

APPENDIX 6

NATURE FARMING MANUAL

A handbook of preparations, techniques and organic amendments inspired by Nature Farming and adapted to locally available materials and needs in the Western Visayas region of the Philippines



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Section 2: The Fermented Preparations

2.1. Indigenous Microorganisms (IMO)

Background (IMO)

Indigenous microorganisms are beneficial members of the soil biota (including filamentous fungi, yeasts and bacteria) collected from non-cultivated soil near the area where they will be applied. An IMO preparation can be used alone as a soil amendment but it is also the fundamental catalytic ingredient of other Nature Farming preparations such as bokashi fermented organic fertilizer. The critical element in the production of high quality IMO is to collect and culture the most appropriate population of soil microorganisms. The IMO should be collected from healthy soil that is not currently under cultivation but is situated relatively near to the area where the preparation will eventually be applied. One of the best indications of soil with a high content of beneficial organisms is the presence of earthworm castings, which are often found under bamboo trees.

Materials (IMO)

- 1 Kg forest soil from an area with worm castings (under a bamboo tree is a good place to look).
- ½ Kg powdered rice bran
- water
- 2 Kg brown sugar or molasses
- Water

Procedure (IMO)

1. Collect soil containing worm castings from beneath bamboo trees (figure 2.1-a). Other types of soil may also be used.¹
2. Using your hands, break all the lumps in the soil to make a fine powder.
3. Mix the forest soil together with the rice bran.
4. Add enough water to the mixture to achieve 60% moisture content. This is when the mixture is wet enough to form a ball that will crumble easily. The mixture will still appear to be quite dry.
5. Wrap the mixture in a dark cloth and place it in a cool dark place (e.g. in the branches of a mango tree), for 3 days.
6. After this time open the cloth and inspect the molds formed (figure 2.1-b). Desirable molds are white although orange and blue molds are also acceptable. Black moulds are not desired although a few are acceptable as long as they are not predominant.²
7. Break the ball into pieces approximately 1 inch in diameter using a clean stick. This stimulates the development of the IMO.
8. If the mixture has dried out, sprinkle a small amount of water on the surface.
9. Tie the cloth back up around the IMO culture.
10. Mix together 7 L water and 2 Kg brown sugar or molasses in a large container.

11. Hang the cloth above the water and sugar solution with about $\frac{3}{4}$ of the bundle submerged in the solution.
12. Cover the entire preparation with a cloth. This will help protect it from bees and other insect that may be attracted to the high sugar content of the solution.
13. Stir the solution for 10 minutes, 2 times per day, for 10-15 days.^{3,4,5}
14. Strain the solution through a fine cloth and retain the liquid fraction which contains the IMO.
15. The liquid IMO can be stored in a glass bottle for up to 6 months. It is important not to tighten the cap completely on the bottle to allow aeration. Shake the bottle once a week to provide air to the microorganisms.
16. Once a month feed the IMO with 20 % of its volume of sugar.
17. The solution should be discarded when it begins to give off a foul odor.

Notes (IMO)

¹ IMO can be cultured from non-cultivated soil collected close to the area where the crop to be treated with the IMO is grown. It is also possible to culture “mixed IMO” for use on the entire farm. This is achieved by collecting and combining soil from several non-cultivated areas on the farm including forest soil, soil from near a river or stream, soil from a bamboo stand, soil found under rocks and soil present near the cultivation areas of several different crops.

² Once the molds have formed the preparation should no longer be touched with human hands to avoid contamination by HMO (human micro-organisms)!

³ When stirring, emulate the technique used for activating biodynamic preparations. Stir steadily in one direction until a vortex is formed in the liquid and then reverse directions to form a new vortex.

⁴ Never remove the bundle from the sugar solution, just move it to the side of the container while stirring.

⁵ In areas where bees are a major problem the best solution is to remove the worm casting ball from the bucket and seal the lid completely during this time.