How the Bio-fertilisers Would Be Used in a Greenhouse Project

1.

Seed Nursery

The Seed Nursery

- Here the seeds will be soaked in Bio-Plant for up to 24 hours depending on the seeds before planting them in soil rich with compost.
- Ratio: Mix up to 20 kgs. of seeds in 20 litres of water mixed with 20 cc of Bio-Plant.

Plant the Seeds in Soil Mixed with Compost Made with Bio-Plant

Plant the Seeds in Soil Mixed with Compost Made with Bio-Plant


Rice Seedling Seedbeds

2.

Prepare the Compost

A large greenhouse project will require the production of a large amount of compost. Windrow Composting is the best option to make a large amount of compost.


Windrows of Compost

What is Windrow Composting?

- Windrow composting is the production of compost by piling organic matter and biodegradable waste, such as animal manure and crop residues, in long rows*(windrows)*.
- This method is suited to producing large volumes of compost.
- These rows are turned to improve porosity and oxygen content, to mix in or remove moisture, and to redistribute cooler and hotter portions of the pile.

Prepare the Compost Material

- Obtain the organic materials for the compost. For example:
  - Straw or dried grass, chicken dung or cow dung, green-leaf material, earth, waste fruit (e.g. from a fruit-processing factory), waste fish or seafood, coffee pulp, empty cocoa pods, etc.
- Grind or cut up the organic material before composting it.
- Lay out the organic matter in windrows.
- Spray each layer with water mixed with Bio-Plant as you make the windrow pile.


Mix the Water and Bio-Plant in a Tank

The Carbon to Nitrogen Ratio

- Follow the usual guidelines for the ratio of Carbon- and Nitrogen-rich materials, the pile size, moisture content, etc.
- Microorganisms responsible for the decomposition of organic matter require Carbon and Nitrogen as a nutrient to grow and reproduce.
- Microbes work actively if the Carbon : Nitrogen ratio is 30:1.
- If the Carbon ratio exceeds 30, the rate of composting decreases. Decomposition of the organic waste material will slow down significantly if the Carbon : Nitrogen ratio is as low as 10:1 or as high as 50:1.

Ensure the Correct Ratio of Carbon- and Nitrogen-Rich Materials

Create Many Windrows of Compost


The Organic Matter Will Turn Into Compost

Windrows of Compost from Above


A Windrow Compost-Making Machine


Turn the Compost Windrows Regularly

How Bio-Plant Mixed with Water Can Be Sprayed Into the Compost

A Windrow Compost-Making Machine in Action

Spray Water Mixed with Bio-Plant on the Windrows

How Often to Spray the Windrow Piles

- Bio-Plant mixed with water should be sprayed on the compost a minimum of once a week.
- **Moisture Content:** The ideal percentage of the moisture content is 60%. The initial moisture content should range from 40 to 60% depending on the components of the mixture.
- If the moisture content decreases less than 40%, microbial activity slows down and becomes dormant.
- If the moisture content increases above 60%, decomposition slows down and odour from anaerobic decomposition is emitted.

Video of Windrow Composting

- This video shows a windrow composting machine in action. Bio-Plant mixed with water would be sprayed onto the compost, just as you see water being sprayed in the video.

https://www.youtube.com/watch?v=x71nIMkYvVM

(Until 2:10 mins.)

Duration of the Windrow Composting Process

- With the windrow method, the active composting stage generally lasts three to nine weeks depending upon the nature of the materials and the frequency of turning. Eight weeks is usual for manure-composting operations.
- Where three weeks is the goal, the windrow requires turning once or twice per day during the first week and every three to five days thereafter.

Leave the Compost to Cure Over the Next Month


Finished Compost Ready to Be Sieved or Used

If composting material is in short supply, Bio-Plant can be used to compost municipal rubbish.

Turning Rubbish into Compost


1. Collection at 25 sites across Mbale


2. Dumped at the waste site


3. Organised into piles of organic matter


4. Left to decompose/non-organic waste removed


5. Final separation of non-organic waste


6. Compost produced

3.

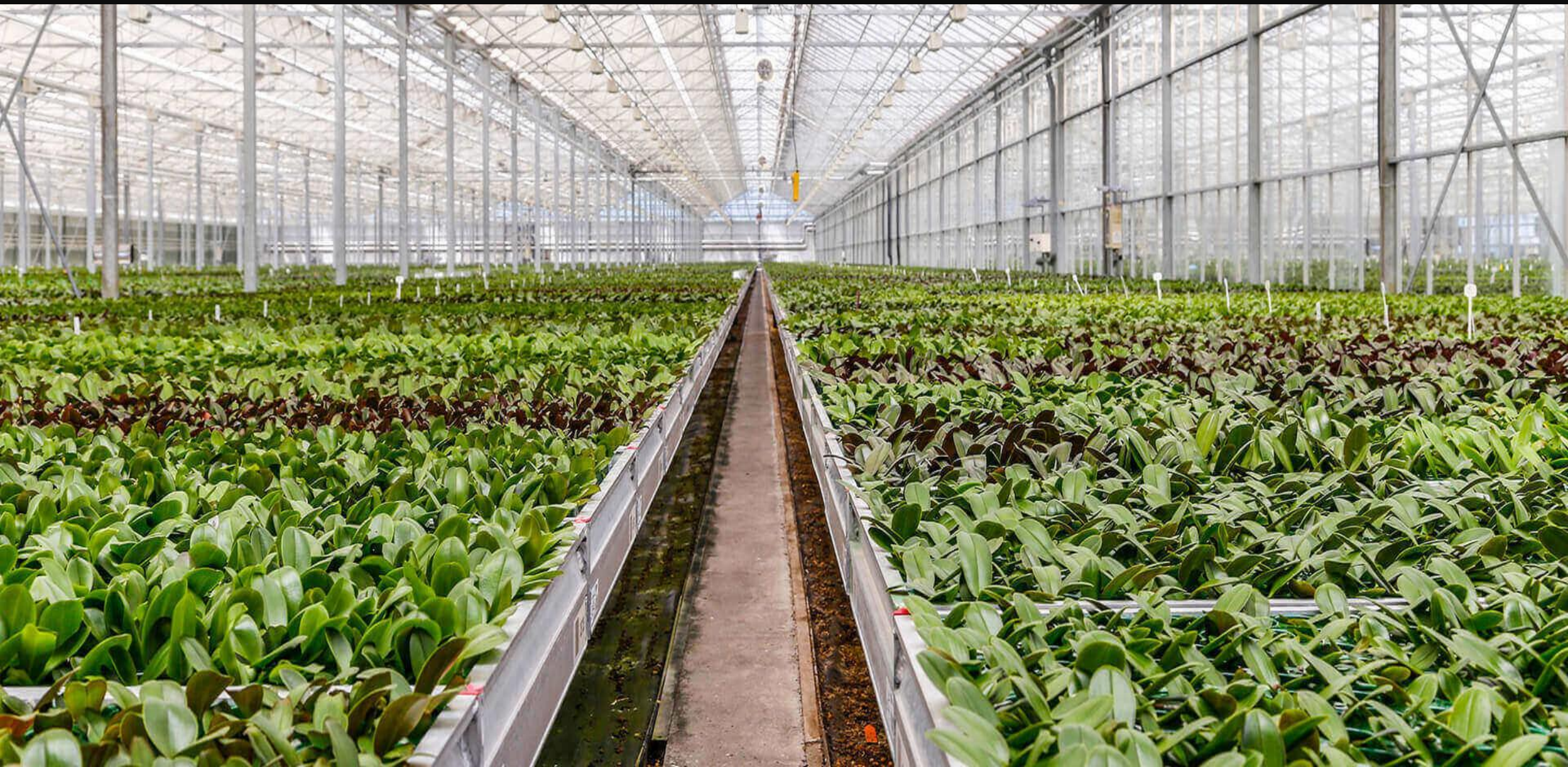
Prepare the Seedbed Soil


Prepare the Soil with the Compost


Plants Growing in the Soil Made with Compost

Fill Flower Pots with Soil Made with Compost

Plants Growing in the Soil Made with Compost



4.

Provide Nutrients and Micro-organisms

Provide Nutrients by Mixing Pro-Plant with Water and Feed it to the Plants Through Drip-Irrigation Pipes


Or Spray the Plants with Pro-Plant


Or Provide Water, Bio-Plant, and Pro-Plant
Already Mixed Through Drip-Irrigation Pipes

Mix Bio-Plant and/or Pro-Plant in a Large Water Tank Beforehand

Videos About the Drip Irrigation System

Video 1: How the Bio-fertilisers Would be Mixed with Water

https://www.youtube.com/watch?v=8OojvvyNj60

Video 2: The Features of a Drip Irrigation System

- This video shows how Pro-Plant and Bio-Plant mixed with water can be provided through a drip-irrigation system. Some systems include anti-clogging technology, which will be necessary because of the organic matter in the bio-fertilisers.

https://www.youtube.com/watch?v=QzH6H4CbeGI

5.

Hydroponic Farming

Use in a Hydroponic System

- The nutrient solution would contain both Bio-Plant and Pro-Plant.
- Pro-Plant will provide 50+ nutrients.
- The bacteria in Bio-Plant would increase nutrient uptake; produce enzymes that act as plant growth-promoters; and also help to control diseases, such as by excluding plant pathogens from affecting plant health.

6.

The Harvest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