders, customers, employees, business partners, local communities, and various other stakeholders. To this end, Nihon Nohyaku is promoting establishment of an effective corporate governance system to facilitate sustainable corporate development and enhance medium- to long-term corporate value.

In order to establish such a corporate governance system, we have established the “Corporate Governance Guidelines”, considering it necessary to enhance corporate governance on a basis of compliance and by strengthening swift and rational decision-making and appropriate management oversight. These Guidelines are shared throughout the entire Nihon Nohyaku Group.

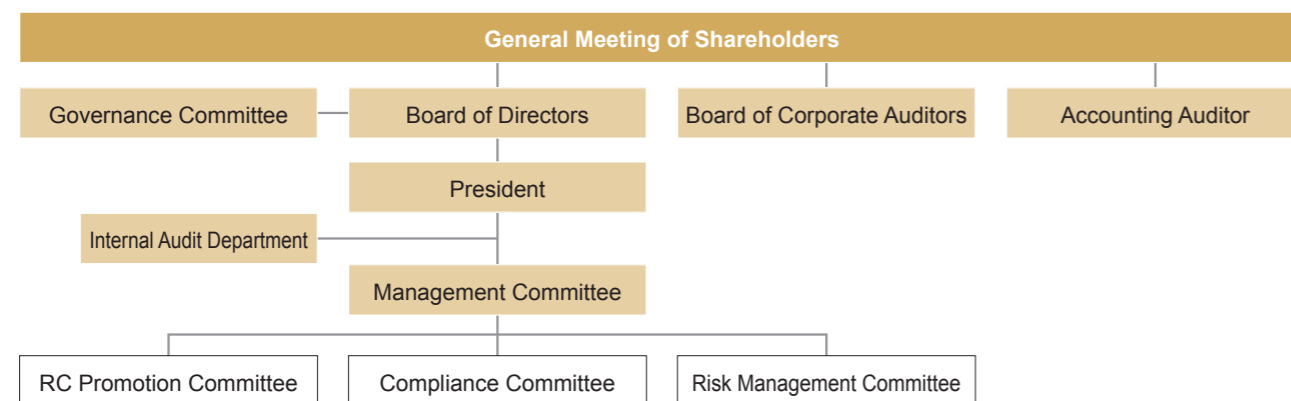
Nihon Nohyaku aims to be a company that earns the trust of its shareholders, customers, employees, business partners, local communities, and various other stakeholders. To this end, the company shall endeavor to constantly maintain an optimal system of corporate governance in line with the basic approach set forth below, believing that it will facilitate sustainable corporate development and enhance medium- to long-term corporate value.

1. The Board of Directors shall establish and uphold the Basic Policies and Action Charter, which every officer and employee of the company shall hold in common and which shall govern every business activities of the company.
2. Nihon Nohyaku shall honor the rights of its shareholders. It shall endeavor to prepare an environment wherein shareholders can exercise their rights appropriately, and to secure substantive fairness for shareholders.
3. Nihon Nohyaku recognizes the importance of its social responsibility and public mission. The company shall work with stakeholders as appropriate in order to foster a corporate culture conducive to wholesome business operations underlined by steadfast self-discipline.
4. In order to earn the trust of its stakeholders and the community and further enhance its corporate value, Nihon Nohyaku shall set compliance with laws, ordinances, and corporate ethics as its cornerstone, and aim to ensure transparency and fairness in decision-making, and construct an aggressive system of corporate governance to facilitate swift and bold decision-making that is premised on such.
5. Nihon Nohyaku recognizes the importance of the ecological and social challenges associated with sustainability. The company shall work to fulfil its social responsibility as a company that deals in chemical substances, and enhance its corporate value.
6. Nihon Nohyaku shall ensure a diverse balance of viewpoints and values, and pursue diversity with a view to achieving sustainable development.
7. In order to prepare a foundation for constructive dialogue with stakeholders, Nihon Nohyaku shall separately establish a Disclosure Policy; moreover, the company shall promote appropriate disclosure of company information, including information on non-financial operations, and transparency in its corporate management.
8. Nihon Nohyaku shall engage in constructive dialogue with stakeholders so as to contribute toward its sustainable development and the enhancement of its medium- to long-term corporate value.

\* Nihon Nohyaku Corporate Governance Guidelines (drafted: November 13, 2015; enacted: December 22, 2015; and revised: November 13, 2018) (Excerpt) [https://www.nichino.co.jp/en/corporate/page\\_10119.html](https://www.nichino.co.jp/en/corporate/page_10119.html)

## 2 Corporate Governance Diagram

### Corporate Governance Diagram



We have established “Basic Principles of the Nihon Nohyaku Group” as the base for all our activities. On the basis of the “Nihon Nohyaku Group Action Charter” and the Group Vision, both in accordance with the basic principle, we have established a corporate governance system to become a group of companies earning the trust of various stakeholders (see the left-hand page).

In establishing the system, we complied with the meaning and spirit of the corporate governance code, which has been incorporated into the Securities Listing Regulations of the Tokyo Stock Exchange in Japan, and established the “Nihon Nohyaku Corporate Governance Guidelines” to follow.

Nihon Nohyaku and the Group companies report to the Compliance Committee and the Group Compliance Council on the status of compliance with laws and regulations and various internal regulations.

In addition, Nihon Nohyaku and the Group companies report to the Risk Management Committee and the Group Risk Management Council on risk management issues, etc., after identifying their respective risks.

### Governance Committee

Nihon Nohyaku has established the “Governance Committee” as an advisory body to the Board of Directors to further improve our corporate governance.

The Governance Committee deliberate and reports the appropriateness, etc., of the process for appointing and dismissing candidates for Director or Corporate Auditor of Nihon Nohyaku, their qualification and reasons for appointment/dismissal, the independence standards for appointing independent officers, evaluations of the overall effectiveness of the Board of Directors, the officers’ remuneration system and other matters upon a consultation request from the Board of Directors.

In principle, a majority of the members of the Governance Committee shall be independent officers.

The Board of Directors, upon receipt of the reports from the Governance Committee, shall select candidates for Director and determine the officers’ remuneration system, etc.

Governance Committee meetings were held five times in FY2019, mainly to consider the introduction of a performance-linked stock-based remuneration system for officers.

### Message from our Independent Officers

#### Activity Report from Independent Officers

Nihon Nohyaku has established the Mid-Term Business Plan “Ensuring Growing Global 2021 (EGG2021)” in order to contribute to ensuring a safe and steady food supply for Japan and the world, and strives daily for growth.

The role of Audit & Supervisory Board Members is to audit the fairness of accounting documents such as business reports and financial statements, the legal compliance of Directors’ execution of duties, and the appropriate establishment and operation of internal control systems. To that end, independent officers attend meetings of the Board of Directors and receive explanations from Directors and others, but I believe it is particularly important for Outside Audit & Supervisory Board Members to more actively express their opinions and ask questions with an objective perspective from the outside. Personally, as a CPA, I use my knowledge and experience in accounting and finance, my fields of expertise, to contribute by expressing opinions and asking questions from my specialized perspective, on agenda such as agrochemical product acquisitions, new investment projects, or the operation of overseas subsidiaries, for example.

Audit & Supervisory Board Members receive regular reports from the Accounting Auditor and Internal Audit Department regarding matters such as audit plans, the status of audit implementation, audit results, and the establishment and operational status of internal control systems. We prepare an Audit Report based on the results of comprehensive judgment on these matters.

In addition, outside officers serve as members of the Governance Committee, an advisory body to the Board of Directors, giving advice on matters such as officer personnel changes, officers’ remuneration and evaluations of the effectiveness of the Board of Directors. Nihon Nohyaku has listened earnestly to the advice of the Governance Committee, successively improving the operation of the Board of Directors, and facilitating more open and liberal discussions.

As an independent officer, I will continue to strive to further strengthen its corporate governance system, to have Nihon Nohyaku fulfill its social responsibility as a global, R&D-focused enterprise.



**Chizuko Nakata**  
Outside Audit & Supervisory Board Member (Governance Committee member)

## The Foundation for Supporting Responsible Care Activities



As the core of its CSR activities, Nihon Nohyaku is engaging in Responsible Care (RC) promoted by the global chemical industry. In order to promote RC activities, the Nichino Group has established the RC Mid-Term Targets and is systematically carrying out the activities based on the RC promotion policies established by each of our domestic companies. This initiative also leads to realizing the SDGs. Nihon Nohyaku belongs to the JCIA RC Committee, and has registered Nichino Service with the Committee as its consolidated company to integrate their activities and performance indicators, while registering three other domestic consolidated subsidiaries with the Committee as affiliate companies in RC activities. The Nichino Group will keep striving for continual improvement through its RC activities, learning from the initiatives and audit methods of ADEKA Corporation, with which Nihon Nohyaku concluded a capital and business alliance in 2018.



### What is Responsible Care (RC)?

RC encompasses voluntary activities wherein each company handling chemical substances secures “the environment, safety and health” and publishes the results of its activities, maintaining a dialogue and communication with society regarding all its processes, ranging from R&D through manufacturing, sales, logistics, use, and final consumption, to the disposal and recycling of the chemical substances. We have six fields of implementation for Responsible Care, namely “RC codes”, consists of “Environmental Protection”, “Occupational Safety and Health”, “Process Safety & Disaster Prevention”, “Logistics Safety”, “Product Stewardship (Chemical Materials and Product Safety)” and “Communication with Society” in Japan, we work to improve activities through the continued implementation of the PDCA (Plan→Do→Check→Act) cycle.

This is an initiative that the global chemical industry is integrally promoting to safely manage chemicals over their life cycles through its activities, such that products can contribute to improving the quality of life and sustainable development.

## RC Management

### 1 RC Promotion Diagram

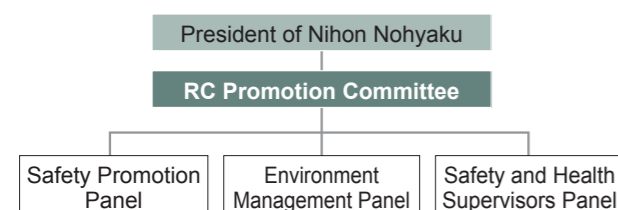
Under our corporate governance system, the RC Promotion Committee governs the RC activities of the entire domestic Nichino Group. Previously, five panels were responsible for promoting RC activities in each field, but the Quality Management Panel and Poisonous Material Management Panel under the RC Promotion Committee were abolished in FY2019, and RC activities were reorganized under the remaining three panels to provide more efficient operations (figure

below). The regular activities of the Quality Management Panel and Poisonous Material Management Panel with regard Nihon Nohyaku’s products were taken over by Nihon Nohyaku’s Production Division.

The Environmental Safety Department of Nihon Nohyaku, as administrative office of the RC Promotion Committee, conducts annual RC audits of all business sites of domestic Group companies.

The RC codes for which each panel is responsible are shown below.

#### Responsible Care Organization Diagram

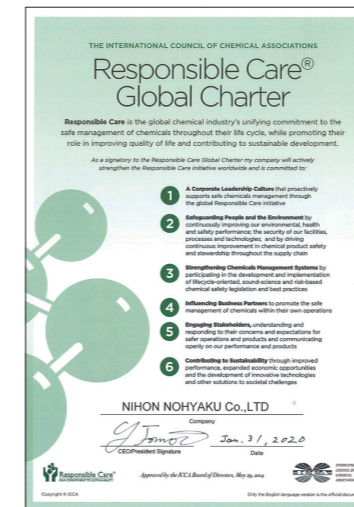


Panel	RC code
Safety Promotion Panel	Logistics Safety, Product Stewardship, Communication with Society
Environment Management Panel	Environmental Protection
Safety and Health Supervisors Panel	Occupational Safety and Health, Process Safety & Disaster Prevention

### 2 RC Global Charter

In 2014, Nihon Nohyaku’s (then) President Kohyama signed the RC Global Charter advocated by the International Council of Chemical Associations (ICCA), proclaiming its commitment to abide by the international principles of RC and strengthening its RC initiatives. As of January 31, 2020, 580 companies around the world have signed this charter. President Tomoi re-signed the charter in January 2019.

#### Responsible Care Global Charter



### 3 Management System

The Nichino Group has acquired the following certifications for the management system and is working to continuously improve its operations. With the establishment of ISO 45001 (Occupational Safety & Health Management System), Nichino Service is in the process of transitioning from OHSAS to ISO, promoting initiatives to integrate with Quality Management System and Environment Management System.

International Standards	Company name (applicable office)
ISO9001	<ul style="list-style-type: none"> <li>Nichino Service Co., Ltd.</li> </ul>
ISO14001	<ul style="list-style-type: none"> <li>Nichino India Pvt. Ltd.</li> <li>Nichino Chemical India Pvt. Ltd.</li> <li>Sipcam Nichino Brasil S.A</li> </ul>
OHSAS18001	<ul style="list-style-type: none"> <li>Nichino Service Co., Ltd.</li> <li>Nichino India Pvt. Ltd. (Balanagar)</li> <li>Nichino Chemical India Pvt. Ltd. (Humnabad)</li> <li>Sipcam Nichino Brasil S.A.</li> </ul>
ISO17025	<ul style="list-style-type: none"> <li>Nihon Ecotech Co., Ltd. (Osaka Analysis Center)</li> </ul>

### 4 RC Mid-Term Targets and Activity Results/Plans

#### 1) About the Nichino Group RC Mid-Term Targets (FY2016 - 2020)\*

RC Activities	RC Mid-Term Targets
General	<ol style="list-style-type: none"> <li>Maintain and expand Quality, Environment, and Occupational Safety &amp; Health Management Systems</li> <li>Enrichment and expansion of RC activities</li> <li>Education of RC to overseas sites, introduction of RC methods into plants which has not introduced ISO management system yet</li> </ol>
Environmental Protection	<ol style="list-style-type: none"> <li>Reduction of 1% or more per year of energy consumption unit<sup>*1</sup> and reduction of CO<sub>2</sub> emissions by promoting energy saving</li> <li>Participation in Fun to Share<sup>*2</sup> activities of the Japanese Ministry of the Environment (JME)</li> <li>Maintain and expand zero emissions<sup>*3</sup></li> <li>Green purchasing rate of 95% or higher for office consumables and designated products</li> <li>Strengthening, maintain and expand green procurement standards for raw materials and ingredients</li> <li>Continuing initiatives for a low-carbon society (plan based on status of nuclear plants and government policy)</li> </ol>
Occupational Safety & Health, Process Safety & Disaster Prevention	<ol style="list-style-type: none"> <li>Achieving zero traffic accident during work/commuting, and maintaining zero accident causing lost worktime</li> <li>Maintaining zero serious accident on the production equipment</li> <li>Visualization of risk assessment methods</li> </ol>
Logistics Safety	<ol style="list-style-type: none"> <li>Continuing zero serious logistics accident (scattering/spillage)</li> <li>Enhancement of logistics conference with logistics companies</li> </ol>
Product Stewardship (Chemical Materials & Product Safety)	<ol style="list-style-type: none"> <li>Develop environmental and safety-conscious products and field testing, considering environment preservation and worker safety</li> <li>Centralized management of safety information on chemical substances and appropriate provision to domestic and overseas subsidiaries</li> <li>Improvement of product quality and thorough management</li> </ol>
Communicating with Society	<ol style="list-style-type: none"> <li>Creation of RC reports (in Japanese and English) on level with CSR reports and receiving third-party validation</li> <li>Establishment of comfortable environment around business sites interacting and cooperating with the local communities</li> <li>Participation in and promotion of activities for towards VISION 2025 of Japan Crop Protection Association (JCPA)</li> </ol>

\*1 An index showing the efficiency of energy consumption that divides annual energy consumption by figures related to business (for example production amount, office surface area, sales volume, etc.). A lower energy consumption unit indicates better energy consumption efficiency.  
 \*2 National public movement to address global warming promoted by JME.  
 \*3 The final landfill amount of waste shall be 1% or less of the volume generated.  
 \* FY2020 (the 121st fiscal year) represents the period from October 2019 to March 2020 due to the change of fiscal year end.

## The Foundation for Supporting Responsible Care Activities

### 2) FY2019 Activity Results and Internal Evaluation

We actively engaged in activities aimed at achieving our Group Vision and the third year benchmarks for our RC Mid-Term Targets.

RC Activities	FY2019			Page
	Major plans	Results	Evaluation <sup>*1</sup>	
General	1. Discussing CSR promotion system building	1. Established the CSR-WG <sup>*2</sup> and commenced consideration of system building in February 2019, referring initiatives of ADEKA and other companies. Merged the five panels under the RC Promotion Committee into three, and placed the daily work of the former Quality Management Panel and Poisonous Material Management Panel under the control of the Production Division. Visited business sites of ADEKA and other chemical companies, to learn about safety audits, etc.	☀️	11-15
	2. Examining the next-term RC Mid-Term Targets (draft outline) taking SDGs and CSR into consideration	2. Drafted a plan for the next RC Mid-Term Targets, discussed with shared information and domestic Nihon Nohyaku group companies and business sites.		
Occupational Safety & Health, Process Safety & Disaster Prevention	1. Conducting education and training to raise safety awareness and sensitivity to risks with the aim of achieving zero work-related injuries and traffic accidents while commuting	1. One accident with workdays lost and seven accidents without workdays lost occurred. The plants with accidents implemented measures to prevent recurrence and shared them across the Group. Conducted various training for emergency response.	☔️	16-18
	2. Conducting maintenance and periodic training to keep zero serious accidents at production facilities	2. Maintained zero serious accidents, except that the leak of a small quantity of raw material gas due to facility aging (no damage to people nor the environment was found).		
	3. Conducting systematic risk assessment, SOP education, near misses and risk finding and safety indications at workplaces	3. Conducted systematic risk assessment and education to raise sensitivity to risks.		
Environmental Protection	1. Promoting energy saving (goal: reduction of 1% or more per year of energy consumption unit), continuing study on the evaluation methods for consumption unit, continuing the evaluation of consumption unit based on the form of business and reviewing energy sources with the aim of reducing CO <sub>2</sub> emissions	1. Energy consumption unit: Nihon Nohyaku +1.9%, Nichino Service +0.5%. CO <sub>2</sub> emissions: Nihon Nohyaku -5.1%, Nichino Service -8.9%. Evaluation of the consumption unit continued at other domestic subsidiaries.	☁️	19-22
	2. Maintaining green purchasing <sup>*3</sup> rate of 95% or higher and improving green procurement <sup>*4</sup> rate	2. Green purchasing rate at 98.2% (previous year: 99.5%). Green procurement rate at 91.1% (previous year: 91.2%).		
	3. Promoting 3Rs <sup>*5</sup> and reducing waste by maintaining and expanding zero emissions	3. Waste amount increased. 3R initiatives were promoted, and the three Nichino Service Plants maintained zero emissions. Waste water contamination exceeding regulatory limits was officially recorded at the Nichino Service Kashima Plant (there was no detrimental effect on sewage processing).		
	4. Continuing initiatives for a low-carbon society (Locavore <sup>*6</sup> )	4. Held "The 8th Contest for number of times of one pot dish".		
Logistics Safety	1. Conducting training to maintain zero serious accidents (scattering/spillage) in logistics	1. Maintained zero serious accidents in logistics.	☀️	23
	2. Holding regular logistics meetings with transport and warehouse companies	2. Information exchange meetings with transport and warehouse companies were held by the SCM Department and each Nichino Service Plant, and efforts were made to prevent any potential logistics issues from arising.		
	3. Preventing problems through continued provision of Yellow Cards <sup>*7</sup> and White Cards <sup>*8</sup> and their stronger linkage	3. Continued at each Nichino Service Plant.		
	4. Continuing to promote modal shift <sup>*9</sup>	4. ditto.		

\*1 Internal evaluation of actual results: ☀️: Achieved ☁️: Partially not achieved ☔️: Not achieved

\*2 CSR-WG: temporarily organized from the Internal Control & Audit Department, Corporate Planning Division, Administration Division and Environmental Safety Department for the purposes of CSR promotion system building

\*3 Nihon Nohyaku set the standard in 2007 and revised in 2012 referring a guidance of Green Purchasing Network

\*4 Nihon Nohyaku set the standard in 2010 such as "Companies implementing environmental protection activities", etc and revised more strict contents in 2016.

\*5 Reduce, Reuse and Recycle of the waste.

\*6 A composite word with the term "Local" and the term "-vore (meaning an animal that eats something)" meaning "people who eat local food". It indicates an activity that leads to a reduction of CO<sub>2</sub> when combined with "local consumption of local products" and expanded consumption of "domestic agricultural and marine products".

\*7 Cards, established by JClA, which include concise indications of contact information, handling methods and precautions for prompt response to an accident during the transport of toxic substances, poisons or hazardous materials/designated flammable substances stipulated by the Fire Service Act.

\*8 Original Card by Nihon Nohyaku that indicate similar information as Yellow Cards for products for which the carrying of a Yellow Card is not required.

\*9 Switching the transportation of raw materials and products from trucking to rail freight and transshipment with less CO<sub>2</sub> emissions.

RC Activities	FY2019			Page
	Major plans	Results	Evaluation	
Product Stewardship (Chemical Materials & Product Safety)	1. Continuing to eliminate PRTR <sup>*10</sup> inert ingredients, avoid using NPE <sup>*11</sup> in new products and substituting 50% of NPE in existing products	1. Continued non-use of NPE in new products, and reduction of use in existing products.	☀️	23-24
	2. Continuing appropriate management of chemical substances and conducting necessary education and training	2. Continued at each plant.		
	3. Conducting risk assessment and continuing measures to prevent accidents due to chemical substances	3. ditto.		
	4. Promoting SDS <sup>*12</sup> information sharing within the Nichino Group world wide Starting full operation of the automated SDS creation system early	4. Made preparations for operation of the automated SDS creation system, and laid foundations for securing SDS compliance, efficiency and globalization.		
	5. Continuing to provide information on revisions to laws and regulations concerning chemical substances	5. Shared information concerning revisions to laws and regulations with the relevant departments.		
Communication with Society	1. Continuing to participate in community activities, collaborating with local communities to improve the environmental conditions around the plants	1. Continued cooperation with local governments and agricultural citizens' groups by each company and plant.	☀️	25-29
	2. Strengthening exchange with stakeholders through issuance of CSR Report 2019 and information provision on our website	2. Provided CSR Report 2019 (Japanese version in March, English version in June).		
	3. Continuing activities toward JCPA VISION 2025 <sup>*13</sup>	3. Participated in all JCPA's committee activities as a executive meeting member. Engaged in educational activities to ensure compliance and responsible use of agrochemicals.		

\*10 Pollutant Release and Transfer Register

\*11 Polyoxyethylene nonylphenyl ether

\*12 Safety Data Sheet

\*13 The future vision and activities guidelines established by the Japan Crop Protection Association in 2014



3) RC Activities for the 121st Fiscal Year (October 2019 - March 2020)

RC Activities	Major topics
General	<ol style="list-style-type: none"> <li>Continuing discussion towards CSR promotion system building by working group.</li> <li>Formulating the next RC Mid-Term Targets taking SDGs and CSR into consideration.</li> </ol>
Occupational Safety & Health, Process Safety & Disaster Prevention	<ol style="list-style-type: none"> <li>Continuing education and training to raise safety awareness and sensitivity to risks with the aim of achieving zero work-related injuries and traffic accidents while commuting.</li> <li>Conducting maintenance to maintain zero serious accidents at production facilities and periodic training.</li> <li>Conducting systematic risk assessment, SOP education, near misses and risk finding and safety indications at workplaces.</li> </ol>
Environmental Protection	<ol style="list-style-type: none"> <li>Promoting energy saving (goal: reduction of 1% or more per year of energy consumption unit), continuing study on the calculation methods for consumption unit, continuing the evaluation of consumption unit based on the form of business and considering initiatives to reduce future CO<sub>2</sub> emissions.</li> <li>Maintaining green purchasing rate of 95% or higher, improving green procurement rate.</li> <li>Promoting 3Rs and reducing waste by maintaining and expanding zero emissions.</li> <li>Continuing initiatives for a low-carbon society (Locavore).</li> </ol>
Logistics Safety	<ol style="list-style-type: none"> <li>Conducting training to maintain zero serious accidents caused by scattering or spillage.</li> <li>Holding regular logistics meetings with transport and warehouse companies.</li> <li>Preventing problems through continued provision of Yellow Cards and White Cards and strengthening of their linkage.</li> <li>Continuing to promote modal shift.</li> </ol>
Product Stewardship (Chemical Materials & Product Safety)	<ol style="list-style-type: none"> <li>Continuing efforts to avoid using NPE and reducing PRTR inert ingredients in new products. Substituting 50% of NPE in existing products.</li> <li>Continuing appropriate management of chemical substances and conducting necessary education and training.</li> <li>Conducting risk assessment and continue measures to prevent accidents due to chemical substances.</li> <li>Promoting SDS information sharing within the Nichino Group world wide. Starting full operation of the automated SDS creation system early.</li> <li>Continuing to provide information on new regulations of chemical substances.</li> </ol>
Communication with Society	<ol style="list-style-type: none"> <li>Continuing to participate in community activities, collaborating with local communities and improving the environmental conditions around the establishment.</li> <li>Expanding activities to overseas subsidiaries (RC information provision, etc.).</li> <li>Strengthening exchange with stakeholders through issuance of CSR Report 2020 (Japanese version) and information provision on the website.</li> <li>Continuing activities toward the JCPA VISION 2025.</li> </ol>

# Occupational Safety & Health, Process Safety & Disaster Prevention



## 1 Occupational Safety & Health

### 1) Efforts to Reform Workstyles, Ensure Work-life Balance and Protect Human Rights

We promote personnel development that fosters to maximize the unique capabilities and senses of each employee. In order to maintain and promote the health of our employees and support their work-life balance, we have established various programs based on RC ethics, over and above those required by the relevant laws and regulations (table below). In FY2019, in addition to introducing a system of shorter working hours for employees unable to work full-time due to childcare, pregnancy or nursing, family care duties, sickness or accident recovery etc., we reviewed (and shortened) core-time in the flex-time system, to make it easier

for employees to use. We also introduced a system for working from home, to increase productivity through effective time utilization, and enhance work-life balance by overcoming constraints on coming to work. We will continue to work to establish a more employee-friendly environment.

In addition, we will proactively advance initiatives by the "Diversity Special Mission Promotion Manager", to create a working environment in which employees with diverse values (gender, age, nationality, workstyle, sexual orientation, gender identity, etc.) are able to demonstrate their capabilities at their full potential.

Field	Major internal programs
Maintaining and promoting the health of employees	Full physical examinations for employees over age 40 and long-term sick leave
Support for work-life balance*	Allocating refresh vacations and travel coupons based on the number of consecutive years of employment, Half-day paid leave, Family care leave, Volunteer leave, Childcare leave ("Mama Papa Child Care Leave Plus", Paid childcare leave for the husbands of women on childcare leave, Expansion of those applicable for child nursing care leave, Company-sponsored provision of allowance during childcare leave period, etc.), Shorter working hours system, Flex-time system, Working from home system

\*The underlined programs were introduced or amended in FY2019.

### 2) Promotion of Safety and Health Management

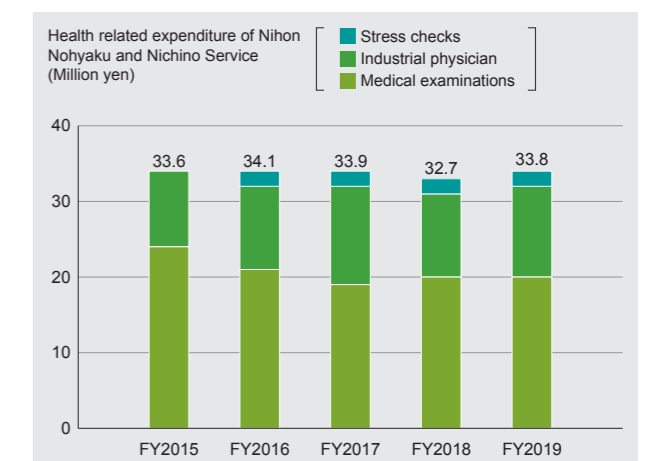
All sites hold regular safety and health committee meetings, through which we formulate goals, execute action plans, and conduct progress status check and risk assessments. Through these meetings, we work to eliminate work-related injuries, create a pleasant work environment, and improve our safety and health levels. At the Head Office and Research Center, which both have more than 50 employees, we have contracts with industrial physicians and mental health professionals to create a system that allows employees the opportunity to consult with experts on mental health and other issues. At companies and offices without a dedicated industrial physician being required, we use web conferencing systems to enable sessions with the Head Office industrial physician. Furthermore, we also use external contractors to establish the Nichino Group Consultation Desk, where employees and their families can consult on all types of health issues, including mental health.

Nihon Nohyaku achieved response rate of 95.0% for the stress check in FY2019, and it is increasing each year. We are also continuing to reach out to those working in departments with high stress levels that were identified by the results of organizational analysis. We are also facilitating participation in the specified health guidance and data health plan sponsored by the ADEKA Health Insurance Society.

### 3) Expenses for Safety & Health

In FY2019 we spent 19.8 million yen on medical examinations, 11.9 million yen on industrial physicians, and 2.1 million yen on mental health related expenditure such as stress checks and external health consultations, in a total of 33.8 million yen. We will continue to allocate necessary expenses to improve the standard of safety and health, and towards mental healthcare.

The spending over the past five years are shown in the figure below.



#### 4) Working Condition Improvement at Production Sites

To prevent worker health damage, fire or explosions, and other accidents related to chemical substances, at Nichino Service we have outlined "Work Management Standards for Handling Chemical Substances" and voluntarily established Acceptable Operator Exposure Limits for each chemical substance handled. We conduct measurements regularly to manage these standards. This fiscal year, we established the new exposure limits for two substances for our facilities.

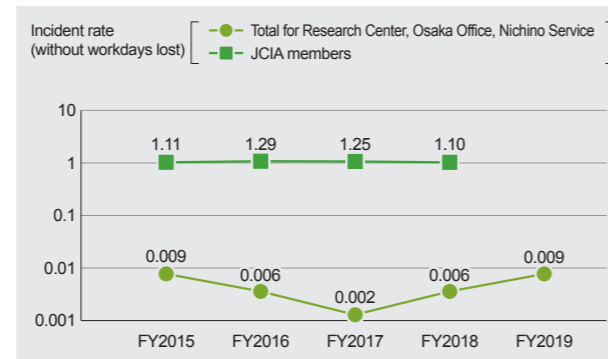
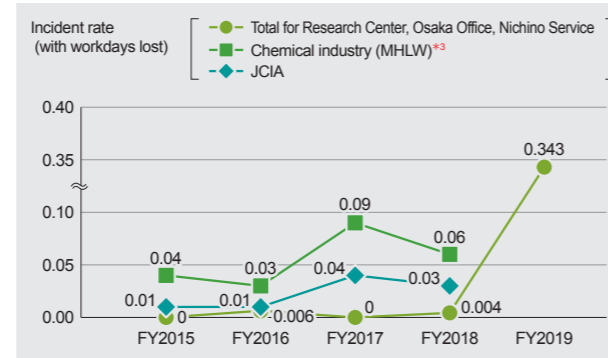
#### 5) Incident Rate\*1 and Record of Zero-Occupational Accident\*2

At domestic Group companies, unfortunately, there was one accident with workdays lost (one accident in the previous year) and there were seven accidents without workdays lost (seven accidents in the previous year). At the Nichino Service Saga Plant, where the accident with workdays lost occurred, the cause was investigated, and measures to prevent recurrence were considered and implemented. These were shared across all business sites of domestic Group companies and plants. The total incident rate concerning accidents with workdays lost for the Research Center, the Osaka Office and Nichino Service was above the average level for the chemical industry and the level for JCIA members in the previous year, due to prolonging workdays lost by the accident victims. However, the total incident rate concerning accidents without workdays lost\*5 remains low. We will continue to promote the prevention of work-related injuries as we aim for zero accidents.

\*1 A scale for indicating the severity of work-related injuries calculated using the formula [workdays lost/total work hours (per 1,000 hours)]  
 \*2 Record of No. of days and work hours without an accident with workdays lost.  
 \*3 Referenced from FY2018 Survey on Trends in Work-Related Accidents (Office survey (offices with 100 or more employees) and general construction business survey) (May 29, 2019: MHLW).  
 \*4 Includes figures for the Osaka Storage / Delivery Group of Nichino Service Saga Plant.  
 \*5 A scale for indicating the frequency of accidents without workdays lost, calculated using the formula {number of accidents without workdays lost (persons)/total working hours (in millions of hours)} (including accidents without workdays lost while commuting).

Record of Zero Occupational Accidents (as of September 30, 2019)

Site	Total No. of Days	Total Hours (1,000 hours)
Nihon Nohyaku	Research Center	3,350
	Osaka Office*4	1,156
Nichino Service	Fukushima Plant	2,072
	Kashima Plant	2,296
	Saga Plant	208



## 2 Process Safety & Disaster Prevention

### 1) Response to Earthquake Disaster

Every year, the Nichino Group engages in education and training for emergency response. In FY2019, we endeavored to increase knowledge of BCP\*, holding a BCP workshop with an external instructor at the Head Office, for members of the large-scale disaster response headquarters.

\* Business Continuity Planning

### 2) Safety Management of Facilities

We conducted planned risk assessments and mandated inspections for facilities and equipment. We monitor waste water based on voluntarily managed standards and work to prevent accidents. The leak of a small quantity of raw material gas occurred at the Nichino Service Kashima Plant, due to facility aging. However, as a result of appropriate response, the leak was prevented from causing any damage to people, either inside or outside the company, or to the surrounding environment. The Kashima Plant also recorded waste water levels exceeding those standards, due to an issue originating in the quality of raw material, but this was swiftly investigated, measures implemented, and the response was completed early to prevent any impact on the sewer. We had no other serious facility accidents or leaks.

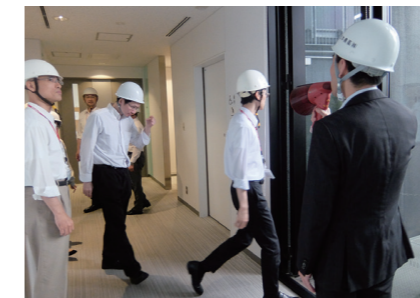
### 3) Training for Emergency

Topics are introduced below.

#### Nihon Nohyaku

At the Head Office, we participate in in-house firefighting training held by our building manager each year, and prepare to respond appropriately in the event of an emergency. At the Research Center, we conduct large-scale disaster prevention training each year, in preparation for an emergency situation. In FY2019, we conducted training on the operation of fire

extinguishers and fire hydrants appropriate for each cause of fire. At the Osaka Office, we conducted leak response training on account of the site's role as a logistics center, in addition to disaster prevention training. Other branches and sales offices participate in disaster prevention training held by their building managers.



In-house firefighting training (Head Office: May 28, 2019)



Large-scale disaster prevention training (Research Center: October 30, 2018)



Leak response training (Osaka Office: September 26, 2019)

#### Nichino Service

At each site, we conducted firefighting training and emergency situation training to address potential raw material or product leaks caused by natural disaster or unexpected accidents, as well as

safety lectures and other activities for Nichino Service Safety Day. In addition, we continued the campaign to detect potential near misses (risk prediction activities) to improve sensitivity to risks.



Firefighting training (Kashima Plant: May 19, 2019)



Firefighting training (Fukushima Plant: June 26, 2019)



Safety lecture (Saga Plant: July 19, 2019)

#### Nichino Ryokka, Nihon Ecotech, and AgriMart

We continued providing these companies with annual training to ensure that they can take appropriate measures in case of emergency in the same manner as in the branches and sales offices of Nihon Nohyaku.

### 4) Other Topics

The Research Center conducts educational activities for all employees, to mark "4-4 Feel Safety Day", an annual event held on April 4 every year, based on lessons learned from the case of exposure to minute amounts of radiation due to an equipment malfunction within the radiation management zone that occurred 18 years ago. Following-on

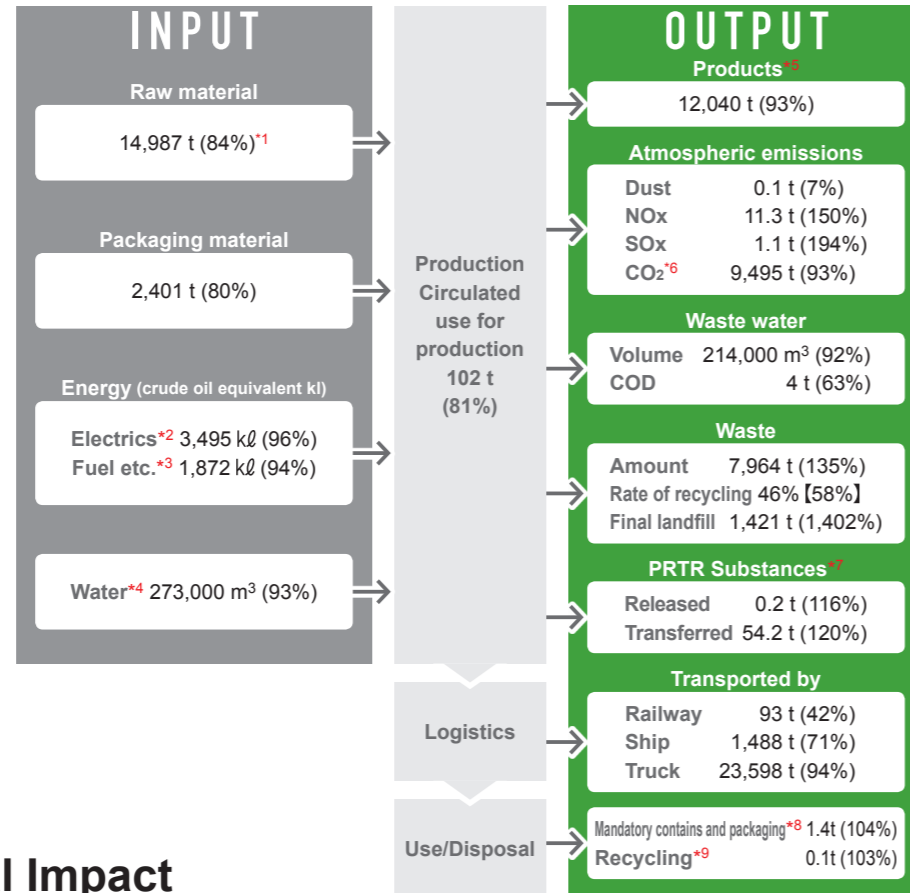
from the previous year, the Research Center held a seminar given by its General Manager concerning the theme "Remembering the Lessons of the Past". It also held a safe driving lecture from the police to prevent automobile accidents, and a health and safety lecture by an industrial physician and a mental health professional.

# Environmental Protection



## 1 Input of Resources and Energy versus Output of Products and Environmental Load

The following shows the amounts of raw materials, energy and water used in our business activities, along with the matters discharged in the process of production / products consumption and disposal.

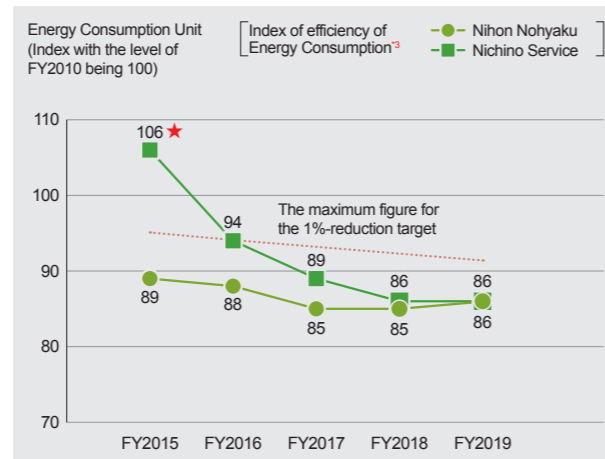


\*1 The round brackets indicate comparisons with the previous year.  
 \*2 Purchased electricity calculated as crude oil equivalent.  
 \*3 Amount of heavy oil, light oil, kerosene, gasoline, city gas, LP gas, and purchased steam are expressed in crude oil equivalent.  
 \*4 Total sum of tap water, well water, and industrial water for Research Center, Osaka Office, and Nichino Service Plants.  
 \*5 Product amount = (technical grade production amount) + (formulation production amount) - (technical grade amount used for formulation production)  
 \*6 Used emission factors were referred to the Act on Promotion of Global Warming Countermeasures.  
 \*7 Includes data for Nihon Ecotech (Fukushima / Osaka Analysis Center) (Aggregation period: April 2018 – March 2019).  
 \*8 Containers and packaging amount of agrochemical products for home and garden use sold during the 2019 fiscal year.  
 \*9 Amount consigned to the Japan Containers and Packaging Recycling Association

## 2 Environmental Impact

### 1) Efficiency of Energy Consumption

As specified business operators defined in the Energy Conservation Act\*1, Nihon Nohyaku and Nichino Service are promoting energy conservation with the goal of lowering our energy consumption unit by 1% or more compared to the previous fiscal year. Both of the companies failed to reach the FY2019 targets (Nihon Nohyaku: 1.9% increased, and Nichino Service: 0.5% increased) due in part to a decrease in total floor space, the denominator of the energy consumption unit at Nihon Nohyaku, and a reduction in production volume at Nichino Service. On the other hand, both companies were officially recognized for excellence in energy conservation (S Class) under the Business Classification System of the Energy Conservation Act\*2, for the first time in two years for Nihon Nohyaku, and for a fourth consecutive year for Nichino Service. We also set standards according to the business forms, and continued to examine and evaluate efficiency of energy consumption at other domestic Group companies as part of efforts to optimize energy consumption.



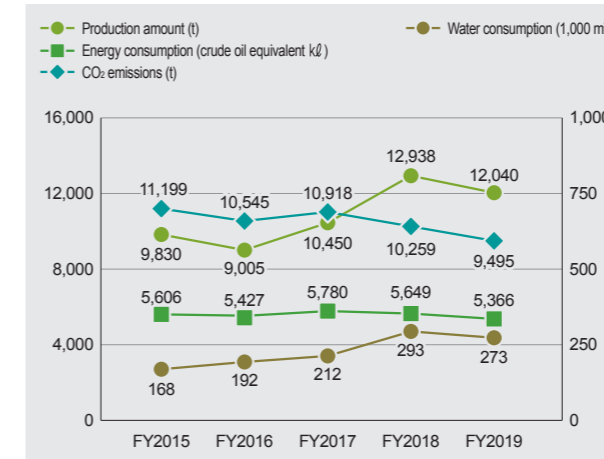
\* The figure was corrected in accordance with the change in the energy consumption unit calculation method for the Nichino Service Kashima Plant.

\*1 Abbreviation for the "Act on the Rational Use, etc. of Energy"  
 \*2 A system under which business operators are officially recognized for excellence in energy conservation (S Class) if they meet the nonbinding targets defined by the Japanese Government (annual reduction of 1% or more on average) or the benchmark targets (e.g., the figure of energy consumption in the manufacture of iron and steel with blast furnaces, divided by the amount of crude steel should be 0.531 kl/t or lower for the iron industry, with blast furnaces) in the past five-year average of the year-on-year changes in the efficiency of energy consumption to be reported on a periodic basis to the government. The operators are categorized into four ranks: S, A, B and C.  
 \*3 Index for each fiscal year when the efficiency of energy consumption for FY2010 is set as 100.

## 2) Energy Consumption, CO<sub>2</sub> Emissions, and Water Consumption

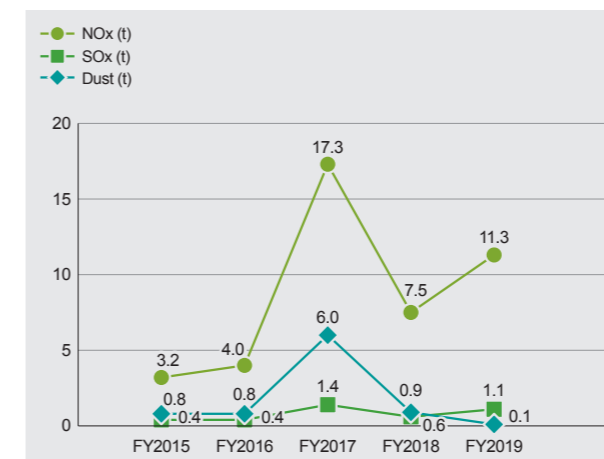
Due to a decrease in production amounts, energy consumption (crude oil equivalent) decreased by 5.0% from the previous year, and CO<sub>2</sub> emissions\* decreased by 7.5%. Water consumption decreased by 6.6% from the previous year.

\* The CO<sub>2</sub> emissions are calculated using the latest emission coefficient and the following formula. However, as the CO<sub>2</sub> emission coefficient of the power companies for April through September 2019 remains to be finalized, the figures for FY2019 are tentative and use the coefficient for the same period of the previous year (published on January 22, 2019; the same below). CO<sub>2</sub> emissions (t) = Σ{consumption volume by type of fuel x energy conversion coefficient by type of fuel (fixed) x CO<sub>2</sub> emission coefficient by type of fuel (fixed)} + Σ{power consumption volume by power company x CO<sub>2</sub> emission coefficient by power company (variable)}



## 3) Emission to Atmosphere

Nitrogen oxides (NOx) emissions derived from exhaust gasses from boilers, etc., increased by 3.7t from the previous year due to an increase in operation of a liquid waste incineration facility at the Nichino Service Kashima Plant. Sulfur oxides (SOx) and dust emissions were both at relatively low levels. Exhaust gases are appropriately managed to comply with the exhaust level standard and other standards.



## 4) Waste

### (1) Amount of waste

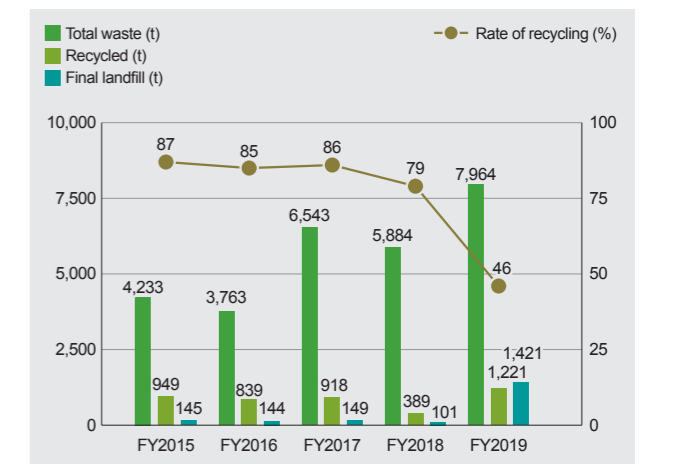
The amount of waste increased by 35% from the previous year following the dismantling of aging facilities at the Osaka Office and changes in the timing of disposal from the Research Center.

### (2) Reduction of final landfill

All plants separate waste and worked to reduce final landfill by practicing the 3R (reduce, reuse, and recycle of waste) system. In FY2019, the amount of industrial waste produced and the final landfill amount both increased significantly from the previous year, primarily due to an increase in waste such as construction debris and excavated soil following redevelopment works at the Osaka Office.

The Nichino Service Fukushima Plant, Kashima Plant and Saga Plant continuously achieved zero emissions. The rate of recycling\* decreased significantly from the previous year due to a comparative decrease in the amount of waste to be recycled such as paper and metal scrap, resulting from an increase in waste to be disposed of as landfill, such as construction debris and excavated soil.

\* Rate of recycling = recycled amount / (recycled amount + final landfill amount)



### (3) Survey and inspection of waste disposal contractors

We outsource waste disposal to contractors capable of properly treating waste and continue on-site surveys and inspections of the final landfill sites.

### (4) Waste containing Polychlorinated biphenyls (PCBs)

We have stored strictly highly concentrated PCBs waste and waste containing minimum amounts of PCBs\*1, under strict leakage prevention system and dispose systematically in accordance with the PCBs Special Measures Act\*2. Disposal of the waste containing PCBs stored at the Research Center, Osaka Office and Nichino Service Saga Plant has been completed.

\*1 Refers to electrical device waste products that unintentionally contain minimum amounts of PCBs, manufactured after the termination of PCBs manufacturing.  
 \*2 Abbreviation for the "Act on Special Measures concerning Promotion of Proper Treatment of PCBs Wastes".

## Environmental Protection

### 5) PRTR Law\*1 Applicable Hazardous Substance Released and Transferred Amount\*\*2

(Aggregation period: April 2018 - March 2019)

Both the released amount\*3 (up 16.3% YoY) and the transferred amount\*4 (up 19.6% YoY) increased from the previous year, due to concentrated increases in some raw materials and agrochemical technical grades resulting primarily from changes in the handled and produced items.

#### Released and transferred amount: Top 10 substances by amount

Rank		Released amount	
Current Y	Previous Y	Substance name	(kg)
1	1	n - Hexane	87.0
2	3	Triethylamine	25.0
3	2	Xylene	16.8
4	6	1,2-Dichloroethane	13.0
5	4	Ethylbenzene	12.1
6	6	Buprofezin*5	11.9
7	9	Isoprothiolane*5	11.5
8	8	Hydrazine	4.4
9	13	Flutolanil*5	4.2
10	11	Benzyl chloride	2.0
		Other	6.8
		Total	194.7

- \*1 PRTR is an abbreviation of Pollutant Release and Transfer Register, defined under the Act on Confirmation, etc., of Release Amounts of Specific Chemical Substances into the Environment and Promotion of Improvements to the Management Thereof.
- \*2 Scope of calculation includes Nihon Ecotech Fukushima and Osaka Analysis Center.
- \*3 Release to atmosphere, public waters, soil, and landfill.
- \*4 The amount of substances including those transferred to sewer works and for which disposal was consigned to a waste disposal contractor (excluding the amount shipped as commercial products).
- \*5 All principle components of agrochemical products.

Rank		Transferred amount	
Current Y	Previous Y	Substance name	(t)
1	2	Xylene	27.0
2	1	Chlorobenzene	11.3
3	3	Ethylbenzene	3.8
4	4	n - Hexane	3.8
5	5	Acetonitrile	2.1
6	8	Oxine-copper*5	1.2
7	-	Mefenacet*5	1.0
8	16	Phenmedipham*5	0.5
9	12	Diazinon*5	0.5
10	7	Flutolanil*5	0.5
		Other	2.6
		Total	54.2

## 3 Environmental Accounting

### 1) Environmental Protection Costs

Total investments related to environmental protection increased significantly from the previous year (to 1,486 million yen, or six times as much as in the previous year), due to the disposal of construction debris and other material following redevelopment works at the Osaka Office. Personnel, facility maintenance, and related

expenses\*1 were 798 million yen in total (up 6.0% from the previous year). Of those expenses, 514 million yen (64% of expenses) were related to environmental protection spending within R&D.

Environmental protection is one of the important social responsibilities of a corporation, and we will continue to allocate appropriate expenditures for investments and expenses.

Environmental Protection Costs (Unit: million yen)*1				
Classification		Details of major initiatives	Investments	Expenses
1. Costs within business area	(1) Pollution prevention	Prevention of air pollution, water pollutant, bad odor	41 (+13)	129
	(2) Global environmental protection	Prevent global warming by energy conservation	228 (+125)	33 (+32)
	(3) Resource recycling	Industrial waste, general waste disposal	1,183 (+1,170)	111 (-1)
2. Upstream/Downstream		Cost of switching to environmental conservation type raw materials	0	0
3. Management activity		Research Center, office neighborhood greenification, environmental load monitoring	0	11 (+1)
4. R&D costs		R&D for products contributing to environment protection	34 (-35)	514 (+13)
5. Social activity costs		Donations/support for organizations involved in environmental protection	0	1
6. Environment damage response costs		Pollutant recovery costs	0	0
Total			1,486 (+1,273)	798 (+45)

\*1 Expense amounts: Maintenance and management expenses for facilities used for environmental measures as well as personnel and other expenses related to other environmental measures (including depreciation).

\*2 ( ) indicates change from previous fiscal year, no figures indicated if unchanged.

### 2) Environmental Protection Effect: Improvement Achieved through Investments and Expenditures for Environmental Protection

Energy consumption and CO<sub>2</sub> emissions, among others, decreased following a decrease in production amounts and other factors. The reduction in dust emissions was due to the optimization of operating conditions of the liquid waste incineration facility at the Nichino Service Kashima Plant.

Effect item	Details	Item (unit)	YoY change	Change (%)
Pollution prevention	Air/water pollutant emissions	Dust (t)	-0.8	-93
		NOx (t)	+3.7	+50
		SOx (t)	+0.5	+94
		COD (t)	-2.2	-37
Global environmental protection	Greenhouse effect gas emissions	CO <sub>2</sub> (t)	-764	-7
		Energy (crude oil equivalent)(kℓ)	-282	-5
		Water (1,000 m <sup>3</sup> )	-19	-7
Resource recycling	Waste	Amount (t)	+2,080	+35
		Final landfill amount (t)	+1,320	+1,302

## 4 Activities towards Green Purchasing and Green Procurement

Nihon Nohyaku is enrolled in the Green Purchasing Network, through which we proactively promote green purchasing in tandem with our domestic Group companies. Our green purchasing rate for our entire Group is 98.2%, surpassing our goal (95% or higher). We will continuously promote the purchase of goods and items taking into consideration not only quality and prices, but also environmental friendliness.

The green procurement rate was 91.1%, largely unchanged from the previous year. We will continue to improve our green procurement rate.

### The Nichino Group green procurement standards

Each green supplier of chemical materials should satisfy the condition A) and, in addition, satisfy at least one of conditions B1) to B3).

A) Providing SDS (Safety Data Sheet) or equivalent GHS-related information.

B1) Actively promoting environmental conservation\*1.

B2) Supplying products with less environmental impact and without highly hazardous substances\*2.

B3) Not using any highly hazardous substances during processing and manufacturing\*2.

\*1 Activity examples: acquired environment management system certification, involved in Responsible Care activities, participating in national environmental protection activities (Fun to Share, etc.), issuing environmental reports, acquired environmental ranking

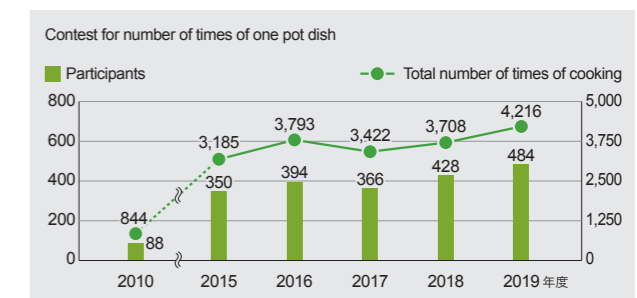
\*2 Hazardous substance examples: POPs, substances applicable to PRTR (excluding agrochemical active ingredients), substances applicable to major regulations in other countries (e.g.: SVHC in the EU), chemical substances not allowed in foods, etc.

## 5 Efforts towards Creating a Low-Carbon Society

We have been taking part in the Action Plan for Low-Carbon Society led by the Japan Business Federation (Keidanren) since 2010 and are promoting the following initiatives, in addition to the reduction of CO<sub>2</sub> emissions from energy usage.

### 1) Supplying Renewable Energy

We installed a solar power generator in Nichino Service Saga Plant. All power generated by the facility (1,585 MWh) is sold to power companies, which contributes to CO<sub>2</sub> emission reductions for the whole of Japan, by reducing the emission coefficient of the power company.



### Fun to Share Activity Declarations by Nichino Group Companies and Plants

Company	Office / Plant	Activity Declaration
Nihon Nohyaku	Head Office	Contribute to low-carbon society by food mileage reduction and office energy saving through Locavore.
	Research Center	Contribute to low-carbon society by energy saving and appropriate temperature management through Locavore.
	Sapporo Branch	
	Sendai Branch	
	Tokyo Branch	Contribute to low-carbon society by food mileage reduction and office energy saving through Locavore. (For all branches and offices)
	Tokai-Hokuriku Sales Office	
Nichino Service	Osaka Branch	
	Fukuoka Branch	
Nichino Service		Contribute to low-carbon society through energy saving in business activities and the promotion of Locavore.
Nichino Ryokka		Contribute to low-carbon society with green technology through Locavore.
Nihon Ecotech		Contribute to low-carbon society by food mileage reduction and office energy saving through Locavore.
AgriMart		Contribute to low-carbon society by promoting delivery through Locavore.

# Logistics Safety, Product Stewardship (Chemical Materials & Product Safety)



## 1 Logistics Safety

### 1) Safety Management During Transport

During the transport of toxic substances, poisons, or hazardous materials/designated flammable substances stipulated by the Fire Service Act, we ask drivers to carry Yellow Cards, which include a concise indication of contact information, handling methods, and precautions for implementing first aid in the event of an accident. To account for the difficulty in using Yellow Cards for mixed shipments or for small-lot shipments after reloading cargo at relay points, we use Container Yellow Cards, which show the guideline number and UN number on the outside of the container to indicate emergency response measures. These are both measures recommended by the JICA. We created White Cards in FY2010 and have been using them to indicate similar information as Yellow Cards on the back of invoices for products for which carrying a Yellow Card is not required, thereby striving to promote logistics safety.

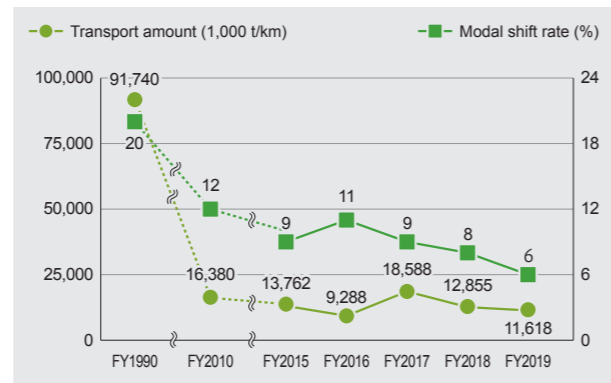


Our original invoice with the White Card

### 2) Promotion of Modal Shift

The transported amount of products and intermediate agents decreased from the previous year, due to lower production amounts. CO<sub>2</sub> emissions related to logistics were 1,975 t (down 8% YoY). To reduce CO<sub>2</sub> emissions, we have worked on a modal shift with convert the method of transport mainly between Nichino Service plants from trucking to railway or marine freight. However, our modal shift rate\* in FY2019 was 6%, down 2 percentage points from the previous year, due to a decline in the proportion of large-scale transport using railway and marine freight. We will continue to focus on efficient transport that emphasizes this modal shift.

\* Modal shift rate (ratio of railway freight and marine transport) = (railway freight and marine transport amount) / (total transport amount) x 100



## 2 Product Development Considering Environment / Safety and Animal Welfare

Agrochemicals today must not only be effective against pest infestations and weeds, but at the same time must give due consideration to the safety of agrochemical users and end consumers of crops, as well as the impact on the natural environment surrounding farmlands. We establish autonomous internal regulations, and conduct multifaceted safety research from the initial stages of R&D while confirming the safety of researchers and the environment, with the goal of developing agrochemicals more aligned with the perspectives of the environment, safety and health. With further autonomous audits of the process (small-scale field-test audits), we continue to endeavor to realize "Responsible Consumption and Production", one of the SDGs. Our accelerated approach to safety research enables us to deliver even better products quickly to agrochemical users. Through research proactively utilizing cultured cells and computer modelling, we have consistently strived to find ways to acquire accurate data

while reducing conventional testing on animals, which contributes to promote animal welfare. After narrowing-down the list of product candidates, we examine the safety of each one in depth, testing over 30 items based on the latest science, including toxicity, environmental impact and residual effects. Afterwards, products go through strict screening by government authorities in Japan or overseas before they are eventually registered and sold as commercial products. We take in the latest scientific knowledge, responding to legal and regulatory changes in Japan and overseas, and applying the administrative and other regulations set out by foreign governments throughout the product development process, leading to the development of even safer products. Furthermore, with the capital and business alliance with ADEKA Corporation we began to create new synergy in the life science field, by drawing on our strengths as the Group.

## 3 Management of Safety Information on Raw Materials and Products

### 1) Management of Safety Data Sheet (SDS) for Globalization

We have created the SDSs for approximately 700 items based on the latest JIS standards and provided it both inside and outside Nihon Nohyaku with the goal of ensuring the safe handling of our agrochemical products, samples for testing and research purposes and other chemical products, and preventing work-related injuries and other accidents. Also, we are developing a system that allows relevant departments at the Research Center and Nichino Service to browse and utilize the SDSs for all raw materials and products and other information via our internal LAN. In response to globalization, we are required to address the SDS preparation requirements outlined in the respective laws related to chemical substances in the EU, Korea, China

and the USA. We are cooperating with our Group company Nichino Europe Co., Ltd. to revise the SDSs for the EU into REACH<sup>1</sup>-compliant SDSs based on the latest CLP regulations<sup>2</sup>. In FY2019, we proceeded with preparations for the operation of an automated SDS creation system to refine and streamline operations to create and revise SDS.

<sup>1</sup> Registration, Evaluation, Authorization, and Restriction of Chemicals: A comprehensive system for registration, evaluation, approval and restriction of chemical substances in Europe.  
<sup>2</sup> Regulation on Classification, Labelling and Packaging of substances and mixtures. (The EU Regulation that stipulates methods of classification, labelling and packaging of chemical products. Classification methods based on GHS have been adopted.) There is a need for product labels, SDS, etc., for chemical substances distributed within the EU, to conform to the CLP regulations.

### What is GHS

An abbreviation for Globally Harmonized System of Classification and Labelling of Chemicals, which was recommended by the United Nations in 2003. The outline is as follows:

1. Classifying the hazards of chemical substances and their mixtures in accordance with a methods and definitions that are globally common.
2. The hazards are displayed on product labels and SDSs using standardized hazard symbols / signal words, etc.
3. Making the hazards of chemicals easy to understand by the global standardization of these classifications and labeling.

### 2) Agrochemical/Chemical Substance Quality Management

We work to ensure product quality and safety in every stage of our business activities, from R&D to production, sales, logistics, use, and final consumption as well as disposal and recycling. Our Production Division conducts detailed evaluations of product quality, while Nichino Service utilizes a quality management system (ISO 9001) to maintain and improve product quality. In addition, we adapt the management methods of GMP (production management and quality control standards for pharmaceuticals) for quality enhancement in our production of technical grades.

We conduct risk management for product liability (PL) to prevent PL issues. We use the internal visualization of response status for complaints received in relation to our products to promote rapid and accurate response. We received 15 product complaints in this fiscal year, a decrease of 11 complaints from the previous fiscal year.

\* Product Liability

## 4 Eliminating NPE and Reducing PRTR Substances

Poly(oxyethylene) nonylphenyl ether (NPE) is categorized as an endocrine disrupting substance that degrades into the environment, and we have eliminated NPE as an inert ingredient in new products and are progressing with the elimination of NPE from

existing products. In FY2019, we released four new NPE-free products. We also are working to reduce the use of PRTR substances during new product development.

## 5 Response to Poisoning and Environmental Accidents

We provide the Japan Poison Information Center (JPIC) with SDSs and product labels that would be useful in responding to inquiries from medical institutions in the unlikely event of a poisoning accident related to our products. We have established and participate in an agrochemical poisoning consortium together with 14 other companies in the agrochemicals industry, in order to obtain timely details from JPIC on poisoning accidents involving our products, provide information promptly and respond appropriately to

official reporting requirements under the Consumer Product Safety Act. During FY2019, there were 19 inquiries concerning accidents relating to Nihon Nohyaku's products made to the JPIC, and we also received eight direct inquiries for risk and hazard information. We promptly provide various types of information to help improve product safety. During FY2019, we had no environmental accidents relating to Nihon Nohyaku's products and no poisoning accidents requiring official reporting under the Consumer Product Safety Act.

# Communication with Society



## 1 Distributing Information to Society

We conduct the following with the goal of constantly providing beneficial and accurate information. Please contact us with any opinions or requests.

### 1) Customer Consultation Service

We have established consultation desks based on product fields. We accept inquiries from customers regarding domestic agrochemical products via telephone or via the inquiry form on our website. We also accept general questions and inquiries from consumers regarding agrochemicals. By providing relevant information, we hope to increase understanding of our agrochemicals.

**Consultation desk**

**Domestic agrochemical products**  
TEL. +81-3-6361-1414  
(TECHNICAL SERVICE & PROMOTION DEPT.)

**Pharmaceuticals, Animal Health Care products**  
TEL. +81-3-6361-1418  
(PHARMACEUTICAL DEPT.)

**Termiticide, Wood Preservative products**  
TEL. +81-3-5159-1711  
(AgriMart Corporation)  
(Weekdays, 9:00 am - 5:00 pm)

### 2) Disclosure of Business Information

To promote deeper understanding of our business activities by stakeholders, we work to provide appropriate and timely information disclosure and to enhance the content of information disclosed. Last year, we launched the chatbot service LeiMe's Agrochemicals Chat Room. This service, provided on our website, features a cartoon character called LeiMe who explains product information and agrochemicals safety in an easily accessible format. Going forward, we will continue to work to enhance content.



Website: <https://www.nichino.co.jp/en/> (top page)

## 2 Relationship to Society

### 1) Community Service

#### Participation in the Kawachinagano City Citizen's Festival (Nichino Service Kawachinagano Center)

The 27th Kawachinagano City Citizen's Festival was held in 2019, with joint participation by the Nichino Service Kawachinagano Center and the Research Center. The previous year, the event had to be suspended midway through due to heavy rain, but this time it was blessed with fine weather. As in previous years, the Kawachinagano Center provided around 300 flower and vegetable seedlings (petunias, sunflowers, mini-tomatoes, cucumbers and eggplants) raised at the Research Center, as prizes for the stamp rally, one of the events at the festival. We hope that those who received the seedlings will raise them carefully, and enjoy beautiful flowers and fine fruit.



Raising flower and vegetable seedlings (Research Center: April 3, 2019)

#### Cooperation with the neighboring irrigation association in the canal cleaning

Once a year we cooperate with the irrigation association, that supports our field trials, in the cleaning of the canal near the Research Center. Volunteers from the Research Center and Nichino Service Kawachinagano Center, together with members of the irrigation association, having gloves, rubber boots, hoes and other tools, clear the long water canal from the reservoir to the farmlands, raking out the dirt and mud, and clearing the tangle of weeds. The work brings back the clean canal, and we enter new field trial season in good mood.



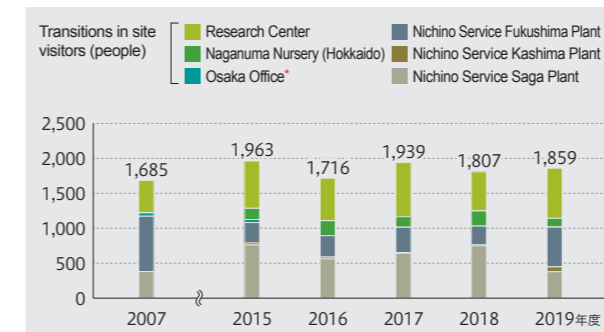
Canal cleaning (Research Center: May 26, 2019)

### 2) Partnership with Stakeholders

#### Acceptance of visitors for factory tours and laboratory tours

In FY2019, the Research Center, Naganuma Nursery, and the Nichino Service Plants were visited by 1,859 people. Visitors were provided a tour of our facilities as well as explanations and seminars to promote understanding of agrochemicals.

At the Research Center, Mayor Shimada of Kawachinagano City, where the center is located, visited for an inspection. In addition to an explanation of the Research Center's research activities and various initiatives undertaken as a plant being provided, Mayor Shimada also toured actual research sites, and showed great interest despite the limited time available.



\* Osaka Office includes figures for the former Nichino Service Osaka Plant until July 2016.



Visit of the Mayor of Kawachinagano City (Research Center: October 19, 2018)

### 3) Contributing to Society

#### Cooperative Education\* (Nichino Ryokka)

Nichino Ryokka has joined the Cooperative Education Program that is the joint industry-university class, offered by the Tokyo University of Technology since 2019. That is a kind of internship program originated in USA or Europe, incorporates work experience into their educational programs, and Nichino Ryokka has started accepting their students. This Cooperative Education Program aims to help students nurture practical ability and basic skills as a member of society by gaining experience in actual and paid work.

There was a lot of anxiety for Nichino Ryokka to participate in this program in the beginning. Not only was Cooperative Education not widely known, but also it involved accepting students with no social and corporate experience. It was decided to participate however, in the belief that practical education, giving university students a broad range of experiences, and will promote the advance of society as a whole.

The student accompanied as sales representatives for sales training, engaged in experiments on the efficacy-trials for turf professional agrochemicals at our Research Center in Chiba Prefecture, and carried out other practical training sessions including the preparation of sales materials for the two months term from April to May, 2019. The students gave a mock sales presentation on products to some of our employees, who pretended to be customers on the final day in order to mark the conclusion of the education program.

The students, who had never had the opportunity to encounter agrochemicals, were able to deepen their understanding of agrochemicals, and seemed to be able to dispel some of their erroneous impressions about agrochemicals. We consider that these activities contribute to the development of agrochemicals and the agrochemical industry as well.

\* This is a program organized by universities, where students gain work experience at companies. Internships, such as those undertaken by the Nichino Service Saga Plant, are programs organized by companies to accept students.



Product testing (Nichino Ryokka Technology Center, in Chiba Prefecture: April 25, 2019)



Mock presentation (Nichino Ryokka Head Office: May 30, 2019)

#### Cooperation in providing disaster aid supplies (Typhoon Faxai in 2019)

On September 9, 2019, Typhoon Faxai struck the Kanto region, one of the strongest recorded ever to make landfall in the region. The typhoon brought devastation, especially in Chiba Prefecture, including electricity and water outages, and damage to buildings. As an initiative to support the affected areas, we did what little we could by providing our stores of mineral water through a partner company in Yachimata City.

#### Participation in the Project of JMAFF

##### (1) Launch of a “chatbot service” (LeiMe’s Agrochemicals Chat Room: June 2019)

Chatbot is a term combining “chat (conversation)” and “bot (robot)”. Chatbots are programs that provide automatic responses to questions in the form of a conversation. The chatbot can be accessed by clicking on the cartoon character icon at the bottom left on our website. Users can click on their topic of interest, or type in a keyword, and the chatbot will provide information and guidance on agrochemicals in the form of a conversation.

The chatbot can be accessed from the LeiMe icon at the bottom left of the homepage

I’m LeiMe! Click here



The “fundamentals of agrochemicals” section is composed of content inspired by the “Online Seminar to Understand the Basics of Agrochemicals” for women engaging in agriculture and questions fielded after the seminar, and covers subjects such as “what is toxicity?” and the safety of crops grown using agrochemicals.

The chatbot character LeiMe was chosen by 14 women engaging in agriculture who participated in the kick-off meeting of Nichino Project for Women in Agriculture of Tomorrow.

Presently, the chatbot service can only respond to inquiries related to the safety of crops grown using agrochemicals, the process of agrochemical registration, and information on matters such as pest infestations in farming and recommended products. But we plan to gradually enhance the content presented in response to the interests and concerns of our customers, based on analysis of the words typed into the chatbot.



## Communication with Society

### (2) Initiatives toward smart agriculture

#### 1 Control with reduced workloads utilizing multi-copters (so-called drones)

In 2019 we launched "Tsurugi 250 Granule," an herbicide for rice paddies suitable for application using drones. Since 250g of this herbicide is enough to treat 10 ares, and at only a quarter of the weight of the conventional 1 kg Granule, it is convenient to carry and handle.

When applied using a drone, Tsurugi 250 Granule greatly increases the application efficiency of the drone and contributes to the reduction of overall costs for the application of herbicides to rice paddies compared to the conventional 1 kg Granule because 1) the weight used per unit of area is lighter, reducing battery consumption, 2) about twice as much can be carried in the tank, and 3) shorter flying distances are sufficient for application as the herbicide disperses on the surface of the water after application.



Agrochemicals application drone

#### 2 AI-based diagnosis and pest control support system

We are in the process of developing a smart phone app that aims to enable users to diagnose and control pests and weeds with expert accuracy, to promote smart farming using the IoT. The app uses photographs taken with a smartphone to execute AI-based image diagnosis of pest infestations and weeds, and facilitates easy access to information on effective agrochemicals and their proper usage. We plan the full-scale release of a free app that can diagnose pest infestations and weeds for paddy rice in April 2020, and plan to expand it to other crops during 2020.

### Agricultural college scholarship and workshops

In FY2008, we started the Nichino Scholarship Fund, commemorating the 80th anniversary of our founding. This year marks the 13th year of the fund. Each year, we provide scholarship funds to students from 9 agricultural colleges around Japan to support the agricultural careers of more than 200 students. Scholarship students are invited to participate in workshops at our Head Office and Research Center, to provide them with a better understanding of our business and to increase their knowledge of agrochemicals. We hope this system will aid in the development of successors to the future of Japan's agriculture.



Workshop with Nichino Scholarship students (Research Center: July 9, 2019)

### Dispatch of lecturers to universities, etc.

In FY2019, we again dispatched speakers from our Research Center to four universities and colleges to lecture on agrochemicals. We were also entrusted by the Green and Safety Promoters Association with dispatching employees to 15 workshops and training courses across Japan, and strived to promote the correct understanding and popularization of agrochemicals.

### Cooperating with blood donations

The Research Center and Nichino Service Fukushima and Saga Plants cooperate with Japan Red Cross blood drives. In FY2019, blood donation trucks visited these sites and a blood drive was conducted for half a day at each of them, with participation by many employees who found time during work to donate blood.

## Information and Topics of Each Facility

Number of employees for Research Center and each plant includes non-full-time employees.

### Research Center

**General Manager:** Kazuhiko Motoba

**Address:**  
345, Oyamada-cho,  
Kawachinagano-shi, Osaka

**Number of employees:**  
167

**Land area:**  
approx. 71,000 m<sup>2</sup>

**Floor surface area:**  
approx. 16,000 m<sup>2</sup>



- This year, we participated in the Kawachinagano City Citizen's Festival as well as previous year. We provided flower and vegetable seedlings raised at the Research Center by Nichino Service Kawachinagano Center, as prizes for the stamp rally, one of the events at the festival. The seedlings for around 400 people were prepared, and they all ran out in good favor.
- We held an information exchange session in our Research Center based on the Pollution Prevention Treaty we have signed with Kawachinagano City. The session provided city staff from the Environmental Measures Department, the Risk Management Department, and the Fire Department the results of our environmental measurements (emissions, waste water, noise, vibrations, etc.), followed by a tour of the facilities. No major issues were pointed out this year again, and we received constructive questions and proposals, promoting mutual understanding. This marked the ninth year since we started the sessions in this format, and we have welcomed visits by many city officials up until now. We look forward to continuing these sessions in the future.

### Research Center Policy

Our mission is to create safe, high-performance and effective new agrochemicals that meet the needs of society to ensure safe and steady food supply, and to improve the quality of life. As the technology center of the Nichino Group, the Research Center strives to research and develop fine chemical products for agrochemicals and pharmaceuticals, from fundamental research on chemicals, biology, and safety to product commercialization and industrial application. We are dedicated to various social activities, information disclosure, and open communication as a trustworthy research center for the community.

### RC Activity Topics

- We proactively accept laboratory tours to promote further understanding of efficient use and safety of agrochemicals. In this year, we welcomed 717 visitors in total for tours, including farmers who use our agrochemicals, as well as college university students, Nichino Scholarship students (agricultural college), neighboring community groups, and overseas visitors.



Information exchange session with Kawachinagano City (April 23, 2019)



Tour (February 19, 2019)

### Research Center environmental data

Items	Content (unit)	FY2015	FY2016	FY2017	FY2018	FY2019
Energy	Crude oil equivalent(kℓ)	1,931	1,961	1,970	1,986	1,972
	Water (1,000 m <sup>3</sup> )	27	31	31	29	28
Atmospheric emissions	SOx (t)	0.0	0.0	0.0	0.0	0.0
	NOx (t)	1.8	2.2	2.0	2.0	2.1
	Dust (t)	0.0	0.0	0.0	0.0	0.0
Waste	CO <sub>2</sub> (t)	3,913	3,912	3,863	3,681	3,485
	Amount (t)	196	202	206	118	172
Waste water	Final landfill (t)	137	137	140	81	82
	Volume (1,000 m <sup>3</sup> )	8	16	19	17	18
	COD (t)	0.2	0.4	0.0	0.0	0.0



### Nichino Service Co., Ltd. Kashima Plant

**General Manager:** Shigeyuki Sakao

**Address:**  
19, Sunayama,  
Kamisu-shi, Ibaraki

**Number of employees:**  
50

**Land area:**  
approx. 45,000 m<sup>2</sup>



#### Plant Policy

1. Ensure plant and equipment maintenance and management, and work to prevent explosions, fires, chemical substance leaks, and other accidents. Also, strengthen system for ensure appropriate response to emergency situations.
2. Work towards energy conservation to prevent global warming and protect natural resources.
3. Continuously reduce amount of the discharge of chemical substances and waste with business activities.
4. Constantly ascertain hazards and toxicity of chemical substances handled and products by the plant and work to maintain and improve the environment, health, and safety.
5. Ensure a safe, comfortable, and pleasant work environment, and work to prevent work-related injuries, promote improved health, and increase safety and health level.
6. Work to participate in community activities and interact with neighboring companies to strengthen ties with local communities and neighboring companies.
7. Promote risk assessment, prevent work-related injuries and environmental accidents, and continue to provide safe workplaces where employees can work with peace of mind.

#### RC Activity Topics

1. We implemented OHSAS18001, worked to improve overall occupational safety & health, and achieved zero accidents.
2. In FY2019, we achieved zero environmental accidents and zero direct environmental law violations, goals outlined in ISO14001.
3. To prepare for emergency situations, we conducted firefighting trainings, earthquake evacuation trainings and hazardous materials leak response trainings. In addition, we conducted emergency phone contact training and email safety confirmation system training, as well as regularly confirming after-hours and weekend contact systems.
4. During the disposal of industrial waste, we applied our electronic manifest and reinforced legal compliance. Furthermore, we conducted the planned monitoring of industrial waste disposal contractors to confirm proper disposal was being conducted.

5. As part of our safe operations initiative, we conducted an Overall Safety Inspection involving safety measures for increasing flubendiamide production by 50%, re-inspections of past serious near misses and risk validation, and endeavored to enhance the safety at all levels.



Overall Safety Inspection (August 7, 2019)

6. We contributed to the local community by participating in community cleanup conducted by the Corporate liaison meeting in Hasaki District (twice per year).
7. We hosted a joint tour and seminar together with staff from CISTEC (Center for Information on Security Trade Control), with participation by the Ministry of Economy, Trade and Industry and private-sector companies. A total of 56 participants were able to deepen their understanding of safety in agrochemicals and agrochemical manufacturing.



Joint tour and seminar (October 26, 2018)

#### Nichino Service Kashima Plant environmental data

Items	Content (unit)	FY2015	FY2016	FY2017	FY2018	FY2019
Products	Technical grades <sup>*1</sup> / bulk powder (t)	1,186	1,387	1,577	1,537	1,292
	Crude oil equivalent <sup>*2</sup> (kℓ)	2,007	1,982	2,070	1,987	1,869
Energy	Water (1,000 m <sup>3</sup> )	117	139	158	241	225
	SOx (t)	0.1	0.3	0.3	0.1	0.1
	NOx (t)	0.9	1.4	14.3	4.8	3.4
Atmospheric emissions	Dust (t)	0.7	0.8	5.9	0.8	0.0
	CO <sub>2</sub> (t)	3,465	3,368	3,428	3,221	3,000
	Amount (t)	3,166	2,725	5,508	4,842	3,892
Waste	Final landfill (t)	4	4	3	3	4
	Volume (1,000 m <sup>3</sup> )	106	128	135	202	184
Waste water	COD (t)	2.2	4.7	7.2	5.6	34.2

<sup>\*1</sup> Includes volume of technical grades used at other plants

<sup>\*2</sup> Includes volume used by the departments of Nihon Nohyaku stationed at the plant

### Nichino Service Co., Ltd. Fukushima Plant

**General Manager:** Hitoshi Yamaguchi

**Address:**  
286, Hiraishitakada 4-Chome,  
Nihonmatsu-shi, Fukushima

**Number of employees:**  
93

**Land area:**  
approx. 119,000 m<sup>2</sup>



#### Plant Policy

1. Comply with related laws, regulations and rules, proactively work on RC and continuously promote the "environment, safety, health, and communication with the community". Properly manage poisonous and hazardous materials and prevent harm to health and hygiene.
2. Continuously improve systems through management reviews. Appropriately respond to legal and other requirements, establish systems, create and manage documentation, collect information, handle audits and thereby work to improve the systems.
3. Work to reduce the discharge of chemical substances, CO<sub>2</sub> emissions and industrial waste from business activities, and promote resource and energy conservation as part of environmental protection efforts with an eye on not only the areas surrounding the plant, but also the global environment.
4. Add and review risk assessment items in conjunction with near-miss incidents. Examine whether risk assessment items have been defined sufficiently in written form, and whether more detailed classification is possible.
5. Applying the OHSAS18001 system, we prevent work-related injuries. Provide mental care for employees, protect their safety and health and work to create a pleasant, comfortable work environment.
6. To prevent logistics-related accidents, we conduct appropriate labeling of product containers, and use Yellow Cards, White Cards, etc., to provide product safety information to all shipping and warehouse operators. Share information with shipping operators to eliminate incorrect shipments, delayed delivery and other transport problems.
7. Conduct risk management for all processes related to the handling of chemical substances at the plant. Provide appropriate product safety information to all workers, clients, and affiliate operators involved in handling. Work to maintain and improve safety, health and environmental aspects by sharing up-to-date risk and hazard information concerning chemical substances and products handled at the plant.
8. Proactively disclose the results of RC and major indicators through site reports and the website. Encourage communication with the community and further mutual understanding through participation in community activities and social contribution activities.

#### RC Activity Topics

1. Based on our policy of preventing any accidents and disasters from occurring and spreading, enhanced the content of education on past incidents, firefighting training, training for responding to agrochemical substance leaks, and training to prepare for emergency events at night, and strengthened the function of review meetings.



AED seminar (June 17, 2019)

2. Regularized the "Safety Day" implemented every year and the Month of Strengthening Detection of Potential Near Misses that was introduced last year, encouraged departments to provide advice to each other and worked to nip risks in the bud (number of potential near miss cases submitted: 475, last year: 224).
3. Distributed our CSR Report to widely communicate our activities to employees and visitors from outside. Allowed youth baseball teams and registered groups to use our grounds (29 times) and regularly conducted neighborhood cleaning (four times a year). Welcomed 48 groups totaling 569 visitors, including factory tours by industrial park conference members in addition to our usual agrochemical consumers, to promote an understanding of agrochemical safety.



Environmental beautification around the plant (October 1, 2018)

4. Continued to achieve zero environmental accidents and zero environmental law violations.

#### Nichino Service Fukushima Plant environmental data

Items	Content (unit)	FY2015	FY2016	FY2017	FY2018	FY2019
Products	Agrochemicals (t)	4,155	3,914	5,138	5,232	4,622
	Crude oil equivalent(kℓ)	456	449	534	534	479
Energy	Water (1,000 m <sup>3</sup> )	9	7	8	8	7
	SOx (t)	0.2	0.0	0.9	0.2	0.8
	NOx (t)	0.2	0.0	0.3	0.2	0.2
Atmospheric emissions	Dust (t)	0.0	0.0	0.0	0.0	0.0
	CO <sub>2</sub> (t)	1,083	1,043	1,214	1,201	1,030
	Amount (t)	363	380	429	414	399
Waste	Final landfill (t)	1	2	1	2	1
	Volume (1,000 m <sup>3</sup> )	6	5	7	7	6
Waste water	COD (t)	0.0	0.0	0.0	0.0	0.0

### Nichino Service Co., Ltd. Saga Plant

**General Manager:** Hideki Utaka  
**Address:** 180-1, Aza Nihonsugi, Oaza Tsutsumi, Kamimine-cho, Miyaki-gun, Saga  
**Number of employees:** 88  
**Land area:** approx. 84,000 m<sup>2</sup>



#### Plant Policy

1. Work to reduce CO<sub>2</sub> emissions and industrial waste, and promote resource and energy conservation as part of environmental protection efforts.
2. Promote the use of risk assessments to prevent fires, explosions, chemical substance leaks, and other accidents.
3. Utilize the OHSAS18001 system to prevent work-related injuries, provide mental care for employees, and create a pleasant work environment.
4. Provide product safety information to all logistics and warehouse operators to prevent logistics-related accidents.
5. Through agrochemical production, we all engage in efforts to contribute to society to ensure safe and steady food supply and improve the quality of life.

#### RC Activity Topics

1. Promoted energy conservation by replacing outdoor lighting on the premises with LED.
2. Continued with successful achievement of zero environmental accidents and zero environmental law violations.
3. Monitored industrial waste processing contractors to confirm proper treatment was being conducted.
4. Conducted trainings (such as firefighting and evacuation trainings, agrochemical technical grade/product leak response trainings, tank leak response trainings, and waste water treatment facility problem response trainings) to prepare for emergency situations.
5. As part of our communication with the society to promote understanding regarding agrochemical safety and usage methods, we welcomed 34 groups totaling 378 visitors including agriculture officials. We also supported clubs at neighboring schools and various local groups, and proactively cooperated with local activities.
6. We were presented with a Letter of Appreciation by the Chief of Staff, Ground Self-Defense Force, Ministry of Defense, in recognition of our support for the employment of retired Self-Defense Force personnel.



Presentation of a Letter of Appreciation from the Self-Defense Force (November 23, 2018)

#### Nichino Service Saga Plant environmental data

Items	Content (unit)	FY2015	FY2016	FY2017	FY2018	FY2019
Product	Agrochemicals (t)	5,466	4,891	5,288	7,706	7,418
	Crude oil equivalent(kℓ)	950	835	1,045	998	908
Energy	Water (1,000 m <sup>3</sup> )	14	13	14	13	11
	SOx (t)	0.1	0.1	0.3	0.3	0.2
	NOx (t)	0.3	0.4	0.8	0.8	0.6
Atmospheric emissions	Dust (t)	0.0	0.0	0.0	0.0	0.0
	CO <sub>2</sub> (t)	2,204	1,840	2,099	1,933	1,703
Waste	Amount (t)	399	375	312	421	569
	Final landfill (t)	0	0	0	0	0
Waste water	Volume (1,000 m <sup>3</sup> )	7	7	6	6	5
	COD (t)	0.0	0.0	0.0	0.0	0.0

### Osaka Office

**General Manager:** Yoshiaki Higashino  
**Address:** 2-30, Tsukuda 5-Chome, Nishiyodogawa-ku, Osaka  
**Number of employees:** 15 (including Formulation Research Group of the Manufacturing Technology Research Center, Osaka Storage / Delivery Group of Nichino Service Saga Plant members)  
**Land area:** approx. 30,000 m<sup>2</sup>  
**Floor surface area:** approx. 9,000 m<sup>2</sup>

#### Office Policy

The premise of the Nihon Nohyaku Osaka Office houses the Administration Group, the Formulation Research Group of the Manufacturing Technology Research Center, the Osaka Storage & Delivery Group and Safety Management and Quality Assurance Department of Nichino Service Saga Plant, and Nihon Ecotech Co., Ltd. (Nihon Ecotech Co., Ltd. relocated in July 2019.)

Although the Osaka Office only has a small number of staff, amid development construction, the entire Nichino Group is committed to contributing to society through RC activities.

#### RC Activity Topics

1. As for the project of the Tsukuda district redevelopment (removal of overage buildings and soil improvement work), provided an explanatory meeting for residents and distributed information prior to the construction two fiscal years ago. Continuing environmental measurements (noise, vibration and dust) during the construction. Work has been suspended since December 2019, but we will gradually progress with soil improvement, removal and refurbishment of overage buildings.
2. Conducted safety patrols, identified potential near misses and encouraged submission of near misses to promote accident prevention and maintain zero accidents.
3. To prepare for emergency situations, conducted (1) fire extinguisher training, (2) disaster prevention training (shutdown, evacuation), and (3) leak response and other emergency training.
4. As part of our communication with society, cleaned the area surrounding the plant, participated in community activities in the Nishiyodogawa area (first-aid training, safety seminars etc.) and participated in and supported community activities in the Tsukuda district (provision of a space for rest for children's Taiko drum events and year-end fire prevention activities).



Fire extinguisher training (September 26, 2019)



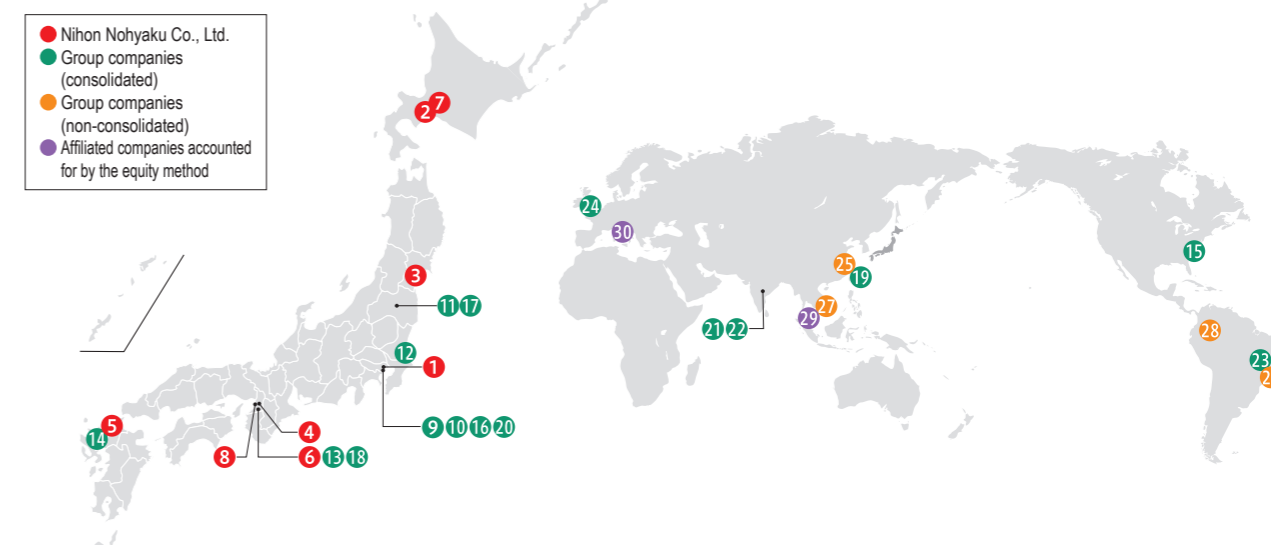
Cooperation with the local festival (August 1, 2019)

#### Osaka Office environmental data

Items	Content (unit)	FY2015	FY2016	FY2017	FY2018	FY2019
Energy	Crude oil equivalent(kℓ)	164	106	68	49	47
	Water (1,000 m <sup>3</sup> )	2	1	1	1	2
Atmospheric emissions	SOx (t)	0.0	0.0	0.0	0.0	0.0
	NOx (t)	0.0	0.0	0.0	0.0	0.0
	Dust (t)	0.0	0.0	0.0	0.0	0.0
	CO <sub>2</sub> (t)	334	213	132	88	78
Waste	Amount (t)	109	81	88	113	2,967
	Final landfill (t)	4	1	5	15	1,335
Waste water	Volume* (1,000 m <sup>3</sup> )	0	0	0	0	0
	COD (t)	0.0	0.0	0.0	0.0	0.0

\* All treated as industrial waste

# Company Overview and List of The Nihon Nohyaku Group Companies



**Nihon Nohyaku Co., Ltd.**

<b>Head Office address</b>	19-8 Kyobashi 1-Chome, Chuo-ku, Tokyo 104-8386
<b>Founded</b>	November 17, 1928
<b>Capital</b>	14,939 million yen
<b>Number of employees (consolidated)</b>	1,472
<b>Main business</b>	Manufacturing, import, export, and sales of agrochemicals, pharmaceuticals, quasi drugs, veterinary products, wood preservative agents, agricultural materials, and more

<b>Head office and branches</b>	① Head office, Tokyo Branch (Chuo-ku, Tokyo)	
	② Sapporo Branch (Sapporo-shi, Hokkaido)	
	③ Sendai Branch (Sendai-shi, Miyagi)	
	④ Osaka Branch, Tokai-Hokuriku Sales Office (Osaka-shi, Osaka)	
	⑤ Fukuoka Branch (Fukuoka-shi, Fukuoka)	
	⑧ Osaka Office (Osaka-shi, Osaka)	
	<b>Research Facilities</b>	⑥ Research Center (Kawachinagano-shi, Osaka)
		⑦ Naganuma Nursery (Yubari-gun, Hokkaido)
<b>Manufacturing plant (contracted)</b>	⑩ Nichino Service Co., Ltd.	
	⑪ Fukushima Plant / ⑫ Kashima Plant / ⑭ Saga Plant	

#### Consolidated Group Companies

⑨ Nichino Ryokka Co., Ltd.	Sales of chemicals/pesticides for golf courses, home & garden, and greenification, sales of turf and turf-related materials, planning and construction of gardens and amenity areas	Chuo-ku, Tokyo
⑩ Nichino Service Co., Ltd.	Manufacturing and sales of agrochemicals, contracted manufacturing, storage, and transport of agrochemicals, cultivation and management of fields, real estate management	Chuo-ku, Tokyo
⑪ Fukushima Plant		Nihonmatsu-shi, Fukushima
⑫ Kashima Plant		Kamisui-shi, Ibaraki
⑬ Kawachinagano Center		Kawachinagano-shi, Osaka
⑭ Saga Plant	Miyaki-gun, Saga	
⑮ Nichino America, Inc.	Agrochemical sales, promotion, development, and registration in the USA	U.S.A. / Wilmington
⑯ Nihon Ecotech Co., Ltd.	Agrochemical residue analysis, chemical substance safety testing, and related activities	Chuo-ku, Tokyo
⑰ Fukushima Analysis Center		Nihonmatsu-shi, Fukushima
⑱ Osaka Analysis Center	Kawachinagano-shi, Osaka	
⑲ Taiwan Nihon Nohyaku Co., Ltd.	Agrochemical sales and promotion in Taiwan	Taiwan/Taipei
⑳ AgriMart Corporation	Sales of termite control agents/devices, pest control agents/devices	Chuo-ku, Tokyo
㉑ Nichino India Pvt. Ltd.	Agrochemical sales, manufacturing, development, promotion, import and export in India	India / Hyderabad
㉒ Nichino Chemical India Pvt. Ltd.	Agrochemical sales and manufacturing in India	India / Hyderabad
㉓ Sipcam Nichino Brasil S.A.	Agrochemical sales and manufacturing in Brazil	Brazil / Uberaba
㉔ Nichino Europe Co., Ltd.	Agrochemical sales, promotion, development, and registration in Europe	UK / Cambridge

#### Non-consolidated Companies

㉕ Nichino Shanghai Co., Ltd.	Agrochemical sales and promotion in China	China/ Shanghai
㉖ Nichino do Brasil Agroquímicos Ltda.	Agrochemical development and registration in Brazil	Brazil / Sao Paulo
㉗ Nichino Vietnam Co., Ltd.	Agrochemical sales, development, promotion, import and export in Vietnam	Vietnam / Ho Chi Minh
㉘ Nihon Nohyaku Andica S.A.S.	Agrochemical sales, development, promotion, import and export in the Andes and Central America	Colombia / Bogota

#### Affiliated Companies Accounted for by the Equity Method

㉙ Agricultural Chemicals (Malaysia) Sdn. Bhd.	Agrochemical sales and manufacturing in Malaysia	Malaysia / Penang
㉚ Sipcam Europe S.p.A.	Agrochemical sales and manufacturing in Europe	Italy / Milan

 **NIHON NOHYAKU CO., LTD.**

**Head Office** 19-8, Kyobashi 1-Chome (Kyobashi OM Bldg.),  
Chuo-ku, Tokyo 104-8386

**TEL** +81-3-6361-1400

**Website** <https://www.nichino.co.jp/en/>



We practice Green Purchasing.



Nihon Nohyaku received a Development Bank of Japan loan based on the DBJ Environmentally Rated Loan Program, and has been rated as "a company with advanced environmental initiatives".

