

*Concentrated Fulvic Acid*  
*Plant Activator*  
***Fujimin®***



JAPAN CONSERVATION ENGINEERS & CO., LTD.



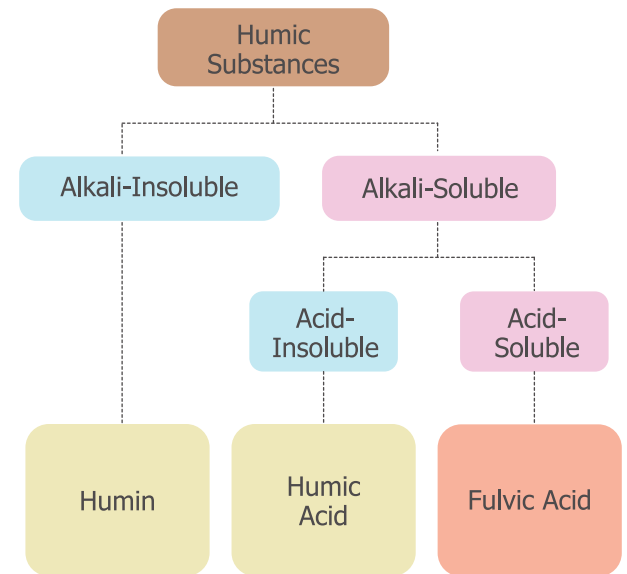
## What is fulvic Acid?

Fulvic acid is a natural resource which is only produced in very small quantities in nature, with the highest amounts normally being found in humus. Humus is a type of matter which results from organic matter produced by plants and animals being decomposed by microorganisms. It is said that the formation of one centimeter of humus takes 100 years in nature. Strong alkali is used to extract fulvic acid from soil along with humic acid, and then acid is added to precipitate the humic acid and separate the fulvic acid out. Because refinement is difficult, research on this precious substance is scarce compared to humic acid.

### *A high concentrate fulvic acid made from domestic forestry resources “Fujimin”*

A large majority of fulvic acid is extracted from resources collected overseas. This is a major issue due to the potential for environmental damage and resource depletion. We do not rely on resources collected overseas, but instead use wood chips and organic acids produced in Japan. Fulvic acid is only found in very small quantities in nature, but we have established technology to mass produce concentrated fulvic acid as a result of many years of humic substance research.

### Properties of Fulvic Acid



## Effects of Fulvic Acid

Fulvic acid's superior chelating action changes constituents that are difficult to absorb into a more easily absorbed form and eliminates harmful substances from an organism by making them more easily excreted. The substance could also be called a "mineral courier" as it increases the absorption of minerals.

More efficient  
fertilizer absorption

Soil pH buffering

Controls salinity  
damage

Stimulation of  
photosynthesis

Accelerated soil  
aggregation

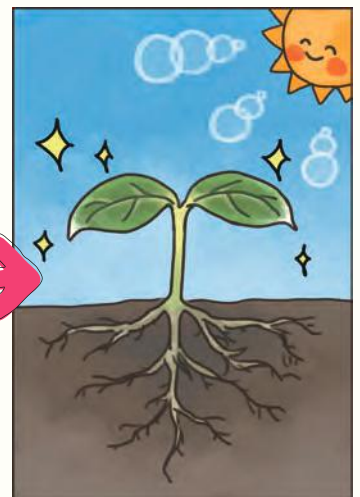
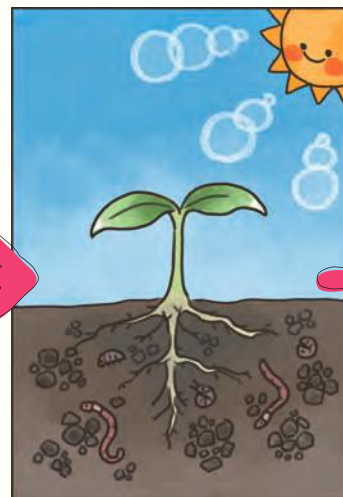
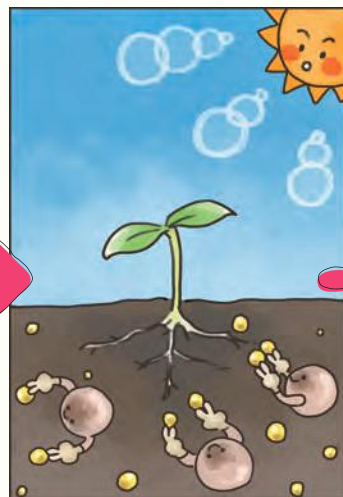
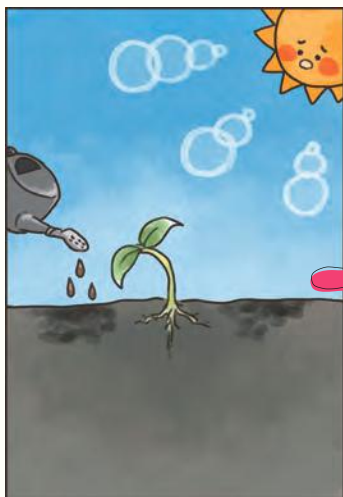
Improved  
robustness of  
plants

Fujimin is applied to soil

The chelating action of fulvic acid causes  
plants to more efficiently absorb fertilizer  
and minerals from the soil

Soil agglomeration is accelerated  
and the plant's roots grow

The plant's leaves grow larger  
resulting in the stimulation of  
photosynthesis



## How to use

Amount of spraying

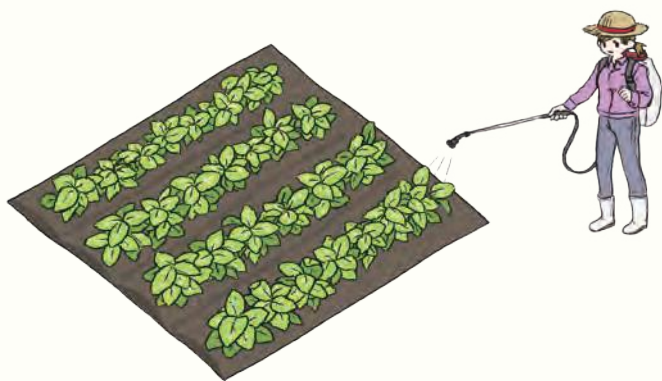
**Fujimin must be diluted with water by 500 times when it is used.**

The amount of Fujimin to be sprayed varies depending on the type of crop or fruit tree, the state of growth, and the soil environment. The minimum amount of Fujimin to bring its effect is as follows;

### In case of crops

	Fujimin	Water
20,000 plants per ha	2 L	1,000 L

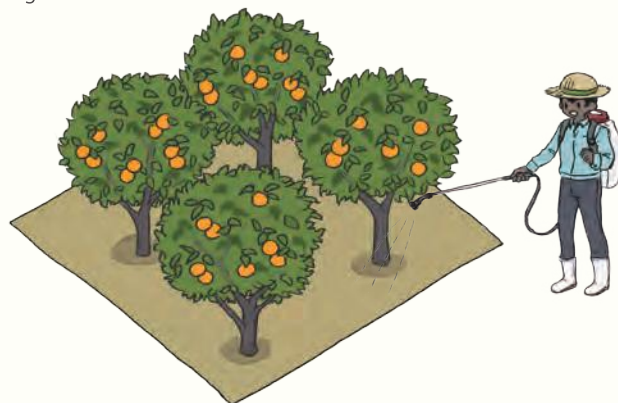
\* Calculation when 2 plants are planted per 1 m<sup>2</sup> and height of crops are 20 cm.



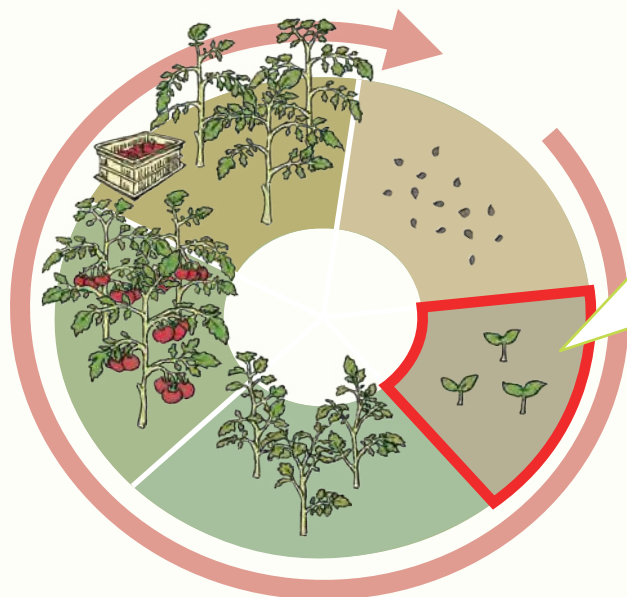
### In case of fruit tree

	Fujimin	Water
500 trees per ha	4 L	2,000 L

\* Calculation when fruit tree are planted at intervals of 4-5m and height of trees are 2 m.



## Time of spraying

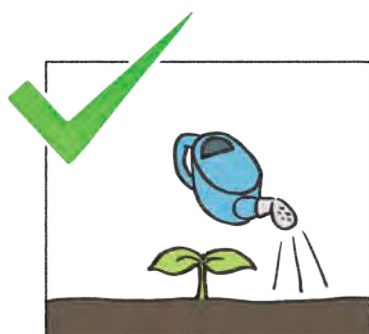


For crops, it is effective to spray Fujimin when the germinating complete (approx. a week after germination). For fruit trees, spraying Fujimin with fertilizer application or after harvest is suitable timing. In case that the soil has lower nutrients than expected, spraying Fujimin together with fertilizer will be more effective for both crops and fruit trees. Spraying in rainy weather or when rainy weather is anticipated are not recommended because Fujimin may be flowed out of the soil with rain water.

Spraying machine

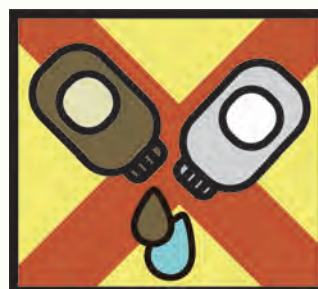


## Attention

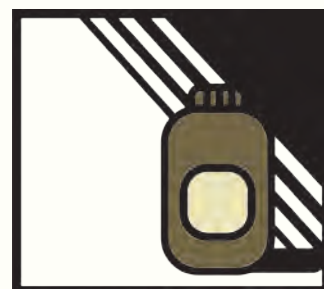


### Points to keep in mind when spraying :

- Fujimin must be diluted with water by **500 times** when it is used.
- We recommend spraying on soil rather than foliar spray.



Please do not mix Fujimin with pesticides.



Please store it in a cool, dark place to avoid direct sunlight.



# Agriculture

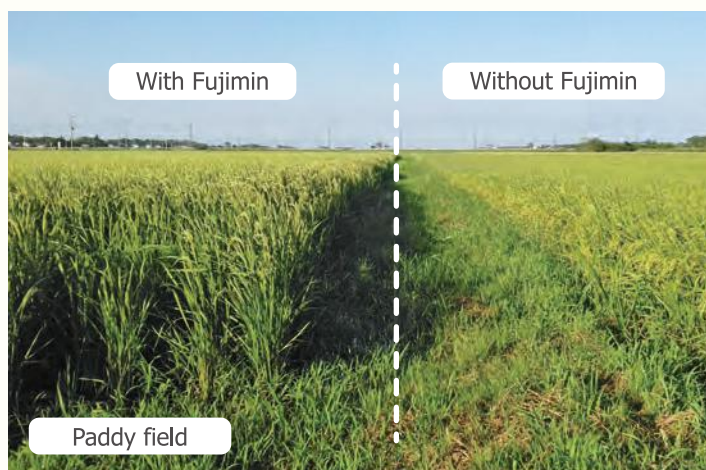
Fujimin was firstly sprayed on the soil within the root area of the peach tree which has a branch growth rate of approx. 13cm per year. The branches grew by more than 30cm one year later and more than 45cm two years later. Making the branches grow faster and larger brings more numbers of fruits and more yield.



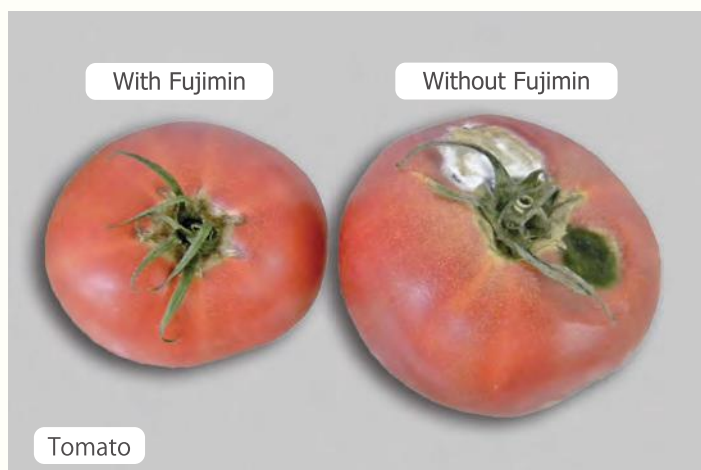
For the poorly growing lime trees due to the soil environment deterioration caused by poor management of the farmland, Fujimin was sprayed on the soil within the root area of the lime trees. As the result, a large difference in growth between with Fujimin and Without Fujimin was recognized. More stable growth which was brought by Fujimin results in more increased yield of the lime.



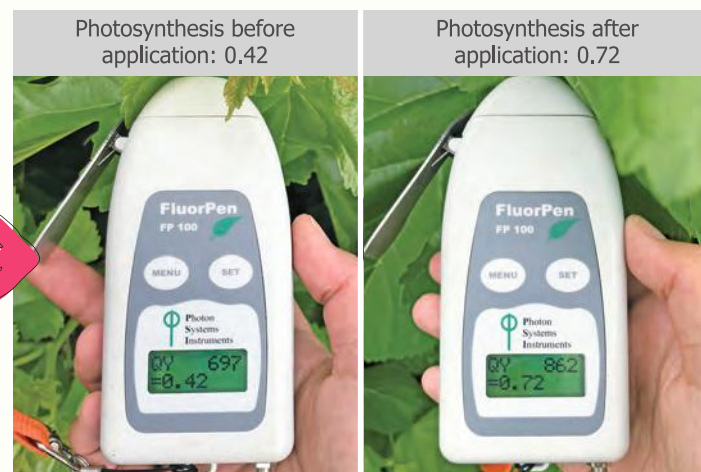
Fujimin was applied to paddy fields damaged by the tsunami to desalinate them, resulting in an increase in yield from 60 kg per ten ares following the tsunami to 540 kg after application and a taste appraisal score of over 80.



Calcium deficiency (blossom-end rot) was successfully prevented by applying Fujimin. The harvested tomatoes were more resistant to rotting, had good shape and color, and stayed fresh longer.



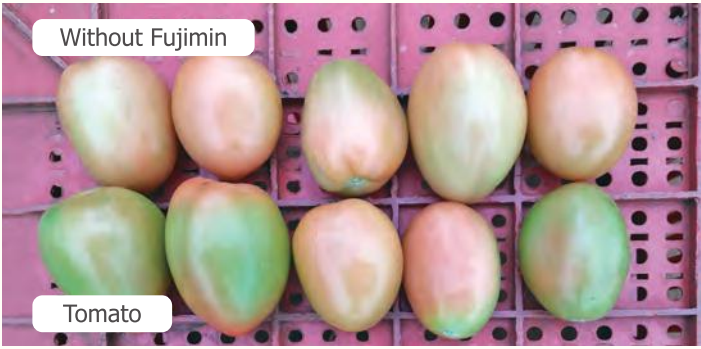
Fujimin was applied at a mulberry farm where accumulation of fertilizer components in the soil resulted in poor growth. Absorption of the fertilizer components was enhanced, and photosynthesis was stimulated, restoring the health of the farm land within one month of application.



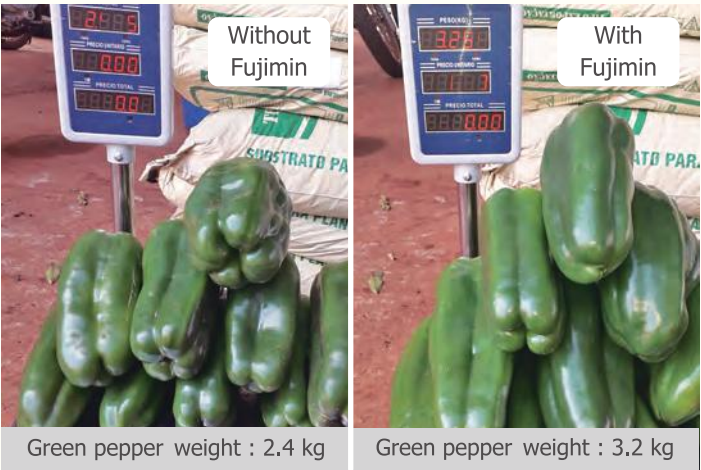


Republic of Paraguay

A comparative verification test for the effects of Fujimin was conducted in tomato fields in Paraguay. As the result, more numbers of tomatoes was brought from the field applied with Fujimin than the field not applied with Fujimin. As another notable result, the growth rate of the tomatoes with Fujimin was much faster than that without Fujimin, that is the tomatoes from the field applied with Fujimin was redder and more mature. Therefore, because of Fujimin, the yield did obviously increase from both more numbers of tomatoes per crop and increase of harvest times per year due to the faster growth.



A comparative verification test for the effects of Fujimin was conducted in green pepper fields in Paraguay. As the result of comparison of the harvested green peppers, the green peppers from the field applied with Fujimn were darker and heavier than those not applied with Fujimin. Further, with regard to the variation of size and shape, the green peppers with Fujimin were more consistent than those without Fujimin. It was proved that application of Fujimin provides higher stable quality of green peppers as well as more yield.



**Business Development in Paraguay**

Overseas expansion has been progressing since being selected as a SME/Project Supporting SDGs Business by JICA in 2018. Continuous cropping and rampant use of fertilizer in the Republic of Paraguay has resulted in worsening of the soil environment and reduction in crop yields. By using Fujimin on target agricultural land to improve the soil environment and crop quality and yields, this project aims to contribute to increased agricultural industry productivity and improved quality of life for the poor in the Republic of Paraguay.

People’s Republic of China

Fujimin was applied to high pH/EC agricultural land in the People’s Republic of China, which was barren due to excessive salt accumulation. Desalinating the land helped improve the soil enough to grow corn.



## ■ Major Awards Received by Fujimin

2015	16 <sup>th</sup> Agriculture, Forestry and Fisheries Research & Development Awards Award for Achievements in the Private Sector
2016	Forest Technology Award 2 <sup>nd</sup> Japan Resilience Awards Award of Excellence
2018	4 <sup>th</sup> Japan Resilience Awards Award of Excellence
2019	28 <sup>th</sup> Grand Prize for the Global Environment Award Minister of Agriculture, Forestry and Fisheries Award

## 28<sup>th</sup> Annual Global Environment Awards Since 1992

Recipient of the Minister of Agriculture, Forestry and Fisheries Award



## ■ Product Specifications

Organic JAS : JASOM-160101

Fujimin patent : 5354633rd and 6322689th

HS code : 3824.99



Fujimin 1L



Fujimin 10L

## ■ Organic JAS

Organic JAS is the standard for organic agricultural products which is one of the Japanese Agricultural Standards (JAS). The Organic JAS mark is allowed to be affixed on agricultural products after the accreditation by a certification body. Since Fujimin is not synthesized with chemicals, it can be used not only by organic farmers but also by farmers using conventional farming methods. When organic JAS materials are used for crops as prescribed, the crops can be recognized as organic JAS agricultural products.



## ■ About STePP

Fujimin has been registered in the Sustainable Technology Promotion Platform (STePP) managed by the United Nations Industrial Development Organization (UNIDO) ITPO Tokyo Office. The judgement of registration is based not only on technical aspects, such as applicability for developing and emerging countries, superiority to competitive technologies, or sustainability, but also on the business attitude of the company concerned. Therefore, it is proved that this technology has been recognized as a superior technology for sustainable development in developing and emerging countries.



## ■ Using concentrated fulvic acid to contribute to SDGs

Many regions around the world are in need of soil improvement due to adverse environments. Salt accumulation alone affects one-fourth of the world's agricultural land. Fujimin has been shown to improve soil on land with salt accumulation, so further overseas development is expected. In order to contribute to the Sustainable Development Goals (SDGs), we will continue deploying technologies using concentrated fulvic acid both in Japan and overseas to help achieve the following five goals.



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