

# Characterising the traditional organic liquid formulations used by the farmers of western agro climatic zone of Tamil Nadu

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## Annexure I Preparation of organic liquid formulations

### I. Manure formulations

#### 1. Ganajeevamruth

Ingredients include 2 kg of pulse/any flour, 2 kg of powdered jaggery and 2 litres of cow urine with 100 kg of fresh cow dung



The ingredients were mixed well and kept for drying under shade, which was used after it got dried completely

#### 2. Jeevamirtham

In a 100 lit water barrel, 10 litres cow urine with 10 kg cow urine is mixed



Added 2 kg jaggery and 2 kg any pulse flour



Mixed well – kept for fermentation – 5 to 7 days



The solution is shaken regularly 3 times a day

### II. Plant growth Promoters

#### 1. Placenta solution

Cow placenta is collected after calf is born



Soaked in cow's urine



Left it for fermentation

#### 2. Fish amino acid

Fish guts was removed and finely chopped (1 kg)



Added 1 kg of powdered the jaggery



Combined the two ingredients in a bucket made of plastic with a lid



Kept the lid covered and set aside for 15 to 20 days



Stirred this mixture frequently to prevent bad odours for at least 15 to 20 days.

### 3. Bandihoot solution

After death of bandihoot, it was soaked in cow's urine



Left for fermentation

### 4. Egg Extract (Egg Amino Acid)

Placed the five eggs (5 No.) in a jar and covered it with enough lemon juice to completely cover them (juice from ten to fifteen lemons)



Kept the lid closed for ten days



Smashed the eggs after ten days and made the solution



Set aside for ten days after adding an equivalent amount of thick jaggery syrup (250 g)



Following that, the solution was ready for spraying

### 5. Archaeobacterial Solution

Mixed dung (20 kg), jaggery (3 kg) and water (200 lit) well in a container.



Added Chebulic Myrobalan powder (100 g) to it and mix well



Boiled the licorice powder (10 g) in 250 mL water and cooled



To the aforementioned solution, cooled adhimadhuram was added



Ensured the airtight within the within the container by adding the remaining water before sealing it tightly



Within the container, methane was formed. Every now and again, the cap was unscrewed a brief period of time to let the air out



In ten days, the solutions was ready

### 6. Panchagavya

Mixed dung (5 kg), jaggery (1 kg) and ghee ( $\frac{1}{2}$  kg). Kneaded well.



For four days, a wet cloth was placed over this combination. Occasionally kneaded it



The other ingredients—3 litres of urine, 2 litres of fermented curds, 2 litres of milk, 3 litres of tender coconut, 10 to 12 bananas, and 3 to 5 litres of water—were added on the fifth day, and the mixture was allowed to ferment for 15 days



Covered this with nylon mesh

**7. Goat aavottam (Goat Panchagavya)**

Mixed goat dung (5 kg) with goat urine (3 litres)



Covered this mixture with moist cloth for four days. Mixed it once daily



On the fifth day added the remaining ingredients (2 kg green gram powder, 2 litres fermented curds, 2 litres milk, 3 litres tender coconut, 10-12 banana and 3 to 5 litres of water) and let it ferment for fifteen days



Covered this with nylon mesh

**8. Vermiwash**

In a plastic drum (250 litre capacity) and made a small hole @ bottom of the container



Small pebbles or stones were piled up to a height of 1 1/2 inches at the bottom of the container.



Sand (1 inch) and waste items like manure, fertile soil, and vegetable peels (30-40 cms.) were added to the container above the stones



200–300 earthworms were released to the drum after adding 1 kg of fresh cowdung.



Placed a 5 litre pot with a hole in the bottom over the drum so that water drips into the drum.



When this bucket runs out of water, it was filled again



Vermiwash e collected in a container that gently leaked from the drum's bottom

**III. Pest control****1. Treated Cow Urine**

Mixed 5 litres cow urine, 250 g jaggery with 250 mL EM solution



Fermented it for 7-10 days.

**2. Fermented Plant Extract (TFPE)**

Gathered the following delicate leaves: Zinc is found in the following plants: tamarind or White Gulmohar; copper is found in Senna flower, hibiscus, or Indian pennywort; iron is found in curry leaf, drumstick leaf, or any other leafy green; calcium is found in Indian abutilon; sulphur is found in gingelly or mustard plants; iodine is found in ladies finger plants; silicon is found in lantana camara, casurina, or bamboo; mercury (to build resistance to fungal, bacterial, and powdery mildew diseases).

From the list above, gathered 5 kg of plants and leaves. Depending on micronutrient deficiency in the crops, choose any combination



Sliced and crushed into tiny pieces



In ten litres of water, added 250 g of jaggery



EM solution was added in 250–300 mL



The mixture was set aside for fermentation within 7–10 days. This produces a solution of ten litres.

**3. Agniasthra**

Boiled (500 g hot chilli, 500 g garlic, 5 kg neem leaves and 10 litre cow's urine) all suspension 5 times till it becomes half

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Filtered the extract & store glass or plastic bottles

**4. Amudhakaraisal/Amudham solution**

Mixed 1 kg of dung in 10 litres of water

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Added 1 litre of cow's urine to that mixture

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Added powdered the jaggery ( $\frac{1}{4}$  kg) and mixed well

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Kept aside for 24 h

**5. Five Leaf extract**

The following leaves aid in insect pest repulsion:

Leaves those cattle don't eat. Ex – *Justicia adhatoda*, *Vitex negundo*

Breaking stems release a milky sap. Ex – *Calotropis gigantea*, *Datura metel*

Bitter tasting leaves. Ex – *Azadirachta indica*, *Aloe vera*.

Leaves with a salty flavour. Ex – *Jatropha gossypifolia*

Seeds with a salty or bitter flavour. Ex –Neem, custard apple

Took 2 kg of leaves from each of the aforementioned five categories

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To the above ingredients, added 12–15 litres of cow urine (Add more if necessary, so that the plant material is completely immersed in cattle urine)

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3-5 kg of manure and 100–250 g of turmeric powder were added (if available)

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For 7 to 15 days, it was fermented

**6. Neem + cow urine solution**

1 kg of green neem leaf soaked overnight in 5 litres of cow urine

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The extract was filtered

**IV Disease control****1. Pseudomonas + Buttermilk Solution**

500 g of *Pseudomonas fluorescens* with 1 litre of buttermilk solution

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Added 25-50 litres of water

**2. EM2 solution**

Dissolved 5 kg jaggery (chemical free) in 100 lit of water

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Added 5 lit of effective microorganisms (Purchased from outside)

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Mixed thoroughly and pour into a plastic drum

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Kept the drum sealed for seven days to

**3. Buttermilk solution**

Well fermented buttermilk was mixed with water at a 1:20 ratio

**4. Arappu - Buttermilk Solution**

Mixed the buttermilk (5 litres), 250-500 g leaf powder (*Albizzia amara*), 1 litre juice from waste fruit and tender coconut (1 litre)

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Fermented for seven days

**5. Lantana + Calotropis solution**

Grinded 5 kg of each Lantana and Calotropis leaves

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Added 5 litres of water and 10 litres of cow's urine to this paste

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Kept 3-4 days for fermentation in earthen pot