

Why Were Agrochemicals Developed?

1. Review

It is said that in Japan the first useful agrochemicals were used during the () period. This is a way of sprinkling () oil) on rice fields and removing pests from rice. It is effective for () planthoppers). However, the first agrochemicals did not have a strong effect and did not spread throughout Japan, so during the () period, () was mainly performed.

It is considered that Japanese people needed agrochemicals due to the (bad harvests) during the Edo period. Under these circumstances, Japanese people claimed a sustainable supply of food, so agrochemical research began. Because of the development of (s) and (t) and effects of the foreign technology, agrochemicals became more chemical and effective.

However, agrochemicals at the time had problems such as high (p) and high (t). People's distrust of agrochemicals has increased.

Therefore, the government established the Agricultural Chemicals Regulation Act in 1971. This law aims at "protecting the people ()" and "preserving the people () environment)." This act has made it possible to legally limit the amount and () of agrochemicals. By this, highly toxic agrochemicals such as BHC and () failed in this test and were subject to the prohibition of sale and restrictions. Also, today's agrochemicals can be got effects to crops with less amount than before. This is not because agrochemicals have been more powerful, but because the way of using them has been more efficient. The decomposition speed of agrochemicals become shorter from years to days. Agrochemicals remain more hardly in the environment. Scattered agrochemicals spread in the (), (), and (). Agrochemicals that are not sufficiently degraded are not allowed to be manufactured and sold. Also, to minimize the effect not only environment but also ecosystem, (e) in various animals and environments are done. Setting standards are based on the results.

2. Thinking

What kind of damage is likely to occur without agrochemicals?

Name _____

Rule of Agrochemicals

2. Review

Acts to ensure the safety of agrochemicals are set in Japan. Their names are (Agricultural Chemicals Regulation Act) and (Food Sanitation Act). (Amount) and quantity of using are limited by these acts.

◎Let's Organize the Acts!

	Agricultural Chemicals Regulation Act	Food Sanitation Act
Jurisdiction	(Ministry of the Environment) and (Ministry of Health, Labour and Welfare)	(Ministry of Health, Labour and Welfare)
Purpose	Ensuring safety in the (production) stage	Ensuring safety in the (distribution) and (sales) stage
Contents	MOE→Setting (registration holding) of agrochemicals The control of the sellers Regulation of the use	Setting standards of (residue) (Inspection) Regulation of (import) and (export)

There are mainly three numerical values for standards. First, the amount that did not harmful affect the organism (LD50). Second, the amount that is no problem if taken daily (ADI). Third, maximum limit that does not cause any problem if pesticides remain on crops (MRL). Based on these numerical values, agrochemicals' use standards are decided.

Also, some initiatives are done to protect the standards. Farmers write (diary). It can send messages of safety of crops to ordinary people through recording agrochemicals that farmers used. For farmers, it helps farmers to prevent (overuse) of agrochemicals

Governments also have systems to keep watch the safety. About 4,700 farmers are chosen once a year. They are inspected by staffs of (Prefectural Administration Offices) to check the way of using. Also, non-regulated farmers conducted (Spot Inspections) as needed. Moreover, residual agrochemicals are inspected by prefectural (Inspection center). In the case of exceeding residue standards, crops are collected and (destroyed) of. From results in investigations, the

Prefectural Agriculture Department put under administrative guidance to the farmers.

2. Thinking

What we can do to make it easier for consumers to purchase crops?

Name _____

Over The Sea

1. Review

(1) Standards in Foreign Countries

When the agency decides residue standards, they use acceptable daily intake () as a reference. However, in some cases, residue standards are different for some reasons.

If the regulation is different between countries, there is fear to pose an obstacle to trade.

To bypass this problem, the Sanitary and Phytosanitary Measures Agreement () was concluded.

() aims to harmonize each country's residual agrichemicals to the () standard.

Yet this agreement also has problems. The global standard was decided with consideration for many countries' ways of agriculture and the number of intakes. So, it is difficult to configure the standard (). In some cases, a part of the agreement is not ratified. Regarding the standards of each country, there are times when Japan is stricter, and as shown in the table above, there are times when the US is stricter.

Moreover, the (e) impact of residual agrochemicals has been discussed internationally as we will see below.

When	Event	Matter
1992.6	UN Conference on () and Development	"() Declaration on Environment and Development" and "()", had been adopted.
1995.5	United Nations	12, highly (p) substance () in

	Environment Conference (UNEP)	the environment were decided.
1997.2	19 th UNEP Management Board	To take global action on POPs, it was required to establish treaties and agreements.
2001.5	Diplomat Conference	“() Convention on Persistent Organic Pollutants” had been adopted. This treaty bans the manufacture, use, import and export of POPs.

(2) Regulations of Imports in Japan

We cannot know all agrochemicals used in foreign countries.

To save the safety, the () system) has been adopted in 2006.

Agrochemicals are categorized into three types, and each regulation has been decided.

Category	How to Regulate
Agrochemicals which are (r) in Japan	The same standards are adopted for imported food.
Agrochemicals which are not (r) in Japan	If a certain amount (() mg of agrochemicals per 1 kg of food) remains in food, selling the food is prohibited.
Agrochemicals which do not threaten human () obviously	Excluded from the () system).

One of the distinctive agrochemicals used in foreign countries is ().

It can be used as soon as crops are (h), or it can be used to expel (p) after crops are imported.

In Japan, post-harvest is considered a (f), not residual agrochemicals.

Japan distinguishes between chemical substances in terms of the () of use.

Chemical substances which are used () harvest are agrochemicals.

Chemical substances which are used () harvest are food additive.

However, (f) are still covered for the () system) just like agrochemicals. If chemical substances greater than the standard are detected, it will not be sold. Moreover, if (u) food additives are detected, it cannot be sold.

2、 Thinking

Why are post-harvest agrochemicals often used in imported crops?

Name _____