

Preparation And Application of Liquid Organic Manures

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INTRODUCTION

Farmers in the present period rely on the adoption of cutting-edge technology and the indiscriminate use of chemical fertilisers to increase crop production, which has an indirect impact on the health of the soil and reduces soil fertility. Chemical fertiliser uses not only increased agricultural productivity but also caused poisonous compounds to build up in the soil, which plants then absorbed, having an indirect negative impact on human health and harbouring soil conditions vital for crop growth. Restoration of soil health by the addition of organic matter, green manuring, crop rotation, use of eco-friendly organic fertilisers, etc. is urgently necessary in order to sustain soil fertility status. Adopting natural or organic farming with no budget can assist farmers in preserving the fertility and productivity of their soil. These days, using liquid manures has been beneficial in preserving the health of the soil and crops.

The fermentation- or decomposition-derived byproducts of organic matter, i.e., animal and plant waste, are liquid organic manures. Macro- and micronutrients, growth regulators, and other advantageous substances are now easier to get thanks to the use of liquid manures. The plant can survive biotic and abiotic stress thanks to the chemicals' ability to support and enhance its physiological and biochemical activities. The liquid manures improve the availability of microorganisms and microflora, which increases their microbial activity in the soil. Liquid manures offer farmers greater benefits and are more affordable to generate than commercial fertilisers. The liquid formulations are used as a foliar treatment on the leaves or applied to soil and are only needed in small amounts because all the required ingredients are readily available. Jeevamruth, Beejamruth, Panchgavya, Vermiwash, Biodigested Liquid Manure (BDLM), and Biogas Spent Slurry are the many liquid manures.

Beejamruth

A treatment for plants, seedlings, or any type of planting material is called bijamrita or beejamruth. Young roots are effectively shielded from fungus as well as soil- and seed-borne diseases that typically afflict crops after the rainy season. It has similar components to Jeevamruth: Take a handful of soil from the farm's bund, 20 litres of water, 5 kilogrammes of local cow dung, 5 litres of local cow urine, 50 grammes of lime, and 20 litres of water.

Preparation: Take 5 kg of the local cow dung in a cloth and tape it together. For up to 12 hours, hang this in the 20 litres of water. Add 50 grammes of lime to one litre of water, then let it sit for a night. The following morning, squeeze this bundle of cow dung into that water three times continuously to extract all of the dung's essence. Stir thoroughly after adding a few handfuls of soil to the water mixture. Finally, add the lime water and 5 litres of desi cow urine or human urine to the solution. Stir thoroughly for better mixing of the constituent.

Application: Any crop's seeds can be treated with Bijamrita by coating them, manually mixing them, letting them dry thoroughly, and then using them for sowing. Leguminous seeds can be dipped briefly and then allowed to air dry.

Panchagavya:

Panchagavya, an organic product has the potential to play the role of promoting growth and providing immunity in plant system. Panchagavya consists of nine products viz. cow dung, cow urine, milk, curd, jaggery, ghee, banana, Tender coconut and water. When suitably mixed and used, these have miraculous effects.

Preparation: Take 7 kg Cow dung and 1 Kg Cow ghee and mix the two ingredients thoroughly both in morning and evening hours and keep it for 3 days. After 3 days mix 10 liters cow urine and 10 liters water and keep it

for 15 days with regular mixing both in morning and evening hours. After 15 days mix the following and panchagavya will be ready after 30 days.

- Cow milk - 3 liters
- Cow curd - 2 liters
- Tender coconut water - 3 liters
- Jaggery - 3 kg
- Well ripened poovan banana – 12 nos.

Application: 3% solution was found to be most effective compared to the higher and lower concentrations investigated. Three litres of Panchagavya to every 100 litres of water is ideal for all crops. The solution of Panchagavya can be mixed with irrigation water at 50 litres per hectare either through drip irrigation or flow irrigation. Rhizomes of Turmeric, Ginger and sets of Sugarcane can be soaked for 30 minutes before planting in 3% solution.

Jeevamruth

Jeevamruth is a traditional biopesticide and organic manure from India that is made using a special method that involves fermenting a mixture of cow dung, cow urine, jaggery, flour from pulses, soil, and water. Jeevan and Amrit, two words, make form the phrase. Jeevan, the first word, means "Life," and Amrit, the second, means "Medicinal Potion." Farmers that spend a lot of money on pesticides and fertilisers can utilise this incredible natural plant medicine instead and save money.

Preparation: Add 1 kg of jaggery and 1 kg of gramme flour to 100 kg of Desi cow dung (cow dung is only usable for 21 days; store it by maintaining moist, sprinkle water, and store in shade). Additionally, thoroughly combine the mixture and keep it in a shaded area for 48 hours. It is entirely organic and has no negative effects on the health of the soil. In addition to being economical, it is good for the soil and plants.

Application: It can be used as a liquid. Jeevamruth can be sprayed by combining with

water and a 5–10% concentration. For an acre of land, 200 litres of jeevamruth are sufficient. It is sprayed every seven to fourteen days. Leguminous seeds can simply be rapidly dipped and allowed to air dry.

Advantages of liquid manures:

1. Compared to bulky organic manures, they are easily accessible in water.
2. Foliar applications and soil applications boost crop yield because plants can absorb nutrients 20 times more quickly.
3. Jeevamruth and Beejamruth treatment affects the crop's photosynthetic activity, increasing grain output.
4. Using organic liquid formulations results in healthier and superior crop output.
5. The soil structure and water holding capacity have both improved as a result of the application of organic liquid manures.
6. The use of Panchgavya enhances integrated pest control and integrated disease management, two crop management variables.
7. Beejamruth can be used as a growth promoter and as a seed dressing to increase the activity of microorganisms and seeds before planting a crop.
8. Beejamruth enhances the crop's nutrient status, seed vigour, and seed germination rate.

9. Liquid formulations aid in enhancing crop quality and speeding up crop maturity.
10. The preparational ingredients—cow dung, urine, earthworms, etc.—led to the creation of environmentally beneficial organic liquid manures.

Disadvantages of liquid manures:

- Liquid formulations have an unpleasant smell.
- They cause significant losses from volatilization
- Waterlogged sites are not appropriate for spraying or applying liquid manures.

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