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How to Grow Tea with Bio-Plant and Pro-Plant

1. Compost and Soil Preparation

1.1 Preparing the Compost

- See the file called **How to Make Rich Compost with Bio-Plant – Handouts** for how to make rich compost with Bio-Plant. **Click here** for the file.
- Soil preparation with a lot of compost made with Bio-Plant will be invaluable in increasing growth. Add compost to the planting holes and spread it generously around each tree after planting. Add more compost around each tree monthly.
- If you cannot make any compost, read the file ***How to Prepare the Soil with and Without Compost***. **Click here**.
- Make several compost piles at the same time because you will need an endless supply. (See below.)
- When planting, put the compost on the top soil, which goes at the bottom of the hole.



Several piles of compost being made at the same time.

2. Preparing the Seeds

- See the file ***How to Prepare Seeds with Bio-Plant***.
- If you propagate new tea plants from seeds, soak the seeds in water mixed with Bio-Plant for 24 hours. Only heavy seeds, which sink, should be used for sowing in beds. Germination will occur in 20-30 days. At that stage lift out the seedlings and transplant them in black plastic potting bags. They will be ready for planting in 9 months. The potting soil should contain compost made with Bio-Plant.
- If you propagate from cuttings, plant the cuttings in bags, which have soil which contains compost made with Bio-Plant.

3. Applying Additional Bio-Plant During the Growth of the Plants

- Make sure that you place plenty of compost in the planting hole. Place it on top of the top soil, which should be placed at the bottom of the hole under the compost. The soil, which was at the bottom of the hole, should be placed on top of the compost. More compost can be placed on top.

- A key to high-quality tea from every bush is to nourish the soil regularly through the application of compost, and timely weeding. Place plenty of compost made with Bio-Plant around each tea bush (without it touching the trunk) and apply compost once a month.
- If you are not using compost and are placing organic matter around the tree (without it touching the stem of the bush), spray the organic matter with water that contains 500 cc. of Bio-Plant per 500 litres of water. Spray just enough to soak it.
- During the leaf-picking periods it is very beneficial to spray Bio-Plant around the roots **twice a month**. Ideally, you should be spraying onto some organic matter around the base of the tea bushes.

4. Spraying Pro-Plant

4.1 Prior to Plucking the Leaves: The tea seedlings will be planted onto nursery beds where they will remain for 12-18 months. Spray Pro-Plant on the seedlings every 2-4 weeks. As soon as they turn into young plants, plant them in the main plantation where they will be left for 4 years before any leaves can be plucked.

- Spraying Pro-Plant on the plants once per month during this period will be enough. But, spraying every 2 weeks will provide more nutrients and increase the rate of growth of the tea plants; however, your costs will be higher.
- If you wish to reduce your costs in Years 1-4, spray Pro-Plant every 2 months, and then spray Pro-Plant every 2 weeks in the last 2 months before you start to pluck the leaves.
- Spray at the ratio of 20 cc of Pro-Plant per 20 litres of water. For a hectare, mix 500 cc of Pro-Plant with 500 litres of water. For an acre, mix 250 cc of Pro-Plant with 250 litres of water each time you spray the plantation.
- **Very Important Note:** Please spray Pro-Plant using spraying equipment that gives a fine, misty spray, and that the spray is directed diagonally upwards so that it hits the pores of the leaves underneath as well as lands on the leaves. Spray the leaves well, and ideally before 9 a.m. when the leaf pores are open most. Shake the bottle of Pro-Plant well before using it.

4.2 The Period When the Leaves Are Plucked

- In Vietnam the tea growers spray Pro-Plant every 7-10 days and pick the leaves every 21 days. The tea growers in Vietnam usually spray every 7 days as they want the extra yield. They also water the tea bushes every 2 days. They say that this contributes noticeably to getting the extra yield and other quality-related benefits.
- **If no organic matter can be applied to the ground for some reason:** Spray the leaves every 7 days with water that contains 10 cc. of Pro-Plant and 2.5 cc Bio-Plant per 10 litres. Better still: Spray a solution containing 20 cc of Pro-Plant and 5 cc Bio-Plant in 20-30 litres of water on the leaves.
- **Note:** The tea growers in Vietnam make sure that there are spaces for the foggy spraying by pruning the plants once a year and removing the old leaves.

5. Mulching

- It is important to mulch the soil so as to suppress the growth of weeds. So, immediately after planting, mulch the soil surface around the tea plants. Usually cut grasses are used for this purpose. Mulching in the Nursery is also beneficial. About 25 tonnes of grass are required



The tea bushes are mulched with the branches cut in the last pruning.

to mulch one hectare. Care must be taken to keep the mulch materials away from the collar region last they may cause collar diseases.

5.1 What is Mulching?

- Mulching is one of the most important ways to maintain healthy landscape plants and trees. A mulch is any material applied to the soil surface for protection or improvement of the area covered. Mulching is really Nature's idea. Nature produces large quantities of mulch all the time with fallen leaves, needles, twigs, pieces of bark, spent flower blossoms, fallen fruit and other organic material.

5.2 Benefits of Mulching

- When applied correctly, mulching has the following beneficial effects on plants and soil:
 - Mulches prevent loss of water from the soil by evaporation.
 - Mulches reduce the growth of weeds, when the mulch material itself is weed-free and applied deeply enough to prevent weed germination or to smother existing weeds.
 - Mulches keep the soil cooler in the summer and warmer in the winter, thus maintaining a more even soil temperature.
 - Mulches prevent soil splashing, which not only stops erosion but keeps soil-borne diseases from splashing up onto the plants.
 - Organic mulches can improve the soil structure. As the mulch decays, the material becomes topsoil. Decaying mulch also adds nutrients to the soil.
 - Mulches prevent crusting of the soil surface, thus improving the absorption and movement of water into the soil.
 - Mulches help prevent soil compaction.
 - Mulches can add to the beauty of the landscape by providing a cover of uniform colour and interesting texture to the surface.
 - Mulched plants have more roots than plants that are not mulched, because mulched plants will produce additional roots in the mulch that surrounds them.

5.3 How to Apply Mulch

- Before applying any type of mulch to an area, it is best to weed the area. Spread a layer of mulching materials generously around the tea plants. Keep mulch 2 to 3 inches away from the stems of the plants. This will prevent decay caused by wet mulch.
- Mulching can be done with Guatemala grass (*Tripsacum Laxum*),weeping love grass (*Eragrostis Curvula*), bracken fern, shade tree loppings, tea plant prunings, and other plant materials. Guatemala grass can be planted in large vacant patches with the twin objectives of rehabilitating the soil and growing mulch material.

5.4 How Deep to Mulch

- The amount of mulch to apply depends on the texture and density of the mulch material. Many wood and bark mulches are composed of fine particles and should not be more than 2 to 3 inches deep. Excessive amounts of these fine-textured mulches can suffocate plant roots, resulting in yellowing of the leaves and poor growth.
- Coarse-textured mulches, such as straw, allow good air movement through them and can be as deep as 4 inches. A depth of 4 inches will stop weeds growing.
- Mulches composed of shredded leaves should never be deeper than 2 inches because they tend to mat together when wet, thereby restricting the water and air supply to the plant roots.

6. Maintenance of the Tea Plants

- The growers in Vietnam do the following to get their good results:
 - Over time the leaves of the tea plants get dusty, which inhibits the growth. They mix 1 litre of washing liquid in about 300 litres of water and spray or pour it over the leaves,

followed by spraying water over the leaves. This cleans off the dust. Some tea growers may say that this is extra work, but the tea growers in Vietnam say it pays off in productivity.

- The plants should be pruned once a year and the old leaves taken off. This needs to be done because if it is not done, when the tea growers spray Pro-Plant, the plants will be so thick that the spray cannot get through to the leaves.

7. Main Benefits Compared to Using Chemical Fertilizers

- The yield will be 20%-30% higher.
- The leaves will look fresher and shine more.
- The tea plants will have more leaves and branches.
- The quality and fertility of the soil will be superior.
- The quality of the tea will be higher.
- The tea will have a more pleasant scent.
- The tea will have less tannin.
- The Vitamin C level will be higher.
- Fungicides and insecticides no longer need to be used (additional cost savings).

8. General Notes

- If you have cows or chickens, use their dung to make the compost. To further develop soil fertility, pruned leaves can be mixed with the dung and Bio-Plant in water at the usual ratio to provide organic fertilizer.
- Cow urine can be sprayed around the plants as an insect repellent.
- Neem can be sprayed to kill insect pests, if needed.