

“Jipyeong” — Usage and Efficacy Manual

Nongbuae Co., Ltd.

How to use “Jipyeong”

- **Nursery (seedling) stage:** dilute 500 times and spray 2–3 times at 15–20 day intervals
- **After transplanting:** dilute 1,000 times and spray 4–5 times at 20–30 day intervals
- **When disease occurs:** for sclerotinia rot, downy mildew, soft rot and powdery mildew, dilute 250 times and spray evenly

Can be mixed with pesticides for use.

Efficacy and application method

Crop	Pest / disease	Timing and frequency	Dilution	Per 20 L water	Notes
Cucumber, lettuce, pepper, tomato, watermelon		During growth	250×	80 ml	Phytotoxicity test
Strawberry	Gray mould	From early onset, every 7 days, 3 times			Foliar treatment
Pepper	Cotton aphid	At peak occurrence, once			
Pepper	Anthracnose	From early onset, every 10 days, 4 times			
Pear	Scab				
Onion	Black rot (sclerotinia)	From early onset, every 7 days, 3 times			Soil drench
Onion	Downy mildew				
Onion	Soft rot				
Cucumber	Thrips	From early onset, every 7 days, 2 times			Foliar treatment
Cucumber	Downy mildew	From early onset, every 5 days, 3 times			
Garlic	Soft rot	From early onset, every 7 days, 3 times			Soil drench
Tomato	Leaf mould	From early onset, every 7 days, 4 times			Foliar treatment
Tomato	Greenhouse whitefly	From early onset, every 7 days, 2 times			
Oriental melon	Powdery mildew	At early onset, once			Soil drench / foliar treatment
Melon	Powdery mildew	From early onset, every 5 days, 3 times			
Rice	Sheath blight				
Rice	Leaf blast				

Crop	Pest / disease	Timing and frequency	Dilution	Per 20 L water	Notes
Rice	Bacterial leaf blight				
Rice	Bakanae disease	48 hours before sowing			Seed soaking
Rice	False smut	From just before heading, every 7 days, 2 times		100 ml	Foliar treatment
Rice	Leaf blast	At early onset, once		80 ml	Aerial (UAV) foliar treatment
Watermelon	Cotton aphid	At peak occurrence			Foliar treatment
Watermelon	Two-spotted spider mite	When 3–5 mites are found per leaf			
Persimmon	Anthrachnose	From mid-June, every 10 days, 6 times			
Spinach	Downy mildew	From early onset, every 5 days, 3 times			
Sweet potato	Vine rot	Right after transplanting, every 10 days, 3 times			Soil drench
Green onion	Black rot (sclerotinia)	During growth			Foliar treatment
Grape	Powdery mildew	From early onset, every 10 days, 3 times			
Citrus	Gray mould				
Schisandra	Powdery mildew				
Peach	Brown rot	From early onset, every 7 days, 3 times			
Apple	Anthrachnose	From early onset, every 10 days, 7 times			
Mulberry	Sclerotinia rot	5 days before flowering, and once after flowering			
Ginseng	Leaf spot	From early onset, every 10 days, 4 times		100 ml	
Chinese cabbage	Clubroot	From early onset, every 5 days, 2 times			
Rice, perilla, cucumber, Chinese cabbage, lettuce, pepper, soybean		During growth	1,000×	20 ml	Aerial spraying, phytotoxicity check

For all crops during the growing period, dilute 1,000 times (20 ml per 20 L of water).

Precautions for use

- Do not mix with copper agents, lime sulfur, Bordeaux mixture, alkaline farm materials or other sulfur products.
- Use an opened product as soon as possible.
- Avoid the hottest hours; spray in the cool hours of the morning or evening.
- Spray marks may remain on crops, so test on a small amount before full use.
- Store in a shaded, cool place.

- For cucurbits (cucumber, pumpkin, oriental melon) and grapes (Campbell), test before foliar spraying.
- Keep out of reach of children.

Product features

- Safe for crops and facilities, and dissolves readily in water.
- Contains sulfur and microbial metabolites, strengthening disease resistance and suppressing external invasion.
- Improves the sugar content and flavour of crops and enhances storage life.
- Relieves calcium deficiency and prevents the resulting disorders.
- An organic farming input containing no synthetic chemical substances whatsoever.
- Made by fermenting mineral sulfur in plant juice.

Organic farming input label information

Registration number	Gongsi-1-2-114
Material name / trade name	Jipyong
Material category	— (not stated in the original)
Net weight or volume	1 L
Raw materials and content	Sulfur 3% or more
Raw materials and content	Sulfur 3%, radish juice 97%
Date of manufacture	— (not stated in the original)
Shelf life	2 years from the date of manufacture
Directions for use	Foliar treatment 3 times at 7-day intervals from early onset, diluted 250×. Rice: aerial ULV foliar treatment at the seedling stage, 8×.
Precautions for use and storage	Shake well before use. It is best kept from freezing.
Test crops	Lettuce, soybean, pepper, cucumber, Chinese cabbage and other crops

The role of nitrogen fertilizer

- Serves as a constituent element of core biomolecules such as proteins, nucleic acids and chlorophyll, supporting growth and development.
- Takes part in chlorophyll synthesis, aiding photosynthesis and strongly affecting the growth of leaves, stems and height.
- Plants absorb nitrogen mainly as nitrate (NO_3^-) and ammonium (NH_4^+) and use it for amino acid and protein synthesis.

Nitrogen fertilizer and crops — key points

Category	Representative crops	Characteristics of nitrogen fertilizer use	Management points
High dependence	Rice, maize, wheat	Nitrogen matters for leaf and stem formation, so it accounts for a large share of fertilizer use	Supply sufficiently during early growth; reduce during the reproductive stage
Low dependence	Soybean	Fixes atmospheric nitrogen through root nodules, so the required amount of nitrogen fertilizer is low	Only a small amount before early growth; excess may suppress nodule formation

The role of phosphate fertilizer

Phosphate fertilizer plays a key role in root development and in the formation of flowers, fruit and seeds. It matters particularly for germination and rooting, flower bud formation, and fruit quality (sugar content, colouring and storage life). Among the three fertilizer elements (NPK), phosphorus (P) acts as a constituent of energy-metabolism substances such as nucleic acids and ATP, and is therefore directly involved in growth and reproduction.

Role	Effect on the crop	Signs of deficiency
Promotes germination and rooting	Supports root development and early growth	Delayed germination, poor root development
Formation of flowers, fruit and seeds	Flower bud formation, fruit development, improved quality (sugar content, colouring)	Poor flower bud formation, undeveloped fruit
Supports energy metabolism	Involved in synthesising energy substances such as ATP	Reduced growth, reduced reproduction

Deficiency symptoms

When phosphorus is short, leaves turn a deep dark green or purple (expression of anthocyanin pigment), flower bud formation becomes poor, and flowers tend not to open well.

Timing and cautions

- Supplying phosphorus during early growth, at flowering and at fruit set helps flower and fruit development.
- Its mobility in soil is low, so it is important to apply it where it can reach the plant roots directly.
- Observe the dilution rate for high-concentration products (for example monopotassium phosphate). Mixing directly with calcium or magnesium fertilizers may cause precipitation, so take care when combining them.

Crops for which phosphate fertilizer is advantageous

Crops that mainly use phosphate (P) fertilizer to raise yield. Pulses, rapeseed, wheat and cotton, potatoes, cucurbits and fruit trees respond well to phosphorus, so application is described as advantageous.

Crop group	Why phosphate fertilizer is advantageous
Pulses (legumes)	Respond sensitively to phosphorus; yield and nitrogen fixation may improve
Rapeseed	Classified as a phosphorus-loving crop
Wheat and cotton	Like phosphorus, so application can be effective
Potatoes	Like phosphorus, so application can be effective
Cucurbits	Like phosphorus, so application can be effective
Fruit trees	Like phosphorus, so application can be effective

The role of potassium oxide fertilizer

Potassium oxide fertilizer supplies potassium (K), one of the three fertilizer elements, and affects the physiological processes and the quality of the plant. It is described in particular as a "constitution-improving" component that helps the flowering, fruit set and ripening of fruit and vegetables, and helps maintain sugar content and freshness.

- **Strengthens stress resistance:** contributes to raising resistance to unfavourable conditions such as drought, cold, disease and pests.

- **Supports physiological processes:** takes part in photosynthesis and respiration, aiding carbohydrate synthesis and transport and making stems stronger.
- **Promotes flowering, fruit set and ripening:** helps flowering and fruit development, and can affect fruit quality (colouring, size, sugar content) and the maintenance of freshness.

Crop group	Role of potassium	Points when choosing a fertilizer
Fruit and vegetables	Promotes flowering, fruit set and ripening; improves quality; maintains freshness	Where there is a risk of salt accumulation, fertilizers leaving fewer residual ions are preferred
Fruit trees (e.g. grape)	Potassium matters as a quality element	Potassium nitrate is described as advantageous in greenhouses because it leaves little salt residue
Sweet potato	Potassium fertilizer is used to suppress excessive vegetative growth	Foliar application is used to obtain a short-term suppressing effect

The role of boron oxide fertilizer

- **Supplies a trace element:** boron is a trace element needed for plant growth, and fertilizer makes up a shortage of it.
- **Cell walls and reproductive function:** boron takes part in cell wall formation and in reproductive (flower and fruit) function, and can affect crop development and yield.
- **Managing deficiency and excess:** a shortage can bring reduced growth, abnormalities in leaves and stems, and poor flower and fruit development; an excess carries a risk of toxicity, such as yellowing of the leaves.

The role of sulfate fertilizer

- **Supplies sulfur:** potassium sulfate and magnesium sulfate supply sulfur, which is summarised as helping to improve the taste of fruit and to lengthen the storage period.
- **Assists chlorophyll formation:** supplying magnesium (as magnesium sulfate and the like) is described as helping chlorophyll to form.
- **Manufacture of phosphate fertilizer:** sulfuric acid is introduced as essential input when phosphate rock is processed into phosphate fertilizer.