

Intellectual Property Report 2017

変革



Change



ISEKI & CO., LTD.

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Cover

■ "変革 (Change)"

Calligraphy by master calligrapher, Ryo Fuuka
FY2017 keyword for the ISEKI Group

■ Photo on the cover

Exhibition Hall of Technical Support Center
Matsuyama IDG (ISEKI Dream Gallery)

Message from the President

Since its establishment in 1926, the ISEKI Group has pursued creative research with a mission to "contribute to society through agricultural machinery" by responding to agriculture changing over time. The "spirit as the engineer" for "always being one step ahead of the competitors," "to be totally dedicated to product philosophy," "to exert all technical potential" and "to market ideas" has been passed down to our technical experts to this day. Making full use of all our accumulated technical potential, we will continue to contribute to agriculture both in Japan and around the world by providing products that satisfy our customers.

Japanese agriculture is currently undergoing structural changes including large-scale farming through the aggregation of farmland, shifting to dry-field farming and vegetable crops as well as enhancing efficiency through the utilization of advanced technology. In order to keep up with these changes, we will conduct proactive business activities both from tangible and intangible perspectives, i.e., providing high-quality and affordable products, as well as proposing agricultural technologies useful for low-cost farming and products that support a diverse range of crops.

For overseas markets, we have provided products mainly for landscape maintenance and light civil engineering work for the European market and rice cultivation for the Chinese market. Recently, with our rice cultivation technologies nurtured in Japan, we have developed and are supplying products for ASEAN nations where the need for expanded food production is on the rise.

The ISEKI Group positions intellectual property as its "strength." We are pleased to have achieved 1st place in registered patents per specialty field in FY2016. We also took 1st place among all industries in terms of patent assessment ratio in FY2016. In this report, we will introduce our views and activities on R&D as well as how we handle intellectual property, the fruit of our activities.

We sincerely hope that this report will provide you with a good understanding of the R&D and intellectual property-oriented initiatives of the ISEKI Group.

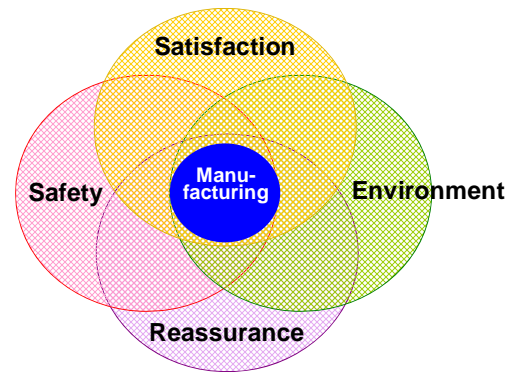


Representative Director,
President & Executive Officer
Eiichiro Kinoshita

1. R&D Strategy

<Basics of Manufacturing>

ISEKI has designated "Customer satisfaction," "Safety," "Reassurance" and the "Environment" as the "basics of manufacturing" to promote R&D.



<Reinforcing Initiatives for Domestic and Overseas Markets>

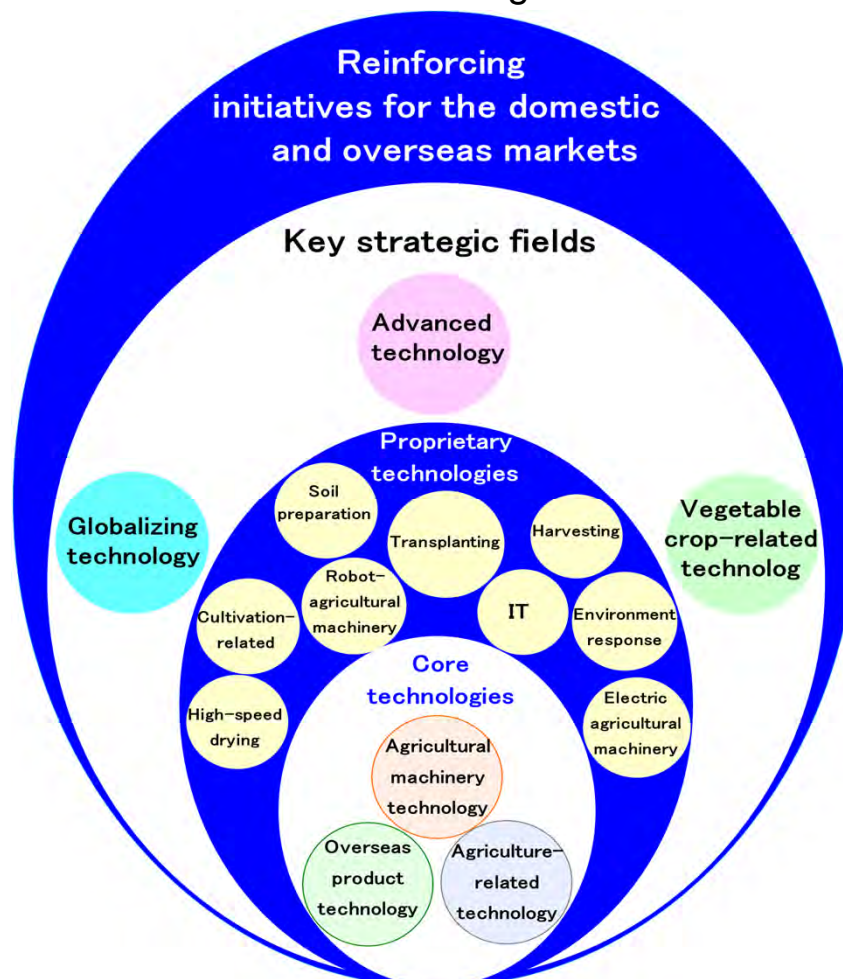
ISEKI is reinforcing its initiatives for overseas markets and the changing structure of agriculture in the domestic market through strategic R&D based on the three core technologies.

■ Key strategic fields in R&D

"Advanced technology" ⇒ Realization of smart farming

"Vegetable crop-related technology" ⇒ Response to shift in crops

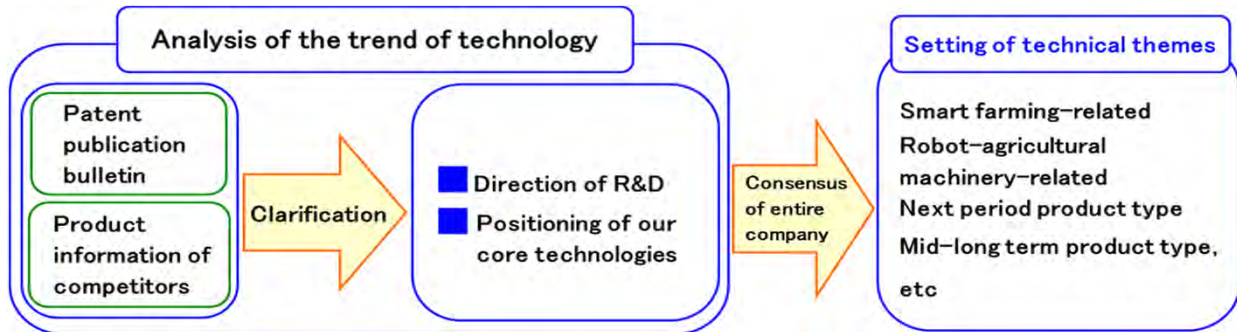
"Globalizing technology" ⇒ Adapting to each country's agricultural methods



2. Intellectual Property Strategy

<Creation of Inventions/Patent Application Strategy>

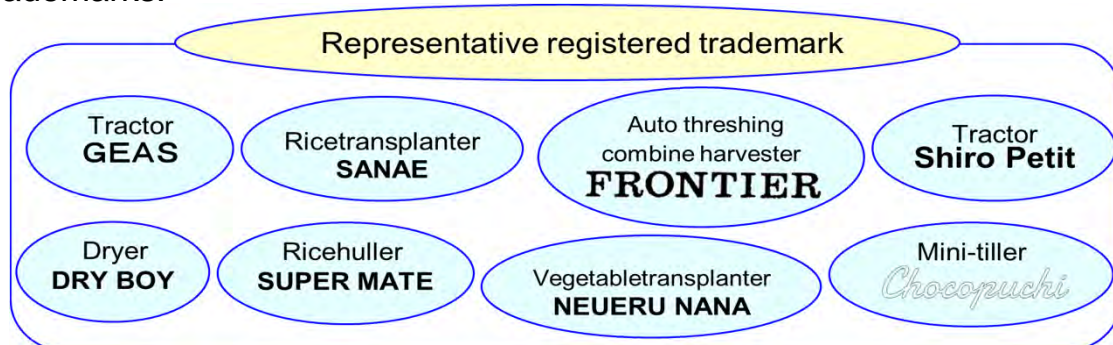
- Setting technical themes on the consensus of the entire company
Through creation activities based on technical themes, we create a patent network, ensuring the priority of product development.



<Design/Trademark Strategy>

- Enhancing protection of design and improving brand value

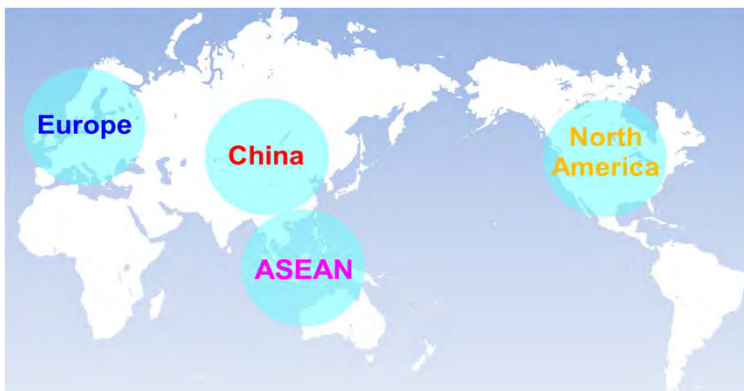
We distinguish our products from those of our competitors by preserving attractive designs and affectionate pet names as design rights and trademarks.



* "Shiro Petit" and "Chocopuchi" are collaborative products between the Company and the Ministry of Agriculture, Forestry and Fisheries, *Nogyou-jyoshi* (female farmers) Project.

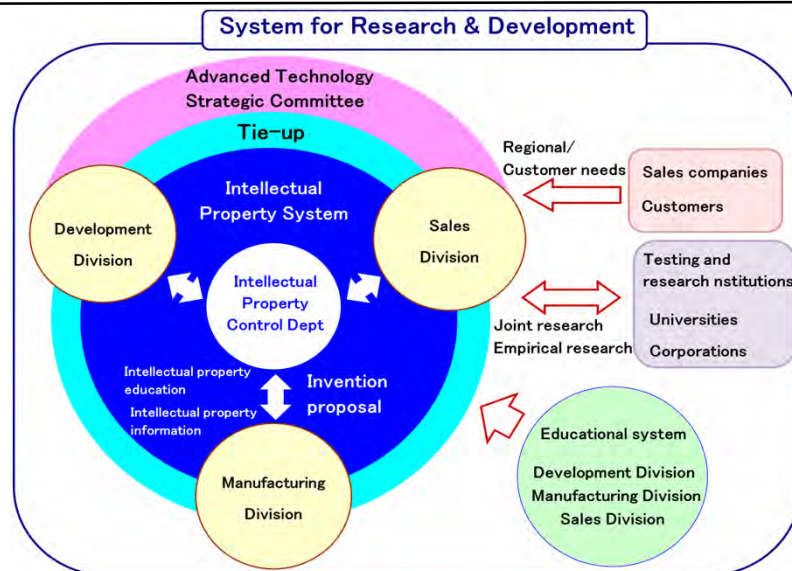
<Global Intellectual Property Strategy>

- Tie-ups with divisions in charge of development and overseas operations, as well as with patent offices in each country



We strive to improve the precision of analyzing each country's market trends and intellectual property status, as well as to obtain and accumulate effective rights in each country.

3. System for R&D, Education, Intellectual Property



<System for Research & Development>

■ Exerting comprehensive strength of each of the development/manufacturing/sales divisions

We promote R&D that responds quickly to customer needs both in Japan and abroad.

■ Joint R&D efforts with research institutions and universities

In FY2017, we jointly conducted studies on 12 themes with testing and research institutions and on two themes with universities.

[Product Development]

■ Accumulation of technologies and know-how unique to the product

We accumulate proprietary technologies through systematic R&D for each product.

■ Strengthening of the system to promote state-of-the-art technologies

We discuss and determine the direction of development in the Advanced Technology Strategic Committee.

[Manufacturing]

■ Manufacturing of high-quality/low-cost products

We are actively engaged in improvement activities. In FY2016, more than 57,000 proposals were made.

We are promoting cost reductions mainly through designing, manufacturing and parts procurement methods.

[Commitments to Advanced Agriculture]

We promote the research of advanced cultivation techniques such as labor-saving/low-cost cultivation methods and the empirical study of agricultural ICT and autonomous agricultural machinery through Dream Agricultural Research Institute (Yumesoken).



Exhibition Hall of Yumesoken

<Educational System>

[Nurturing Talent]

■ Development division: Further improving design skills

We develop young designing engineers at the ISEKI Engineering Training Center (IETC).



IETC

■ Manufacturing division: Transferring manufacturing skills

We promote the development of human resources and the nurturing of leaders for our production bases both in Japan and overseas at the ISEKI Technical Training Center (ITTC).



ITTC

■ Sales division: Reinforcing technical service capabilities

We established the ISEKI Global Training Center (IGTC) in January 2017 and train our domestic and overseas sales/service personnel.



IGTC

[Initiatives]

■ Intellectual property education and transfer of creation know-how

We conduct intellectual property education by stratified education according to years of experience.

Experienced engineers lead invention-creation activities (patent search) to enhance young engineers' capabilities and motivation for creation.



Patent search

■ ISEKI Technological Research Presentation

The ISEKI Technological Research Presentation is held each year and has been held a total 27 times.

It provides an opportunity to share the results of R&D and invention information, as well as for mutual study through deliberations.



The ISEKI Technological Research Presentation

We have reinforced our educational system, resulting in invention proposals constantly exceeding 20,000 every year.

<System for Intellectual Property>

The Intellectual Property Control Department controls the intellectual property of the entire ISEKI Group.

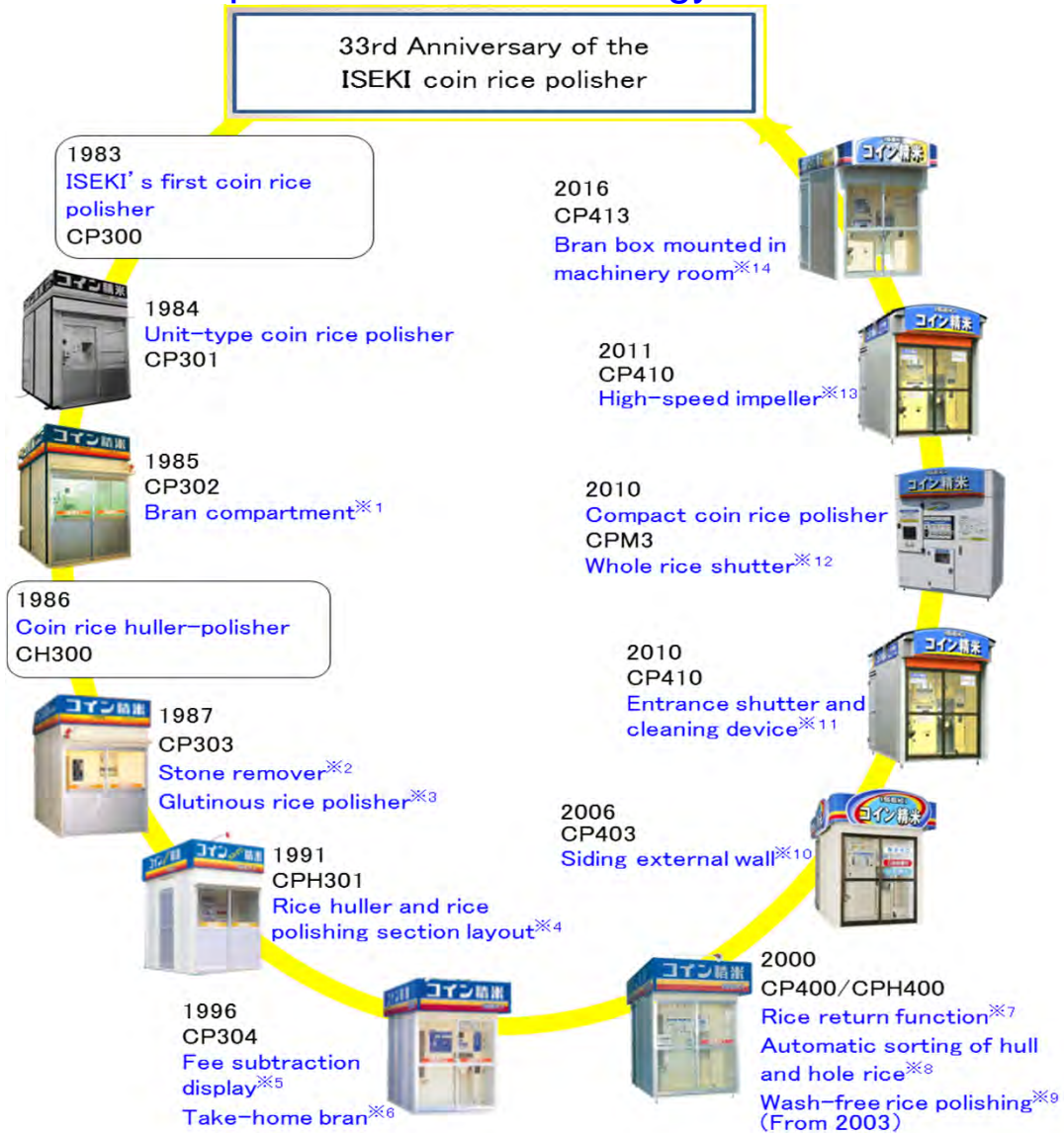


4. Contribution of Intellectual Property to Business (Specific examples)

<History of the ISEKI Coin Rice Polisher>

ISEKI commercialized the unit-type coin rice polisher in 1984 ahead of its competitors and has successively developed new technologies ever since.

■ Transition of products and technology



We have been meeting consumer needs diversifying with the liberalization of whole rice distribution by spreading the use of the coin rice polisher.

Patent numbers of mainstay technologies (marked with an asterisk)

1 Patent Publication No. 1995 - 32882 (Rights expired)	7 Patent No. 3807450 (Rights expired)	13 Patent No. 5621963
2 Patent Publication No. 1992 - 23583 (Rights expired)	8 Patent No. 3755280	14 Patent No. 5838731
3 Patent Publication No. 1994 - 16858 (Rights expired)	9 Patent No. 3719035	
4 Patent No. 2702367 (Rights expired)	10 Design Registration No. 1289650	
5 Patent No. 3489238 (Rights expired)	11 Patent No. 5780341	
6 Patent No. 3707157 (Rights expired)	12 Patent No. 5471950	

<Vegetable Crop-related Products>

■ Mini-tiller, "Chocopuchi"

Second in a series of collaborative products between ISEKI and the Ministry of Agriculture, Forestry and Fisheries "Nogyo-jyoshi (female farmers) Project."

Chic and natural grey/beige color.

Instructions for starting the engine are indicated on the machine in an easy-to-follow format.



Fuel can holder

The can holder aligns with the handle when stowed and can be rotated to the horizontal position to facilitate fueling.

■ Full-automatic vegetable transplanter, "PVZ1 Series"

The design has been renewed and new functions have been added. Facilitates highly-efficient and high-precision vegetable planting.



Seedling tray conveyor device

The device makes it unnecessary to switch the conveyor stroke even for seedling trays of different volume.

Planting interval adjustment device

Planting interval may be adjusted at 1 cm intervals with the hand switch.

«2017 Development Award of the Japanese Society of Agricultural Machinery and Food Engineers»

The PVZ 1 series, the fully-automated vegetable transplanter, which is highly-efficient, easy to use and suits the cultivation system of each region, was awarded the Development Award of the Japanese Society of Agricultural Machinery and Food Engineers.



■ Walk-behind radish harvesting machine, "VHD 102-S"

The VHD102-S pulls out the radish, cuts off the stovers and facilitates manual harvesting. It can reduce the labor and man-hours required for radish harvesting.



Discharge mechanism for cut stovers

After the stovers have been cut off, they are discharged on the opposite side of the radish raising mechanism, facilitating their collection.

Cutting device

By cutting off the tops of the radishes, it reduces the processing work after the harvest.

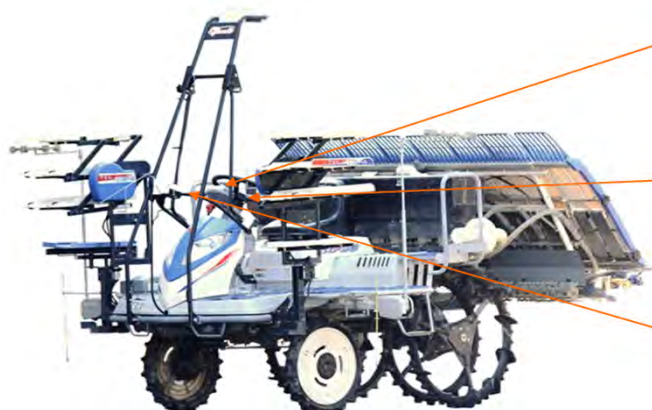
<Utilization of Intellectual Property for Business Strategy>

In Japan, we promote the acquisition of rights of advanced technologies such as the use of ICT and robots. Overseas, we are striving to acquire rights of technologies that cater to the usage environment of each region.

[Domestic Business Strategy: Keeping Up with Changes in Japanese Agriculture]

■Rice transplanter with straight-travel assist system, "OPERESTA"

As the second model in a series of smart rice transplanters, following the variable fertilizing rice transplanter, we have developed the "NP80Z", which automatically travels in a straight line by means of GPS location, contributing to high-precision and labor-saving rice transplanting.



Ridge warning system

When approaching a ridge, the transplanter, after sounding a warning buzzer, automatically slows down and stops.

Straight-travel assist lever

The driver can register the reference point for calculating the reference line for straight travel, as well as switch the straight-travel assist on and off.

Straight-travel assist monitor

If the transplanter significantly veers off course during straight-travel, the direction to which the handle should be steered manually will be displayed.

■Robot tractor

Robot tractors contribute to easing the increasing labor shortage in Japanese farming and improving work efficiency.

Currently under development for commercialization in 2018.



Robot tractor

Going forward, we intend to promote R&D toward commercialization in line with the guidelines of the Ministry of Agriculture, Forestry and Fisheries.

[Overseas Business Strategy: Initiatives for the Global Market]

■ Large outfront mower for the European market: SF 450/438

We market large front mowers for professional users in the European market. It contributes to landscape maintenance with its excellent



Blower rotation brake mechanism

Safety is assured as the blower rotation stops immediately when the blower for grass-collecting stops.

Low center of gravity

By placing the body connecting the transmission case of the grass-collecting blower with the engine in a lower position, stability of operation is assured.

Mulching kit

By mounting the mulching kit to the mower deck, the mown grass can be directed to the mower deck, shredded by the rotating blade, and discharged.

■ Pesticide sprayer for the Chinese market: JKB18C

We market a low-price pesticide sprayer in the Chinese market. It prevents the chemicals from spilling and it is considerate of the working environment.



Safety guard

By shielding the front and both sides of the driver's seat with a transparent plate, it prevents the chemicals from scattering to the worker.

■ Tractor for the Southeast Asian market: NT series

We market tractors with basic functions capable of withstanding hard and long hours of work in the Southeast Asian market.

It is equipped with functions suitable for the local environment.



Large canopy

The large roof equipped with surrounding guard frames protects the worker from the harsh sun.

Removable ROPS frame

It solidly supports the large roof and may be easily removed.

Safety cover

Both sides of the engine are left open to improve heat dissipation, while the cover over the rotating parts enhances safety.

5. Intellectual Property/Awards and Recognition

<Status of Intellectual Property>

[Number of Registered Patents per Sector and Patent Assessment Ratio]

■ Number of registered patents per sector: First rank in 2016

Sector	Other special machinery	
Year	2016	
Rank	Applicant	Registered patents
1	ISEKI & CO., LTD.	182
2	Kubota Corporation	136
3	Yanmar Co., Ltd.	80
4	Toray Industries, Inc.	79
5	Bridgestone Corporation	78

(Reference: Number of public patents per sector)

Iseki has been ranked at the top for 15 consecutive years, in the "agriculture and fishery sector" from 2000 to 2006 and in the "other special machinery sector" from 2007 to 2014 when the sector classification was changed up.

Sector	Agriculture and fisheries	Other special machinery
Year	2000 ~ 2006	2007 ~ 2014
Rank	First	

*In the Patent Administration Annual Report 2017, disclosures have changed from the previous number of public patents per sector to the number of registered patents per sector.

■ Patent Assessment Ratio: First rank among all industries for a total of 12 years

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Patent assessment ratio (%)	84.6	83.7	90.4	89.3	85.8	88.5	91.8	91.8	94.7	97.0	99.2	97.5	100
Rank	First						Second		First				

* Patent assessment ratio=Number of decisions to grant patents/(Number of decisions to grant patents + Number of decisions of refusal + Number of withdrawals or abandonment)

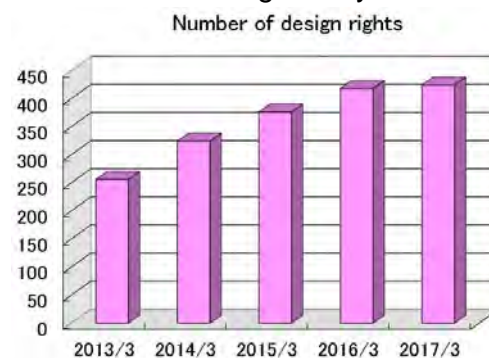
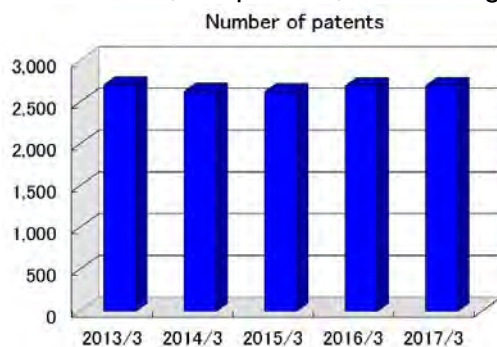
[Number of withdrawals or abandonment=the number of applications withdrawn or abandoned after notice on the reason for rejection]

The figures are based on Patent Administration Annual Report 2002 edition – 2017 edition.

[Patents Held]

■ In Japan

We are striving to acquire and build up effective patent rights and currently we maintain over 2,600 patents, while design rights are also increasing each year.

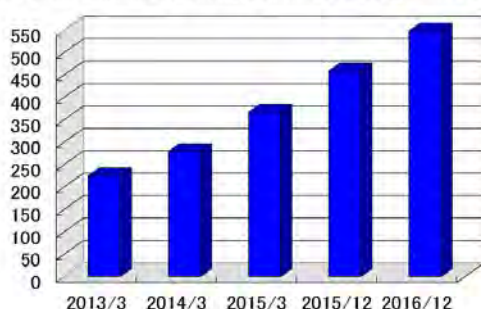


■ Overseas

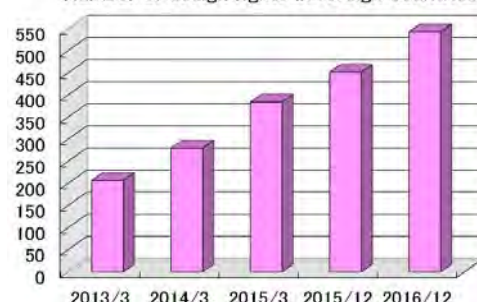
We effectively utilize the intellectual property rights systems of Europe, the USA and Asian countries to actively make applications.

The number of patents held has more than doubled in the past five years.

Number of patents/utility models in foreign countries



Number of design rights in foreign countries



<Awards and Recognitions>

[History of Awards]

Iseki has produced a long list of technical experts who received awards including national decorations, national medals of honor, official commendations by the Minister of Education, Culture, Sports, Science and Technology and citations for inventions for their contribution to agricultural machinery technology.

■ Invention of the founder

1952

Founder Kunisaburo Iseki invented the Iseki “Automatic wind power control device of revolving thresher,” and received a “national prize for invention” from the Japan Institute of Invention and Innovation.

■ Achievement of development and diffusion of auto-threshing combine

1993

Iseki was awarded the “President's Award of the Association to Commemorate a Century of Agricultural Experimentation and Research” in recognition of our development and diffusion of auto-threshing combine harvesters, for which we achieved commercialization for the first time in Japan.

■ Award for Excellent Enterprise Active in the Industrial Property Rights System

2008

Iseki received the “Meritorious Award for Intellectual Property” (Commissioner of the Japan Patent Office Award) in recognition of our traditional management style of placing importance on intellectual property rights.

■ National Awards for Invention/Regional Awards for Invention

Iseki has received awards from the Japan Institute of Invention and Innovation every year.

Number of Award-winning Inventions: 211 (As of October 2016)			
■ National Awards for Inventions 18	National Awards	President's Award of the Japan Institute of Invention and Innovation	1
		The Asahi Shimbun Award	1
	National Awards for Inventions		2
	Invention Awards		14
■ Regional Awards for Inventions 193	Special Awards	Encouragement Award of the Minister of Education, Culture, Sports, Science and Technology (Former Encouragement Award of the Director-General of the Science and Technology Agency)	9
		Encouragement Award of the Commissioner of the Japan Patent Office	6
		Award of the Director-General of the Regional Bureau of International Trade and Industry (Award of the Director-General of the Shikoku Regional Bureau of International Trade and Industry)	8
		Encouragement Award of the President of the Japan Institute of Invention and Innovation	7
		Encouragement Award of the President of the Japan Patent Attorneys Association	4
	Total		34
	Award of the President of the Ehime Institute of Invention and Innovation (District Head Award)		15
Outstanding Invention Awards, etc.		37	
Invention Encouragement Awards		106	
Invention Encouragement and Merit Award		1	

[2016 Shikoku Regional Invention Award]

■ Award of the President of the Ehime Institute of Invention and Innovation: 1

Patent No. 5838618 Tractor speed transmission

■ Invention Encouragement Prize: 2

Patent No. 5212419: Cleaning device of sorting shelf of threshing machines

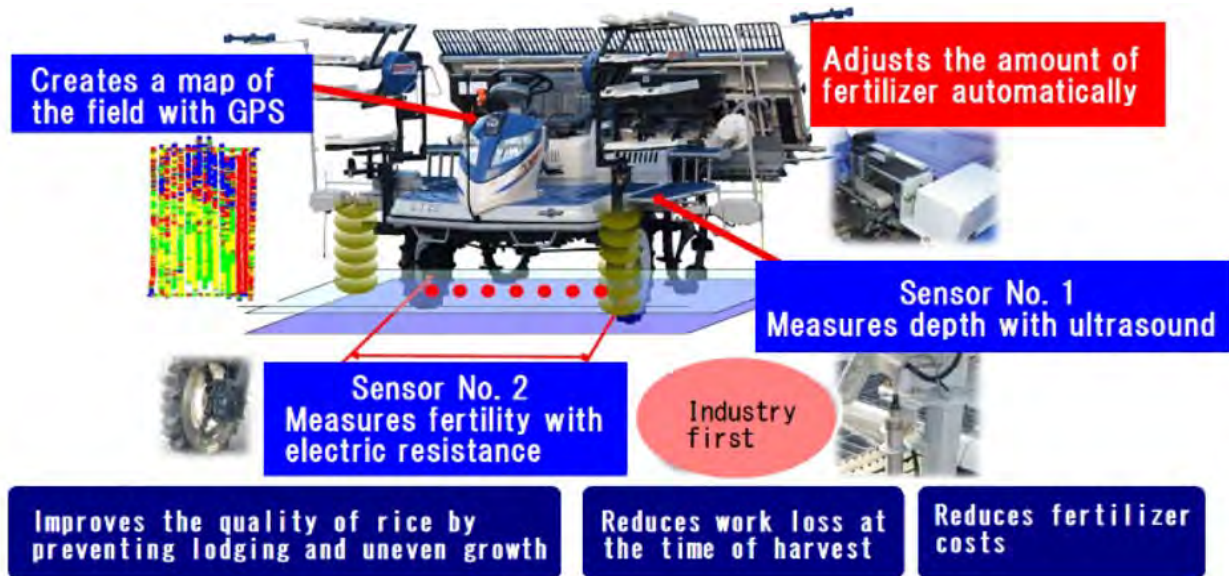
Patent No. 3783642: Fertilizing machine

6. Topics

<The 7th Robot Award: Award of Excellence>

ISEKI's "Variable Fertilizing Rice Transplanter Equipped with Soil Sensor (NP80-FV)" received an Award of Excellence at the 7th Robot Awards held in 2016.

The Robot Awards, which are co-sponsored by the Ministry of Economy, Trade and Industry, The Japan Machinery Federation, the Ministry of Agriculture, Forestry and Fisheries and four other ministries, is an award system encouraging the development of Japan's robot technology and the increased utilization of robots.



The product was recognized for enabling labor-saving and low-cost farming by minimizing the uneven growth and lodging of rice plants, and reducing the amount of fertilizers used.

The ISEKI Group will continue to make every effort to develop products that will revolutionize farming.

7. Information on Legal Actions Related to Intellectual Property

There are no suits at issue related to intellectual property rights which could affect our management in or outside the country.

In promoting our business and R&D, we will implement intellectual property strategies steadily with the greatest of care.

Corporate Data

Company Name	ISEKI & CO., LTD.
Head Office	700 Umaki-cho, Matsuyama, Ehime, Japan
Tokyo Headquarters	3-14, Nishi-Nippori 5-chome, Arakawa-ku, Tokyo, Japan
Foundation	August 1926
Paid-in Capital	23,344 million yen (as of December 31, 2016)
Employees	Consolidated: 5,853 (as of December 31, 2016)
Principal Business	ISEKI'S principal business is the manufacture and sale of following products:

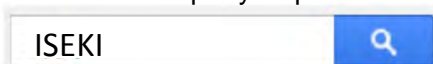
Cultivating machinery: Tractors, tillers, high-clearance multipurpose vehicles, mowers
Planting machinery: Rice transplanters, vegetable transplanters
Harvesting machinery: Combine harvesters, binders, harvesters
Processing machinery: Rice hullers, dryers, rice polishers, rice graders, vegetable harvesting and processing machinery
Other: Farming implements, pesticide control machines, repair parts, agricultural facilities

[Cautionary Statements]

1. This booklet has been prepared to provide information to the public and is not intended to solicit any kind of action.
2. This booklet contains the results of the Company's analyses, including forward-looking statements regarding the outlook for the Company, its plans, policies, prospects, strategies, interpretations of facts, and other information related to the future. All such statements and other information are based on forecasts, assumptions, plans, and other information collected by the Company at the time of the preparation of this booklet.
3. In preparing forecasts, with the exception of known facts, the Company makes use of certain assumptions. There are no guarantees that these assumptions are objective and accurate or will prove to be true in the future. These assumptions are dependent on technology and demand trends in Japan and in other countries, economic conditions, competitive conditions, and other factors. If these assumptions change, it is possible that matters and outcomes, other than known facts, stated in this report may differ from the statements in this publication.
4. Data on the number of rights held and other data related to intellectual property are those of Iseki Co., Ltd., and do not include data on subsidiaries or affiliates.



Intellectual Property Reports can also be viewed on our website.



Company website [Company Information]→[Intellectual Property Report]
http://www.iseki.co.jp/english/ir/intellectual_property/

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Make efforts to purchase green.



Printed with soy ink, reducing petroleum solvents.