

Preparation of Liquid Organic Manures in Natural Farming

D.V.S. Akshay^{1*}, B. Mounika¹ and B. Rajyalakshmi¹

¹Teaching Associate, Department of Agronomy, Agricultural College, ANGRAU, Bapatla

Corresponding Author

D.V.S. Akshay

Email: akshay.duddumpudi02@gmail.com



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ABSTRACT

Liquid organic manures play a vital role in sustainable agriculture by enhancing soil fertility, promoting plant growth, and reducing dependence on synthetic inputs. This article highlights the preparation methods, benefits, and applications of six key formulations: Jeevamrutha, Beejamrutha, Panchagavya, Amritpani, Compost Tea, and Vermiwash. These bio-enhancers are rich in beneficial microorganisms, essential nutrients, and plant growth promoters, making them powerful tools for natural farming. Easy to prepare using locally available materials, they provide an eco-friendly and cost-effective alternative for farmers aiming to rejuvenate soil health and crop productivity.

INTRODUCTION

Liquid organic manures are nutrient-rich solutions produced during the breakdown or fermentation of organic materials-such as compost, vermicompost, plant residues, or animal waste like urine. These natural fertilizers are often created through traditional farming methods. Some well-known eco-friendly preparations include **Panchagavya, Jeevamrutha, Beejamrutha, Amritpani, Vermiwash, and Compost tea.**

Widely used by farmers, these organic blends help boost plant growth, improve crop yield, and enhance produce quality.

Beejamrutha

Beejamrutha is prepared by using local cow dung, cow urine, water and lime.

Ingredients for Beejamrutha:

1. Water 20 liters

2. Desi cow dung 5 kg
3. Desi cow urine 5 litres
4. Lime 50 g
5. Handful of soil from farm/forest/bund

Procedure of preparation: (Mahanta and Dhar, 2021)

Take 5 kg of desi cow dung (preferably fresh or not more than 3 days old) in a cloth and bind it by tape and hang this in the 20 litres of water for 12 hours



In another container, dissolve 50 g of lime in one litre water and keep for a night



Next day morning, squeeze this bundle of the cow dung in water 3 times to extract material



Add the soil from undisturbed bunds or forest or under tree cover in the solution and stir it well



Add 5 litres of indigenous cow urine in the solution and add the lime water and stir it well



Beejamrutha is ready to treat the seeds.
Treat the seeds in beejamrutha, dry in shade and use for sowing.

Uses:

- It protects the crops from harmful fungus, bacteria and other pathogens of soil borne diseases.
- It has hormones, alkaloids, which enhance the germination and gives protection to seeds and seedlings.

Jeevamrutha

Jeevamrutha is a powerful microbial solution rather than a conventional fertilizer. When applied through irrigation, it energizes beneficial soil microbes and earthworms,

enhancing soil vitality. Its core ingredient is the dung of native (desi) cows.

It is of two types: 1. Dhrava Jeevamrutha (Liquid) 2. Ghana Jeevamrutha (Solid)

1. Dhrava Jeevamrutha

Ingredients for Dhrava jeevamrutha:

1. Water 200 liters
2. Desi cow dung 10 kg
3. Desi cow urine 10 litres
4. Jaggery 2 kg
5. Pulse flour 2 kg
6. Handful of soil from farm/forest/bund

Procedure of preparation: (Mahanta and Dhar, 2021)

In a plastic drum/barrel of 250 litres capacity, add 10 kg of fresh cow dung, 10 litres of cow urine, 2 kg of jaggery, 2 kg of besan (chickpea flour) and 150 g of soil from undisturbed bunds or forest or under tree cover in 200 litres of water and mix them thoroughly



After adding all of the above-mentioned materials, stir well in clock wise direction



Keep drum in shade covering with gunny bag or cotton cloth or plastic mosquito net



Stir the prepared solution for 5-10 minutes for twice a day (morning and evening) with wooden stick



Jeevamrit is ready for application at 9th day and it can be applied up to 12th day

2. Ghana Jeevamrutha

Ingredients for Ghana jeevamrutha:

1. Desi cow dung 200 kg
2. Dhrava jeevamrutha 20 litres

Procedure of preparation:

Spread 200kg of cow dung on ground uniformly in the form of layer and add 20 liters of liquid jeevamrutham on it and mix it.



Now, make a heap of treated cow dung and cover it using jute bag for 48 hours allow it for fermentation then spread on the floor, dry in the sunlight.



After drying is completed, store it in jute bags in the room. Air should be flowing. You can store Ghana jeevamrutham for 6 months

Uses:

- It stimulates the soil's natural ability to release nutrients by activating helpful microorganisms, making essential elements more accessible to the crops grown in that area.
- It boosts the population of earthworms, which play a key role in improving soil fertility. Jeevamrutham, a natural fertilizer, is especially rich in nutrients like nitrogen, phosphorus, calcium, and essential micronutrients.
- By accelerating the breakdown of organic matter, it enhances microbial activity in the soil-leading to better nutrient availability and ultimately, higher crop yields.
- Many of these organic mixtures are packed with beneficial microbes that not only nourish the soil but also promote healthy and robust plant growth.

Panchagavya

The sacred combination known as *Panchagavya* finds its roots in the ancient Vedas. According to Ayurveda, cows provide five vital substances - milk, ghee, curd, urine, and dung. Each of these is referred to as *gavya* in Sanskrit. When combined in specific

proportions, these five form *Panchagavya*, a revered blend traditionally used for its health and spiritual benefits.

Ingredients for Panchagavya:

1. Water 10 liters
2. Desi cow dung 5 kg
3. Desi cow urine 4 litres
4. Cow milk 3 L
5. Cow curd 2 L

Other ingredients used: 3 litres tender coconut water, 2 kg jaggery and 12 well ripened bananas

Procedure of preparation: (Mahanta and Dhar, 2021)

Take a container to which add 7 kg cow dung and 1 kg cow ghee and mix it thoroughly both in morning and evening incubate for 3 days.



After 3 days add 10 liters of cow urine and 10 liters water to be added to the mixture and incubate for 15 days with regular mixing both in morning and evening hours.



After 15 days add 3 liters of cow milk, 2 liters of cow curd, 3 liters of tender coconut water, 2 kg jaggery and 12 well ripened bananas are added to mixture and regularly mixing both in morning and evening for about a week.



The container should be kept under shade and cover with gunny bag. Panchagavya solution will be ready in 30 days.



This is to be applied at 3 to 5 % concentration twice a month till maturity of crops.

Uses:

- It enhances soil biology, boosting microbial activity and making vital nutrients more accessible to plants. Panchagavya can also

be conveniently delivered through irrigation systems.

- Rich in major and trace nutrients, Panchagavya contains essential vitamins, amino acids, natural plant hormones like IAA and GA, and a host of beneficial microbes.
- This age-old formulation supports plant health and soil microbes while naturally enhancing crop productivity.

Vermiwash

Vermiwash is a brown, odorless liquid bio-fertilizer produced during the vermicomposting process, where earthworms are used to break down organic waste.

Procedure of preparation of pure vermiwash:

For preparation of vermiwash, one kg adult earth worms devoid of casts is released into a trough containing 500 ml of luke warm water (37- 40 °C) and agitated for two minutes.



The agitation in the lukewarm water makes the earthworms to release mucus and body fluids.



Earthworms are then taken out and washed in another 500 ml at room temperature (30 °C and released back into the tank.



Transferring into water is done to wash the mucus sticking to their body surface and this also helps the earthworms to revive from the heat shock.



Both earthworm wash collected and mixed together for spray. This is the pure vermiwash

Procedure of preparation of vermiwash:

A plastic container of 15 to 20 liters capacity is required and the base of the container is fitted with tap to collect the watery worm

extract. The container is filled with different successive layers.



First base layer, medium sized bricks or stones up to a height of 10-15 cm filled.



Above the base layer a layer of coarse sand (up to 6 inches) and fine sand (5 inches) are spread.



Introduction of locally available earthworms (*Eisenia foetida*) mixing with fertile soil applied.



After that, a layer of partially decomposed cow dung (20-25 cm) and organic residues of 40-45 cm were poured.



All the layers in the container is moistened by sprinkling water over it. Container is sprinkled with approx 2 L water per day.



After 16 to 20 days preparation of vermiwash in the unit begins. Everyday about 1-2 litres of vermiwash will be collected.

Uses:

- **Vermiwash is typically used as a 10% foliar spray**, and it's packed with natural plant growth hormones like gibberellins, cytokinins, and auxins. Along with organic acids and a mix of essential nutrients, it helps boost crop development and overall plant health.
- **Rich in enzymes and earthworm secretions**, vermiwash acts as a natural stimulant for plant growth. It's also teeming with helpful microbes that enhance nutrient absorption, giving crops a stronger and healthier growth boost.
- **Using vermiwash improves seed germination and strengthens seedlings**. It also promotes the formation of humus and encourages beneficial microbial activity in the soil. This leads to better soil structure,

improved aeration, and ultimately healthier plant roots.

- It helps bind essential minerals like calcium, magnesium, and potassium into humus-clay colloids, creating stable soil aggregates. This improves soil structure and porosity, which supports healthy plant growth.
- Vermiwash contains beneficial metabolites, B-complex vitamins, and provitamin D, all of which contribute to improved crop development.
- Its nutrient content, especially nitrogen and key micronutrients, enhances lycopene production, which intensifies the red color of tomatoes.
- Using vermiwash can lower nitrate levels in chillies and has been shown to boost plants' resistance to various pests and diseases.
- It also serves as a natural and effective biopesticide for several vegetable crops.

Compost tea

Compost tea is a nutrient-rich liquid made by soaking compost in water for a set period, usually a day or more. This process draws out beneficial microbes like aerobic bacteria, fungi, and predatory nematodes that thrive in well-decomposed compost. The resulting brew is packed with life and goodness, ideal for boosting plant and soil health.

Procedure of preperation: (Sujesh et al., 2017)

Freshly finished compost is typically soaked in a barrel of water for about one to two weeks, often placed inside a burlap sack. This process boosts the nutrient content for both plants and soil. It also promotes the growth of beneficial mycorrhizal fungi and predatory nematodes, which play a key role in protecting plants from various harmful microorganisms.

Uses:

- Multiple studies have shown that using compost tea can boost plant growth by enhancing nutrient uptake and reducing the occurrence of diseases.
- Moreover, growing experimental evidence suggests that compost tea can help control certain plant diseases, like botrytis affecting crops such as green beans and strawberries.
- Aerated compost tea (ACT) is a water-based, oxygen-rich solution packed with beneficial microbes—including bacteria, nematodes, fungi, and protozoa—that help break down harmful toxins. It's also known for requiring less time to prepare compared to other methods.

Amritpani

Amrit is a divine nectar that revitalizes the gods and is said to have the power to bring the dead back to life. Similarly, Amritpani energizes the soil, transforming lifeless earth into vibrant, fertile land. Amritpani is a type of liquid fertilizer created using the Ahimsak Rishi-Krishi Deshpande method. Just like Panchagavya, Amritpani is used to enhance soil fertility and boost agricultural productivity.

Ingredients for Amritpani:

1. Water 200 liters
2. Desi cow dung 10 kg
3. Desi cow ghee 250 g
4. Honey 500 g

Procedure of preperation: (Biswas and Das, 2025)

Mix 10 kg of cow dung with 500 gms of honey and mix thoroughly to form a creamy paste.



Add 250 gms of ghee and mix at high speed.



Dilute with 200 litres of water.

Uses:

- Amritpani enhances the growth, productivity, and quality of crops. It can be used alone or mixed with other organic fertilizers for better results.
- Besides boosting the soil's nutrient content, Amritpani also acts as a natural bio-pesticide.
- Rich in helpful microorganisms, Amritpani promotes the breakdown of organic matter in the soil, improving its health and fertility.

CONCLUSION

The adoption of liquid organic manures such as Jeevamrutha, Beejamrutha, Panchagavya, Amritpani, Compost Tea, and Vermiwash represents a significant step toward eco-conscious and regenerative farming practices. These formulations not only improve soil microbiology and nutrient availability but also

build plant resilience against pests and diseases. With growing interest in chemical-free agriculture, these manures offer a practical, affordable, and environmentally sound solution for farmers. Encouraging their widespread use can contribute to healthier soils, safer food, and more sustainable farming systems for future generations.

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