



Liquid Organic Manures: Nature's Nutrient Elixir for Sustainable Farming

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Liquid organic manures have emerged as a promising component of organic and natural farming systems due to their ability to supply nutrients in readily available forms while simultaneously enhancing soil biological activity. Unlike conventional solid organic manures, liquid formulations prepared from farm-based organic resources such as cow dung, urine, plant residues, and agro-wastes offer faster nutrient assimilation, improved microbial proliferation, and the presence of naturally occurring plant growth-promoting substances. Their versatility in application through seed treatment, soil application, fertigation, and foliar spray makes them suitable for diverse cropping systems and resource-poor farming conditions. The increasing emphasis on sustainable agriculture, rising costs of chemical fertilizers, and the need to restore soil fertility have further strengthened the relevance of liquid organic manures in modern agriculture. This article highlights the concept, preparation methods, modes of application, and advantages of various liquid organic manures, emphasizing their role in enhancing nutrient use efficiency, crop resilience, and long-term soil sustainability. The integration of liquid organic manures into nutrient management strategies offers a viable pathway toward environmentally sound, economically feasible, and farmer-friendly organic farming practices.

Introduction

Ever increasing population is exerting tremendous pressure on agriculture to meet their nutritional food requirement across the world. In-order to achieve the current demand of food requirement, farmers are relying more on chemical fertilizers to achieve higher productivity. However, the efficiency of the chemical fertilizers already reached a plateau due to their indiscriminate use and resulted in poor soil fertility status of the agriculture fields in addition to accumulation of toxic substances in the harvested produce. Also, the cost of inorganic fertilizers is increasing enormously to an extent that they are not affordable by the small and marginal farmers. In this regard there is a need to identify the suitable substitute in place of chemical fertilizers which are economically cheaper and ecofriendly. During 2021-22, there was a significant increase in the organic agricultural land in India with 4.73 m ha land under organic agriculture, due to the active participation of the government in promoting organic farming through various schemes such as Parampragath Krishi Vikas Yojana – loosely translated as Traditional Agri-development Scheme. Government has ambitious plans of converting 14 m ha of farmland to organic by 2025, representing about 7-8 per cent of total agricultural area for principal crops. To meet the nutritional requirements of crops grown under organic farming solid and liquid organic manures plays an important role

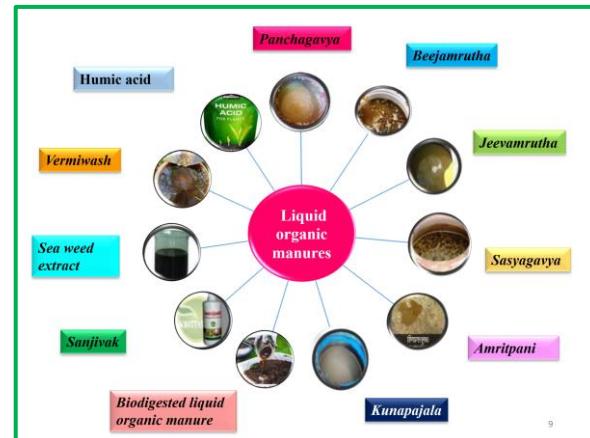
- The solid organic manures may not produce potential yield of crops due to low nutrient content and slow release of nutrients.

- **Liquid organic manures** can help to achieve the yield potential by helping in assimilation of nutrients and supplying growth promoting hormones like IAA, IBA, cytokinin, gibberellin, etc.
- The daily availability of **60 million liters of dairy wastes** in India can contribute **42, 10.5 and 31.5 kg N, P, K** per year per animal which are equivalent to **91, 66 and 52 kg urea, SSP and MOP** fertilizers, respectively.

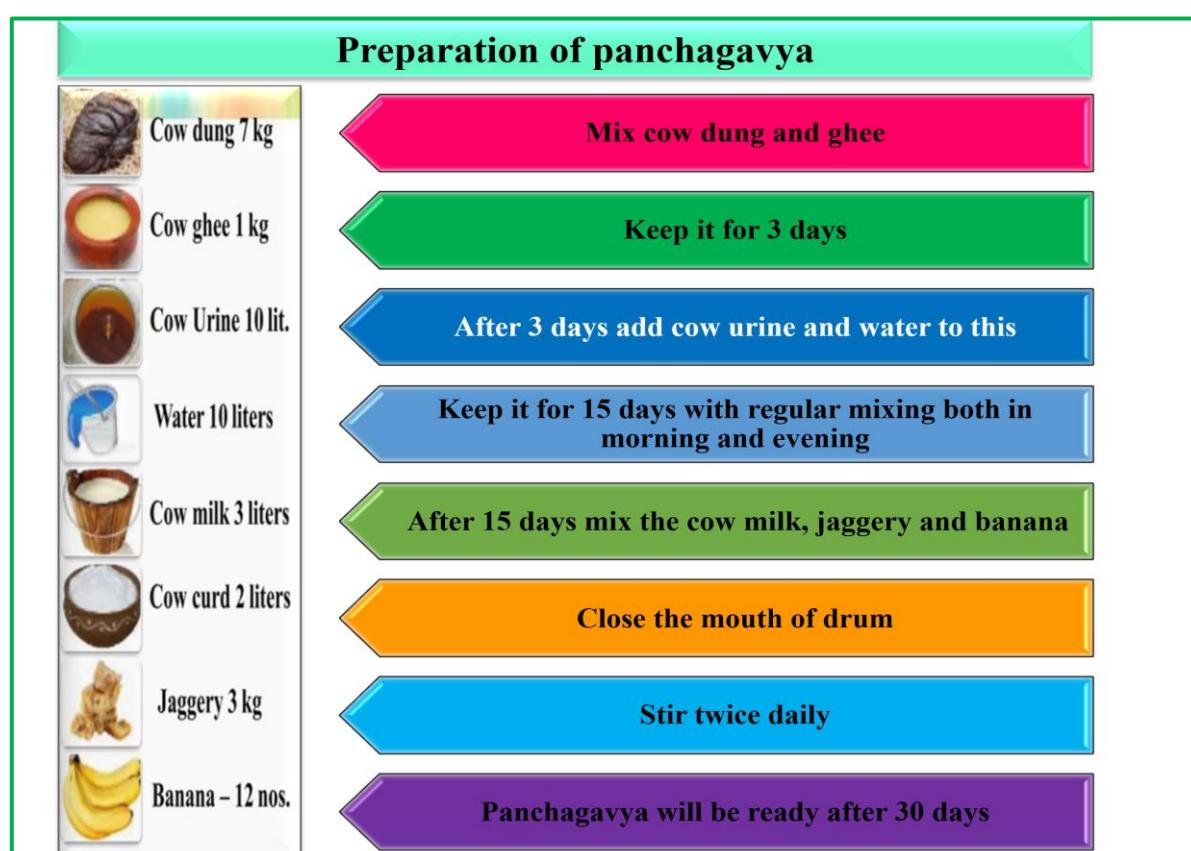
According to the National Centre for Organic and Natural Farming, only 38.74 m MT of farmyard manure was produced. The current farmyard manure produced could fulfill just 3% of the India's total nutrient requirements. Other organic fertilizer sources such as rural compost, organic manure, city compost, vermicompost, among others, account for 4.25 million MT and could hardly fulfill 0.5% of India's total nutrient requirements.

What are liquid organic manures ?

Liquid organic manures are concentrated liquid products obtained from the fermentation and /or decomposition of organic matter such as crop residues, animal dung, urine and other plant material



Liquid organic manures



Process for preparation of panchagavya

Method of application

- ✓ Foliar Spray- 3%
- ✓ 50 L ha⁻¹ through drip irrigation or flow irrigation
- ✓ Seed/ seedling treatment can be done
- ✓ For Seed storage- 3 % solution can be used

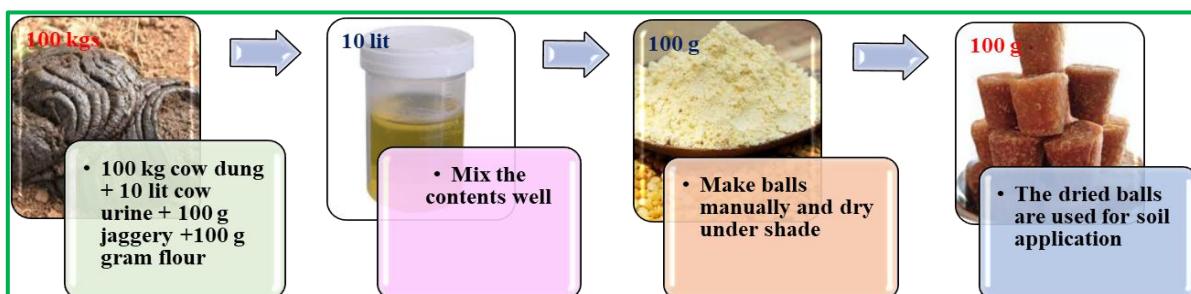
Preparation of Jeevamrutha



Method of preparation of Jeevamrutha

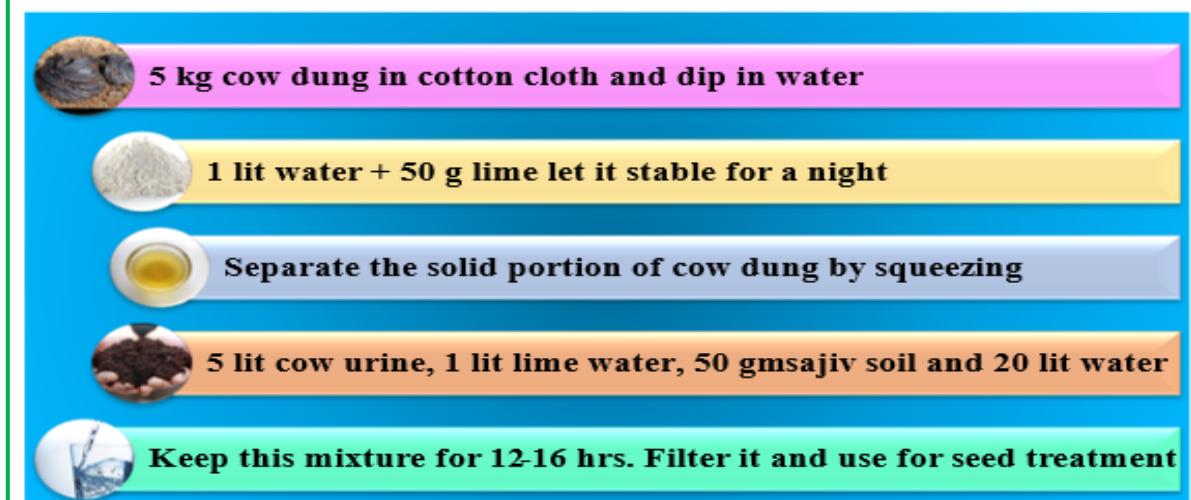
Method of application

- Apply when ground is wet for planting
- Use at least once for every month @ 500 l ha⁻¹
- Can be applied with irrigation water



Preparation of Ghanajeevamrutha

Beejamrutha



Preparation of Beejamrutha

Uses:

- ✓ Smearing- Control many diseases
- ✓ Beneficial microbes such as free living N₂ fixers, P-solubilizers and bacteria
- ✓ Improves seed germination, seedling length and seed vigor

**Preparation of Amritpani****Method of application**

20: 80 Amritpani:water.

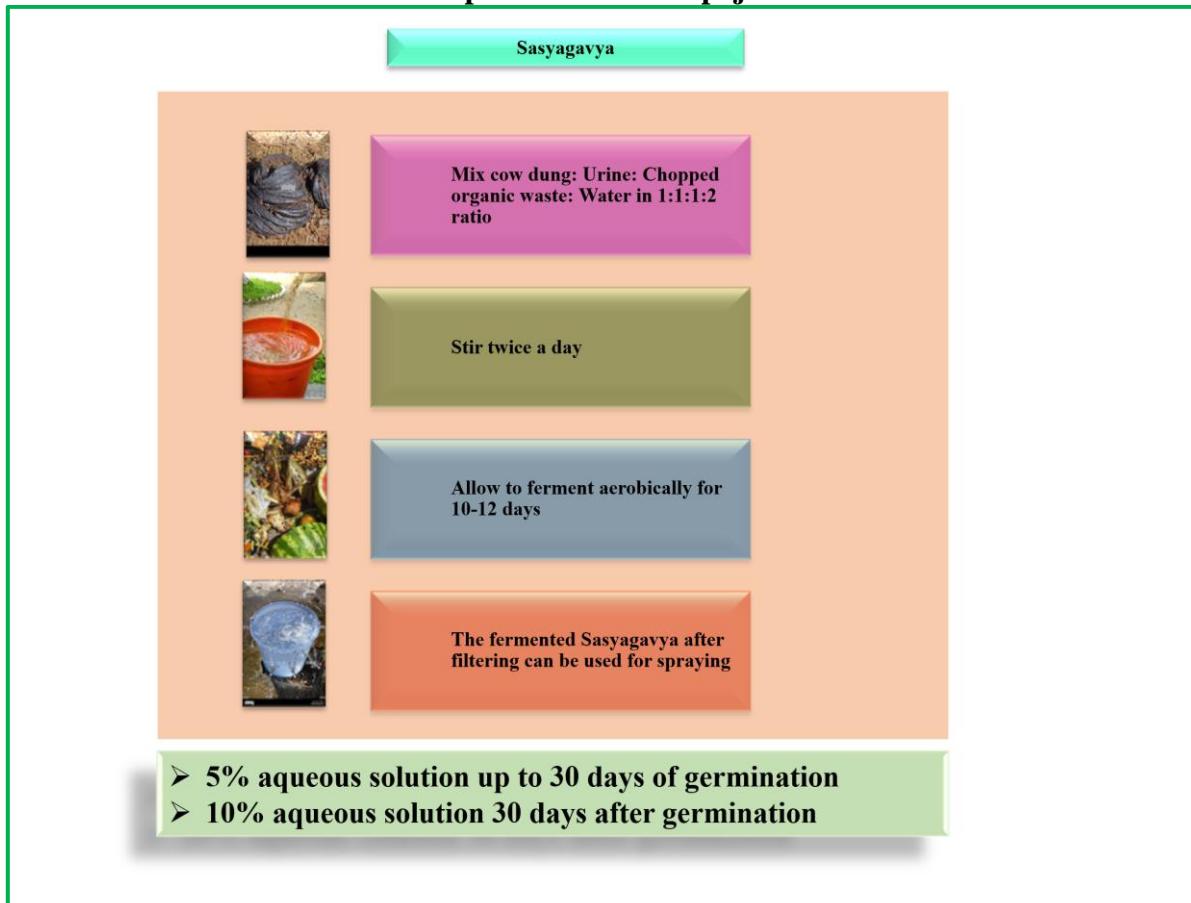
1. Seed or seedling treatment with Amritpani- germination- management of soil born diseases.
2. Soil fertility 200 litres of Amritpani per acre along irrigation water

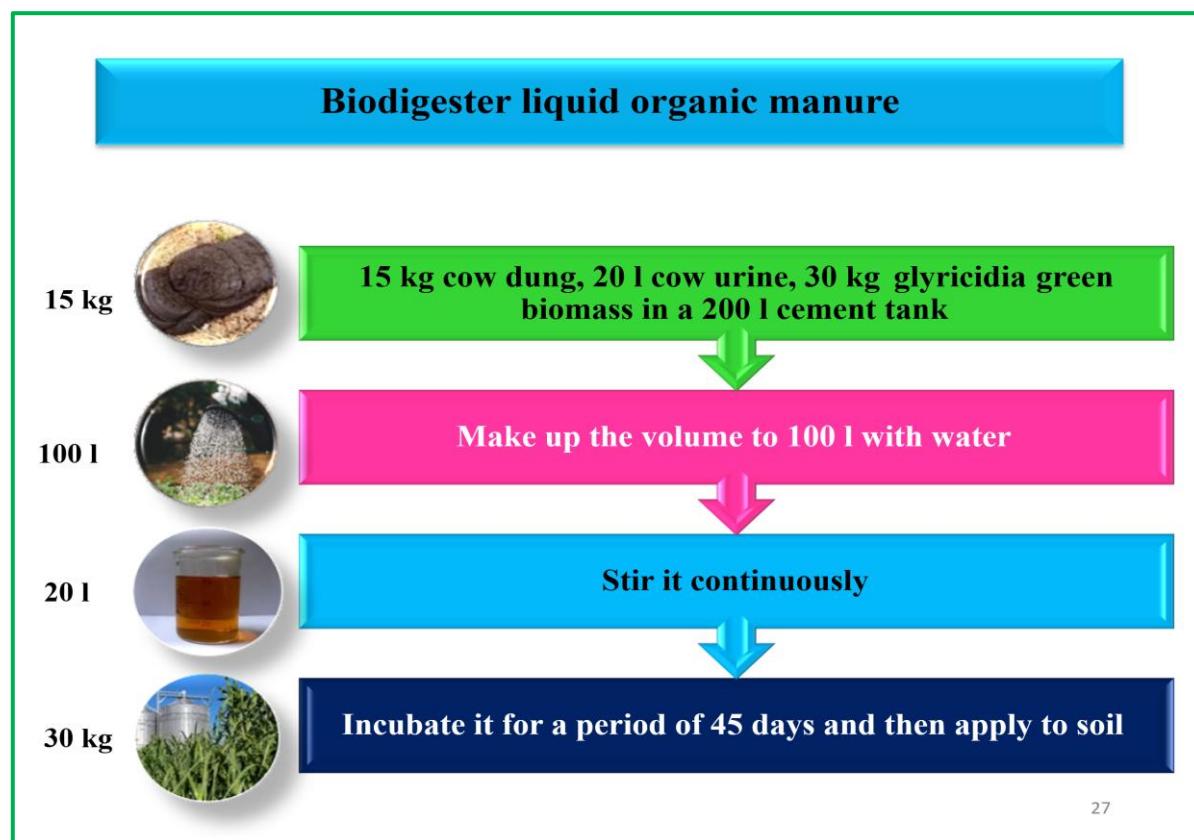
**Preparation of Sanjeevani****Method of application****Beeja sanjeevani**

- 20% aqueous solution of sanjeevani
- Planting material dipped, dried and planted
- 2-3 lit solution is required to treat 1 kg seeds
- Enriches the seeds by providing nutrients and growth promoting hormones during initial growth

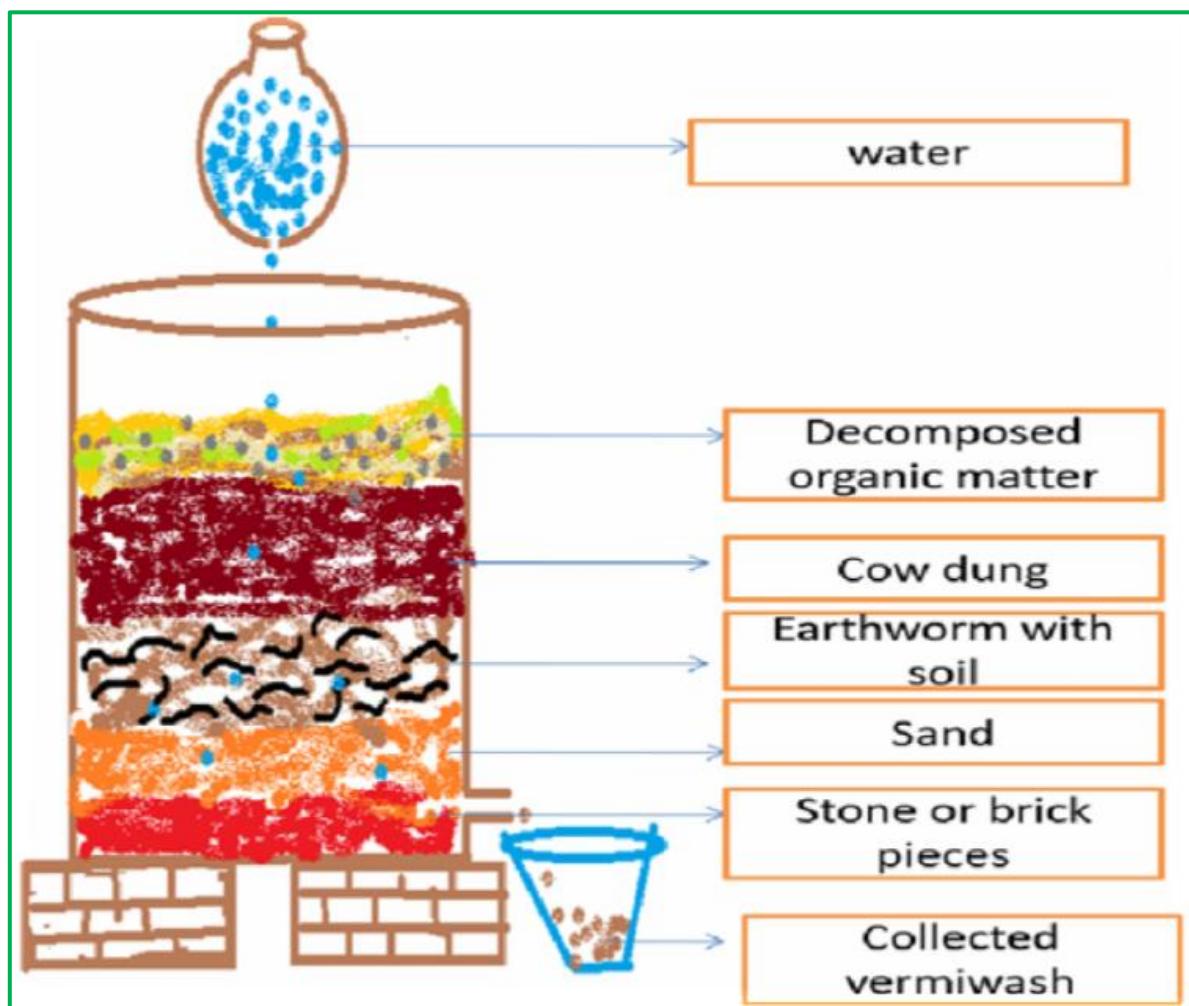
Poudha sanjeevani

- 5% & 10% solution of sanjeevani
- 5% - up to 30 DAS
- 10% - later growth stages
- It can also be mixed in irrigation water
- 40 litres of 5% solution is required for 1 acre

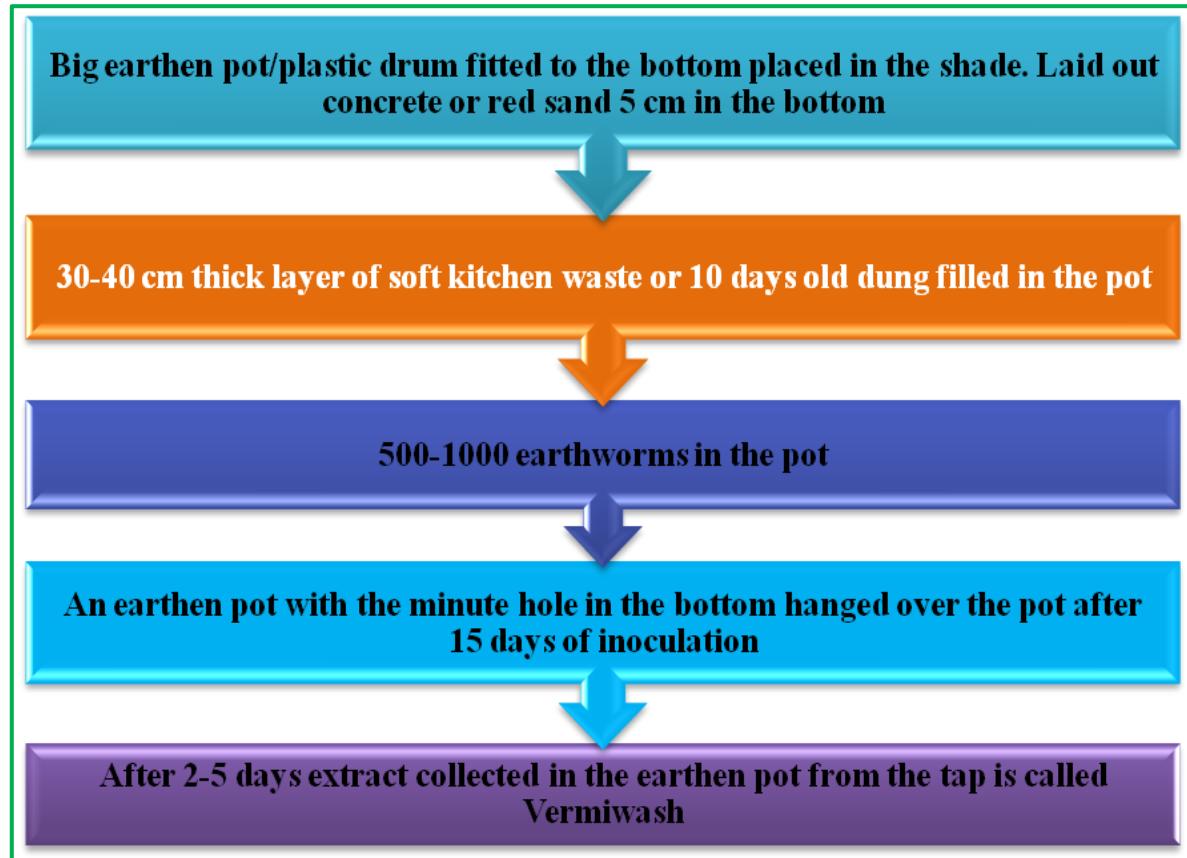
**Preparation of Kunapajala****Preparation of Sasyagavya**



Preparation of Biogested liquid organic manure



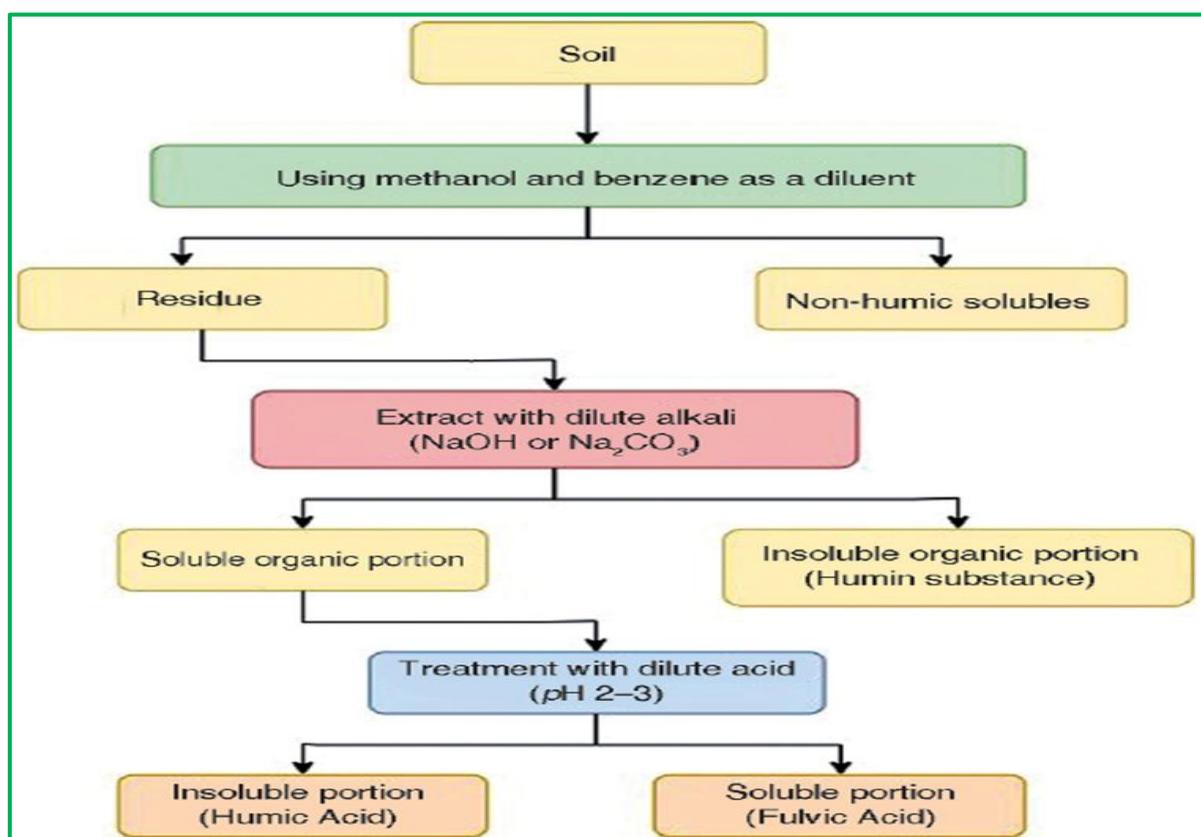
Preparation of Vermiwash



Process of Preparation of Vermiwash

Method of application

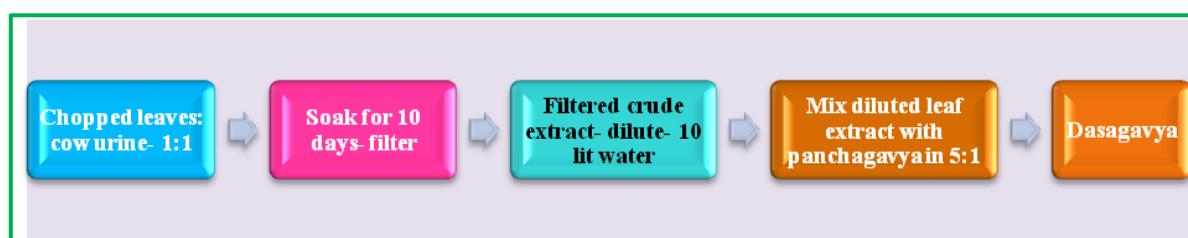
- Diluted in water 5 times- applied on foliage of crops
- Can be applied through irrigation water @ 50 L ha^{-1}
- Seed/ seedlings- dipped in diluted vermiwash for 15-20 min



Mechanism of Humic acid extraction



Mechanism of sea weed extraction



Process for preparation of Dasagavya

Advantages of liquid organic manures

- Provides readily available nutrients as per the crop need
- Increases the water holding capacity of soil
- Reduces cost of cultivation
- Improves quality of produce
- Induces drought and pest and disease resistance in crops
- Improves the beneficial microorganism populations in the soil
- This technology takes care of the sustainable soil fertility over a period of time in an eco-friendly manner. The technology would help the farmers in terms of reducing the external input purchase and improves the soil ecosystem

Liquid organic manures- a boon to organic farming

- Due to faulty agricultural practices we are left with depleted farm lands, degraded farm environments and apathetic farm population
- Under this circumstances way for organic farming is futuristic and benefits are indomitable in the long run
- Higher energy crisis, higher cost of inorganic fertilizers, declining factor productivity and soil health necessitate the use of organic manures in crop production
- Since evolution of agriculture, Indian farmers practiced livestock rearing combined with crop production
- Livestock wastes are an important components of liquid organic manures which if utilized properly could provide the required nutritional requirement of crops grown under organic farming

Conclusion

Liquid organic manures represent a practical and sustainable solution to the challenges posed by declining soil fertility, escalating input costs, and environmental degradation in contemporary agriculture. Their ability to supply nutrients in synchrony with crop demand, stimulate beneficial microbial activity and improve crop vigour makes them an integral component of organic nutrient management. By efficiently utilizing locally available organic resources especially livestock-based wastes, these liquid formulations reduce dependence on external inputs while strengthening on-farm nutrient recycling. In the long run, consistent use of liquid organic manures contributes to improved soil health, enhanced crop productivity, and resilience against abiotic and biotic stresses. Adoption of these practices not only supports the principles of organic farming but also paves the way for a self-reliant, eco-friendly, and economically viable agricultural system suited to the needs of small and marginal farmers.