



**PT. Sumber Bioenergi Indonesia**

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# Simple Guide to the Use of SHP Biofertilisers



# Guide to Paddy

- 3 days before planting, apply SHP solution(10 ml: 1 liter of water) evenly to the rice fields. 2 liters of SHP per hectare are required.
- 30 days after planting, apply SHP solution(10ml: 1 liter of water) to the land evenly. 3 liters of SHP per hectare are required.
- After the rice starts to get pregnant, apply SHP solution (10 ml: 1 liter of water) to the rice field evenly. 2 liters of SHP per hectare are required.



# Guide to Corn

## Land treatment

- Ground the hoe 15-20cm deep, then flatten it. Make drainage channels every 3m along the row of plants, with a width of 25-30cm, a depth of 20cm.
- Areas with a pH less than 5, be limed first 1 month before planting.
- Spread the lime evenly with a lime dose of 300kg/hectare.
- Apply manure as much as 10 tons/hectare
- 3 days before planting, give SHP solution(1 liter : water (maximum 100 liters)). This stage requires 3 liters of SHP per hectare.

## Maintenance

- Apply SHP fertiliser once every 2-3 weeks after planting. The dose is 2 liters per hectare. Apply it to the soil around the roots.



# Guide to Soybeans

## Land treatment

- Plow the soil and level it. The rest of the weeds are embedded in the soil (As organic matter).
- Create a water channel with a distance of 3-4 m between channels.
- Apply manure (2-5 tons/hectare) on the land surface.
- Spray with SBI solution, leave it for 3 days then ready to plant. The need for **Sumberhayati Prima's** biofertiliser is 3 liters per hectare.

## Seedling treatment

- Soak the seeds in water for 1 hour.
- Use **Rhizo SHP** (*Bradyrhizobium japonicum*), 30gr **Rhizo SHP** is enough for 6-8kg of seeds. Stir well and leave for 2 hours.

## Maintenance

- When flowering, reapply the SHP biofertiliser solution to the soil around the roots evenly. At this stage, SHP **biofertiliser** is needed as much as 3 liters per hectare.



# A Guide to Medicinal Plants

## Seedling treatment

- Before sowing soak the seedlings in SHP solution for 10-15 hours (10ml : 1 liter of water).
- The rhizomes to be soaked are dried for 24 hours at a temperature of 35°C.
- Seeds are ready to be sown.

## Land preparation

- Sprinkle manure into the planting hole (15-20 tons/hectare).
- Spray **the SHP** solution evenly on each planting hole. It takes 3 liters/hectare **of SHP** biofertiliser.
- Leave it for 3 days, then the seedling is ready to be planted.

## Maintenance

- **Apply SHP** biofertiliser to the land around the roots (1 liter: maximum water 200 liters) every 2 months. It takes as much as 2 liters **of SHP** per hectare.
- Do it until the 6th month.



# Guide to Potatoes

## Land treatment

- Plow the land 30-40cm deep and leave it for 2 weeks.
- Make a bed with a width of 70cm (1 column of plants) or 140cm (2 columns of plants), a height of 30cm, make a drainage channel 50cm deep by a width of 50cm.
- Make a planting hole with a distance of 80cm x 40cm or 70cm x 30cm.
- Apply manure (8-10 tons) evenly to each planting hole.
- Spray **SHP solution** (1 liter : 200 liters of water) on the planting hole. It takes 2 liters of **SHP**.

## Maintenance

- Apply **SHP fertiliser** once every 2-3 weeks since the seeds come out of bud.
- Apply it around the roots. It takes 2 liters of **SHP** per hectare.



# Guide to Peanut

## Land treatment

- Plough the land to clean weeds and plant roots.
- Make a bed with a width of 80cm, a height of 20-30cm.
- Between 2 beds make a water **channel**
- A week before planting, sprinkle manure as much as 5 tons/hectare
- Spray the **SHP** solution (2 liters per hectare).

## Maintenance

- Apply **SHP** fertiliser at 3 weeks of age and 6 weeks (if 9 weeks necessary) after planting. It takes 2 liters of **SHP**.



# Guide to Onion

## Land treatment

- Make a bed with a width of 120x80cm, between the beds make a 50 cm deep water channel with a width of 40-50 cm.
- Apply manure (10 tons/hectare) evenly
- Spray SHP solution (10 ml : 1 liter of water), 2 liters per hectare are needed. Leave it on for 3 days.
- Apply a basic fertiliser consisting of Urea (100kg), SP36/TSP (50kg), and KCL (40kg) evenly. Cover with thin soil, leave it for a week then ready to plant.

## Maintenance

- Apply **SHP** biofertiliser once every 2-3 weeks, at a dose of 2 liters per hectare.





# Guide to Tomato

## Land treatment

- Make a bed with a width of 120-160cm for a double row and 40-50cm for a single row. Make a 20-30cm wide trench between the beds with a depth of 30cm for drainage.
- At the bottom of the planting hole, put 5g of TSP, 1/2 kg of manure, then leave it for 3 days.
- Spray **SHP solution** (10ml : 1 liter of water) on the planting hole. 2 liters per hectare are needed.
- After 7 days of planting, apply a mixture of KCL (5gr) and Urea (2-3 gr) fertiliser around the plant.

## Maintenance

- Apply **SHP** fertiliser once every 2-3 weeks, at a dose of 2 liters per hectare.



# Guide to Chilli

## Land treatment

- Make a bed with a width of 100cm, between the beds make a water channel with a width of 80cm, a minimum depth of 30cm.
- Spread manure (10ton/hectare) on the surface of the bed.
- Spray **SHP** solution (1 liter : 200 liters of water) on the surface of the bed evenly. It takes 2 liters of **SHP biofertiliser**.

## Seed care

- Soak the chili seeds with **SHP solution** (10 ml : 1 liter of water) for 1 night.
- Before sowing, the seedling media is sprayed with **SHP solution**
- Plant the seeds on the seedling medium (use a small polybag)
- After germinating and having 5-6 leaves, the seedlings can be transplanted to the bed.

## Maintenance

- **Apply SHP** biofertiliser once every 2-3 weeks around the roots. It takes as much as 2 liters/hectare.



# Guide to Vanilla

## Land treatment

- Make a bed with a width of 80-120cm and a trench with a width of 30-50cm.
- Make a planting hole near the enforcer plant with an approximate size (width x length x height) of 20cm x 15cm x 10cm.
- Apply manure (10 tons/hectare) evenly to the planting holes.
- Spray **SHP** solution on top of manure. It takes 2 liters per hectare.
- Cover with thin soil and leave for 3-7 days.

## Maintenance

- Apply **SHP** biofertiliser once every 2 months evenly around the stems. It takes 2 liters per hectare.



# Guide To Watermelon

## Land treatment

- Make a bed 120-160 cm wide and make a trench between the 2030cm wide beds with a depth of 30cm.
- Apply 1kg of manure per planting hole.
- Spray SHP solution (1 liter : 200 liters of water) evenly.
- Leave it for 3 days, then ready to plant.
- At the time of planting, give a mixture of Urea (5gr) : TSP (12gr) : KCL (5gr) per plant.

## Maintenance

- Apply **SHP** biofertiliser once every 2-3 weeks. It takes 2 liters per hectare.



# Guide to Strawberry

## Planting Media

- Use a container in the form of a plastic pot or sack with a diameter of at least 30cm.
- The planting medium is in the form of loose soil, compost, or manure and husk charcoal with a ratio of 3:2:1.
- Mix the media until smooth then put it in a container.
- Make a bed with a width of 80cm x a height of 30-40cm.
- Apply manure to the surface of the bed (10 tons/hectare).
- Spray SHP solution (1 liter : 200 liters of water). It takes 2 liters per hectare.
- Leave it on for 3 days.

## Maintenance

- Apply **SHP** fertiliser once every 2-3 weeks. It takes 2 liters per hectare.



# Guide To Vegetables

## **Land treatment**

Make a bed 100 cm wide, and between the beds make a trench 20-30 cm wide with a depth of 30 cm for drainage. Apply manure (5-10 tons/ha) on the surface of the bed then spray SHP solution (1 liter of SHP: 100 liters of water). 2 liters of SHP / ha are needed on the land evenly, leave it for 3 days then it is ready to be planted.

## **Maintenance with SHP biofertiliser**

SHP biofertiliser is then given every 2-3 weeks, with a dose of 2 liters/ha each. Short-lived vegetables (< 30 days) SHP biofertiliser application is sufficient for land cultivation only. The dosage and timing of application of SBI biofertiliser apply to organic and non-organic farming systems.

## **Non-organic farming**

Macro fertilisers consisting of nitrogen, phosphorus and potassium elements (made from ZA, TSP, and KCL fertilisers) are given 2 times, namely 7-10 days after planting and at the age of 35 days. The dosage of fertiliser is not the same, depending on the type of plant, soil fertility, etc.

## **Fertilization for cabbage**

Urea: 200 kg/ha, TSP: 100 kg/ha, KCl: 100 kg/ha. Fertilization 1 is given two MSTs with a dose of 1/3 urea: 1 TSP: 1 KCl. Fertilization 2: 2/3 urea is given at the age of 4 weeks after planting.

## **Fertilization for lettuce**

2 MST, apply urea fertiliser as much as 100 kg/ha or 1 gram per plant.

## **Organic farming**

SBI biofertiliser is combined with manure or compost with comparable or balanced nutrient values according to the nutrient needs of plants.



# Guide to Palm

Fertilization on plant seedlings is highly recommended, the dosage and fertilization depend on the age of the plant. Apply SBI<sup>solution</sup> (10 ml SBI: water max 2 liters) evenly to 15-20 seedlings in a polybag every 14 days until the plant seedlings are 16 months old.

## **Maintenance with SBI biofertiliser**

- Plants have not yet produced (age 16-36 months)  
Each tree gives SBI Solution (20 ml SBI: water 250 ml – max 4 liters) make a hole of 2-4 fruits with a depth of 30 cm with a distance of 1/3 fronds from the trunk, put it evenly in the hole and repeat every 3 months.
- Plants are already producing (age 3-22 years)  
Each tree gives SBI Solution (20 ml SBI: water 250 ml – max 4 liters) make a hole of 2-4 fruits with a depth of 30 cm with a distance of 1/3 of the fronds from the trunk, put it evenly in the hole and repeat every 2 months.

## **Fertilization time**

1. Fertilization is carried out when the rains are small, but >60 mm/month.  
Fertilization is delayed if rainfall is <60 mm/month.
2. Dolomite and rock phosphate fertilisers are applied first to improve soil acidity and stimulate roots, followed by MOP (KCl) and ZA/urea.
3. The sowing time interval of dolomite/rock phosphate with urea/ZA is at least 2 weeks.
4. All fertilisers should be applied within 2 months.

## **Fertilization frequency**

1. Fertilization is carried out 2-3 times depending on the condition of the land, the amount of fertiliser, and the age of the plant condition
2. Fertilization of peat and sand soils needs to be done with more frequency.



# Guide to Pepper

## Land treatment

- Plow / hoe with a depth of 20-30 cm.
- Check the pH of the soil, if necessary sprinkle agricultural lime, leave it for 3-4 weeks.
- The planting system is monoculture, planting distance 2x2 m. but can also be planted with other plants. The planting hole is made with a top size of 40 cm x 35 cm, bottom 40 cm x 15 cm with a depth of 50 cm.
- Give manure (mature), then spray SHP solution, at this stage it takes as much as 2 liters/ha. Allow 7 days for the seedlings to be planted.
- The planting time should be the rainy season or the transition from dry season to rainy season.

## SHP biofertiliser application

Once every 2 months, spray / water the SHP biofertiliser solution around the roots evenly. At this stage, the need for fertiliser is 2 liters / ha each. The dosage and timing of SHP biofertiliser application apply to organic and inorganic farming systems.

Table of pepper fertilisation recommendations:

| Age group<br>(month) | fertiliser dosage<br>(grams/pomegranate n) |      |     |
|----------------------|--|------|-----|
|                      | Urea                                       | SP36 | Kcl |
| 3-4                  | 35   | 15   | 20  |
| 4-5                  | 35   | 20   | 25  |
| 5-6                  | 35   | 25   | 30  |
| 6-17                 | 35   | 30   | 35  |





# Guide to Banana

## **Land treatment**

Make a hole with a size of 50 cm x 50 cm x 50 cm on heavy soil and 30 cm x 30 cm on loose soil, with a planting distance of 3.3 m x 3.3 m for heavy soil and 3 m x 3 m for loose soil. Then add 20 kg of manure + 500 grams of dolomite manure. Let it sit for about 1 month.

## **SHI biofertiliser**

Next administration of SBI, spray the SHP solution evenly around the roots, the required dose is 3 liters/ha. The application of biofertiliser is repeated every 2-3 months. The dosage and time of application of biofertilisers apply to organic and inorganic farming.

## **Plant maintenance**

One clump consists of only 3-4 banana trees. Cutting off children is carried out in such a way that in one clump there are saplings that are each of different ages (growth phases). After 5 years, the clump was dismantled and replaced with new plants.



# Guide to Rubber

## Nursery

Apply SHP solution (10 ml SBI : 2 liters of water) to 15-20 seedlings in a polybag every 14 days until the plant is 16 months old.

## Plants have not been tapped

In rubber plants that have not been tapped, the SHP requirement for 1 ha is 3 liters. Apply it to a hole with a depth of 30 cm with a distance of 1/2 head, insert evenly into the hole and repeat every 4 months.

## Plants have been tapped

In rubber plants that have not been tapped, the SHP requirement for 1 ha is 3 liters. Apply it to a hole with a depth of 30 cm with a distance of 1/2 head, insert it evenly on the hole and repeat every 3 months.

## Fertilisation program

In addition to the basic fertiliser applied to planting, a continuous fertilisation program on rubber plants should be carried out with a balanced dose, 2 times a year. The fertilisation schedule for semester 1 is carried out in January/February and in semester 2 is carried out in July/August. A week before fertilization, the wick is first raked and the plant piringa is cleaned. The administration of SP-36 is usually carried out 2 weeks in advance of urea and KCl.

| Age group<br>(month) | Fertiliser dosage (gram/tree) |      |     |
|----------------------|-------------------------------|------|-----|
|                      | Urea                          | SP36 | Kcl |
| 6-15                 | 350                           | 260  | 300 |
| 16-22                | 300                           | 190  | 250 |
| >22                  | 200                           | -    | 150 |



# Guide to Rubber

## **Plant transition from TBM to TM**

Theoretically, if supported by healthy and good growth conditions, rubber plants have met the criteria for tapping maturity at the age of 5-6 years. By referring to this benchmark, it means that starting at the age of 6 years the rubber plant can be said to be a plant that produces (TM).



# Guide to Cacao

## Nursery

- Before sowing, soak the seeds with SBI <sup>solution</sup> (10 ml SBI: 1 liter of water) leave for 2 hours, then ready to sowing.
- The medium for seedlings is a mixture of soil and manure with a ratio of 1 : 1.
- Before the sprouts are inserted, add 1 gr of TSP/SP-36 fertiliser to each polybag.
- Fertilization with NPK (2 : 1 : 2) dosage according to the age of the seedlings, age 1 month: 1 gr/seed.
- Pour SBI <sup>solution</sup> (10 ml SBI: 2 liters of water) to taste on a polybag, do it once every 1014 days.

## Planting

- Planting holes, planting hole size 60 cm x 60 cm x 60 cm. Apply manure mixed with soil (1:1) plus TSP fertiliser 1-5 grams per hole. Spray SBI evenly on each planting hole (2 liters of SBI/ha).
- Seedlings are planted after 6 months of age, when planted shade trees must have grown, if using an intercropping system, there is no need for shade, for example intercropping with coconut trees.

## Maintenance with SBI <sup>biofertiliser</sup>

- Cocoa that has not yet borne fruit, give SBI <sup>biofertiliser</sup> with a dose of 3 liters, repeat every 4 months.
- Cocoa that has already borne fruit, give SBI <sup>biofertiliser</sup> with a dose of 3 liters, repeat every 3 months.

## Plants have not yet produced

Dissolve the biofertiliser with water then apply it around the roots (make a hole of 2-4 fruits with a depth of 20-30 cm, by chewing). SBI's biofertiliser requirement at this stage is 3 liters/ha, with a frequency of application every 3-4 months.

## Plants produce

Dissolve the biofertiliser with water then apply it around the roots (make a hole of 2-4 fruits with a depth of 20-30 cm, by chewing). SBI's biofertiliser requirement at this stage is 3 liters/ha, with a frequency of application every 2-3 months.



# Guide to Tobacco

## Land treatment

Land that has been cultivated/ploughed, make a bed 40 cm wide and 40 cm high. The distance between the beds is 90-100 cm with a longitudinal direction between east and west. Apply manure (10 tons/ha) on the surface of the bed, then spray SHP solution (1 liter of SHP: 200 liters of water, 2 liters of SHP / ha) evenly on the soil surface. As a basic fertiliser, apply SP-36 fertiliser (100 kg/ha), then cover with thin soil.

## Planting

Plant seedlings at a certain distance (depending on the variety) in beds, usually 70 cm. Remove the polybag first then immerse the seedlings in the ground to the root neck limit. Embroidery is carried out 1-3 weeks after planting, the seedlings are not good enough to be pulled out and replaced with new seedlings of the same age.

## Maintenance period with SHP biofertiliser

The application of SHP biofertiliser at the time of maintenance is every 2-3 weeks calculated from planting, the dose is 2 liters/ha each. Apply it around the roots evenly. The dosage and time of fertiliser application apply in organic and non-organic farms.



# Guide To Decorative/Ornamental Plants

## **Fertilisation**

Fertilisation with SHP biofertiliser on flower doses is the same, the difference is the frequency of fertilization for shrub-type flower plants, short lifespan, and where it is grown, whether in pots or in the ground.

## **Nursery**

Give SHP once every 7-10 days. The dosage of using 10 ml of SHP is mixed with 2 liters of water (enough for 10-15 plant seedlings in a polybag), water on the medium.

## **Maintenance with SHP biofertiliser**

Apply SHP biofertiliser once every 15 days to plants grown in the ground. When done in a pot, the repetition is done once every 1 week. The dosage of using 10 ml of SHP mixed with water is 2 liters of water. For potted plants it is enough for 8-10 pots, when planted in the ground it is enough for 4-5 plants.

## **Shrub type ornamental plants**

Give each tree 10 ml of SHP biofertiliser mixed with 1 liter of water, then water it evenly around the roots. Repeat once every 1 month.



# Guide to Cassava

## **Cutting treatment**

Before planting, soak the cuttings with a solution of SHP <sup>biofertiliser</sup> (10 ml of SHP: 3 liters of water), soak for 3 hours.

## **Fertilisation**

- 3 days before planting, apply SHP <sup>solution</sup> (1 liter of SHP: water max 100 liters) to the land evenly. This stage requires 2 liters of SHP / ha. Leave for 3 days the seedlings are ready to be planted.
- 10 days after planting, apply a mixture of urea fertiliser of 35-50 kg, TSP 60-75 kg, and KCl 35-50 kg on 1 ha of land.
- The next SHP is given at the age of 2, 4, 6, 8 months, each as much as 2 liters/ha.
- The next application of inorganic fertiliser at the age of 60-90 days is in the form of a mixture of urea fertiliser as much as 70-100 kg and KCl as much as 70-100 kg.



# Guide to Yam

## Tillage

- Cultivate the soil until loose, then leave it for approximately 1 week. The next stage, the soil is formed in a bed.
- Make a run along the bed, then add the mature compost at a dose of 10 tons/ha.
- Then apply SBI <sup>solution</sup> (1 liter of SBI: max 100 liters of water) on top of the manure. Then cover with soil. At this stage requires 2 liters of SBI / ha. Leave it on for 3 days.

## Maintenance with SBI <sup>biofertiliser</sup>

The next application of biofertiliser at the age of 3, 6, 9 weeks after planting, 2 liters/ha each. Apply it to the planting medium evenly around the roots. The dosage and time of fertiliser application apply in organic and non-organic farms.





# Guide to Fruits

## **Nursery**

Spray SHP <sup>solution</sup> (10 ml SHP: max 1 liter of water) and give enough to the seed media contained in the polybag, then repeat every 10-14 days.

## **Maintenance with SHP biofertiliser**

During the maintenance of SHP administration, it is recommended to insert it into holes with a distance of 1/3 head (from the base of the stem) with a depth of 30 cm (make 2-4 holes by being glued). The dose given is 20 ml SHP per tree (mixed with a max water of 2 liters). The frequency of administration is once every 3-4 months for unfruited plants and 2-3 months for plants that have already borne fruit.



# Guide to Tea

## **Seed media**

Top soil and sub soil are sifted separately with a 0.5-1 cm sieve, so that they are free from dirt/stones/garbage. Then mix the medium with fertiliser according to the recommended dosage. If the soil is sour, it needs to be limed first. Then fill it into a polybag of 1/3 sub soil and 2/3 top soil.

## **Planting cuttings**

Water the planting medium with SHP solution first, until it is sufficiently wet. Then the cuttings are implanted 4-5 cm deep, then cover with a plastic cover, leave for 3 months. Then the lid is opened for 2 hours, namely 7-9 o'clock. The next two weeks 4 hours, then 6 hours per day, after this the lid can be fully opened.

## **Nursery**

Give a solution of SHP biofertiliser (10 ml of SHP: 1 liter of water), give it to 10-15 seedlings in a polybag, repeat once every 2 weeks.

## **Plants that have been planted in the field**

In plants that have started/have already produced, SHP is given every 4-6 months, with a dose of 3 liters/ha. Apply evenly around the roots. 1 liter of SHP can be dissolved with 200 liters of water.

