

**LALITHA 21<sup>®</sup>**



# **APPLICATION INSTRUCTIONS**





## GENERAL INSTRUCTIONS

### Soil preparation

Before application, the soil doesn't need any special adjustments. Soil pH should be between 6 and 7.5 as this range is optimal environment for microbial growth.

### Application methods

LALITHA 21® can be applied using either standard irrigation systems or standard spraying equipment. With standard irrigation systems, pour the appropriate amount of LALITHA 21® (covered in the "Recommended application rates" section for different crops) into the reservoir.

With standard spraying equipment, dilute LALITHA 21® with sufficient clean water to cover the area to be treated. The dilution factor, typically 1:400 to 1:2000, depends on the root depth, the quality of the spraying equipment and the amount of moisture already existing in the soil. The goal is to provide enough water to allow the microbes to penetrate to the root level. After a heavy rain, you can use less water. In drought conditions, you will need to use more water.

LALITHA 21® solution can be sprayed on the soil or on the leaves. For large trees, take the area under the tree crown and scale down proportionally the application rate per hectare to the area size. For very small trees, dilute LALITHA 21® in the ratio of 1:2000 and use the solution to water the tree instead of just plain water.

### Time of application

The best time to apply LALITHA 21® is after rain, when there is plenty of moisture in the soil, which allows the microbes to penetrate to the root level. In drought conditions, you will need to use more water. It is recommended to apply LALITHA 21® early in the morning, in the evening, or on an overcast day.

### Co-application

LALITHA 21® can be co-applied with fertilizers and micronutrient products. For best results, the amount of chemical fertilizers has to be reduced by at least 50%. In many cases, chemical fertilizers can be completely eliminated, depending on the level of nutrients already existing in the soil and the amount of organic fertilizers used. A soil analysis is strongly recommended.

LALITHA 21® will strengthen the plants' natural immune systems, reducing the need for pesticides. If it is still necessary to apply chemical pesticides, do it at least a week before or after the application of LALITHA 21®.

## RECOMMENDED APPLICATION RATES

The application rates recommended here are intended to be general rules of thumb only. Following these recommended application rates will generate superior results in most cases. For maximum results, precise application rates will depend on several factors including the quality of the soil, climate conditions, the presence of disease agents, the desired objectives of the grower (for example, cost reduction, yield increase, soil revitalization, organic certification etc.).

In poor soils, the application rates will need to be doubled or even tripled until the soil has been revitalized. Similarly, if there are disease agents in the soil, the application rates need to be increased to fortify the plants' natural immune system to fight of these disease agents. If the soil toxicity level is high due to prolonged use of chemical fertilizers and pesticides, the application rates will need to be increased to speed up the soil remediation. Finally, as the application rates increase, the yields will respond accordingly, up to a limit. If the grower's main objective is to increase yields, he will need to experiment with the application rates to achieve the maximum yield for the particular crop and soil condition.

For each application, dilute 0.5 liter of LALITHA 21<sup>®</sup> with enough water to allow even application over 1 hectare of planting area. Usually the necessary dilution factor is 1:400 to 1:2000 depending on the existing moisture level in the soil.

### **Nursery Plants**

- Dilute with water in the ratio of 1:2000 (5 ml in 10 liters of water) and use the solution to water plants once a week

### **Fruit Trees**

- One application at planting or after harvesting/pruning
- One application at flowering
- (Optional) One application at fruit set

### **Grains**

- One application at planting
- (Optional) One application at flag emergence

### **Root Crops**

- One application at planting
- (Optional) One application 4 weeks after planting
- One application at start of flowering

### **Short Duration Crops**

- One application at planting

### **Vegetable Crops with Multiple Harvests**

- One application at planting
- One application after each harvest

### **Turf & Grass**

- One application once a month

### **Vines**

- One application after harvesting
- One application at the start of flowering

## GUIDANCE TABLES FOR DOSAGE

In case of using LALITHA 21<sup>®</sup> on an area other than 1ha (see section “Recommended application rates”), the data in the following tables will help determine the correct product dosage and the amount of water needed.

Table 1 below gives information about the necessary amount of LALITHA 21<sup>®</sup> to cover the treated area depending of the advised dosage per ha (covered in the “Recommended application rates” section). The recommended dosage 0,5 l/ha is a general rule and it may be increased in the case of poor soils, increased soil toxicity, etc.

Table 2 below presents the needed amount of water to apply LALITHA 21<sup>®</sup>. The dilution factor is typically 1:400 to 1:2000 (more in “Application methods” section), in case of seed treatment or transplantation the dilution factor for solution preparation is 1:200 (covered in the “Seed treatment” and “Transplantation” sections).

**Table 1 Amount of LALITHA 21<sup>®</sup>**

		LALITHA 21 <sup>®</sup> dosage 0,5 l / ha
10 ha	100 000 m <sup>2</sup>	5 l
5 ha	50 000 m <sup>2</sup>	2,5 l
2,5 ha	25 000 m <sup>2</sup>	1,25 l
1 ha	10 000 m <sup>2</sup>	500 ml
0,5 ha	5 000 m <sup>2</sup>	250 ml
0,25 ha	2 500 m <sup>2</sup>	125 ml
	1 000 m <sup>2</sup>	50 ml
	100 m <sup>2</sup>	5 ml
	10 m <sup>2</sup>	0,5 ml
	1 m <sup>2</sup>	0,05 ml

**Table 2 Amount of water – Dilution factor 1:200 to 1:2000 for 0,5l of LALITHA 21<sup>®</sup>**

		1:200	1:400	1:500	1:1000	1:1500	1:2000
10 ha	100 000 m <sup>2</sup>	1000 l	2000 l	2500 l	5000 l	7500 l	10000 l
5 ha	50 000 m <sup>2</sup>	500 l	1000 l	1250 l	2500 l	3750 l	5000 l
2,5 ha	25 000 m <sup>2</sup>	250 l	500 l	625 l	1250 l	1875 l	2500 l
1 ha	10 000 m <sup>2</sup>	100 l	200 l	250 l	500 l	750 l	1000 l
0,5 ha	5 000 m <sup>2</sup>	50 l	100 l	125 l	250 l	375 l	500 l
0,25 ha	2 500 m <sup>2</sup>	25 l	50 l	62,5 l	125 l	187,5 l	250 l
	1 000 m <sup>2</sup>	10 l	20 l	25 l	50 l	75 l	100 l
	100 m <sup>2</sup>	1 l	2 l	2,5 l	5 l	7,5 l	10 l
	10 m <sup>2</sup>	100 ml	200 ml	250 ml	500 ml	750 ml	1 l
	1 m <sup>2</sup>	10 ml	15 ml	25 ml	50 ml	75 ml	100 ml



## PRODUCT APPLICATION IN OTHER SITUATIONS

### Seed treatment

Using LALITHA 21® for seed treatment will promote germination and increase the seedling survival rates. Dilute LALITHA 21® with water in the ratio of 1:200 and submerge the seeds in the diluted solution for 24 hours, then drain and put the seeds in wet cloth bags. Keep the bags and in a shady, warm place and turn them over from time to time until the seeds are ready for planting. The remaining LALITHA 21® solution after being used for seed treatment can be further diluted and applied as usual.

### Growing seedlings

When growing seedlings from seeds, first follow the seed treatment instructions above. After planting, water once a week with a 1:2000 solution of LALITHA 21® instead of plain water until the seedlings are ready for transplantation.

### Transplantation

Transplantation can cause „stress“ and root damage in young seedlings as well as grown plants. In addition to providing a healthy soil environment for the transplants, LALITHA 21® will speed up the healing of damaged roots and boost the transplants' natural immune system to help them cope with the transplantation stress.

Dilute LALITHA 21® in water in the ratio of 1:200 and dip the roots in the diluted solution before putting the plant into the new soil. Then pour the same solution into the soil around the root area. Afterwards, apply LALITHA 21® at the normal rates.

### Treating new plants

For new plants, apply LALITHA 21® at the rate of 0.5 liter/ha at leaf emergence (for direct seeding) or at transplantation (for seedlings). Apply LALITHA 21® a second time at the same rate at the start of vegetative growth, typically 4 to 6 weeks after leaf emergence or transplantation. Subsequently apply LALITHA 21® at the same rate every 6 months until production.

### Organic applications

When using LALITHA 21® in organic farming the recommended application rates should be doubled since the build-up of soil nutrients in organic fields is less than that in conventionally fertilized fields. Also, organic fertilizers tend to have a slower release of nutrients compared to chemical fertilizers. The frequency of applications may also have to be increased for the same reason.

## STORAGE AND TRANSPORT

Keep in cool area between 4°C and 27°C out of direct sunlight. Store upright in closed containers filled only to 80% to allow the microbes to breathe. Open or loosen the cap at least once a month to allow fresh air in.