

# How to Make and Apply Botanical and Manure Teas



## WHAT IS IT?

Botanical and manure teas are liquid fertilizers made by soaking nutrient-rich plants or manure in water. These fertilizer teas can easily be made by farmers themselves, using only local resources.



## WHY DO WE DO IT?

All plants need nutrients to help them grow well and stay healthy. Botanical and manure teas made from wild-harvested, nutrient-rich species or animal manure can be an accessible way to provide crops with additional nutrients all throughout the growing season. Botanical and manure teas contain a mix of macro and micronutrients and can either be applied at the root zone or directly to plant leaves.

## TERMS USED

**Soil macronutrients:** Elements found in relatively large amounts in soil, including nitrogen, phosphorus, potassium, calcium, magnesium and sulfur. Plants need relatively large amounts of macronutrients to grow well. Farmers can increase the amount of macronutrients in soils by adding organic material.

**Soil micronutrients:** Elements found in relatively small amounts in soil, including iron, manganese, boron, copper and zinc. Plants require small, but essential, amounts of micronutrients to grow well and avoid yield losses due to micronutrient deficiencies. Farmers can increase the amount of micronutrients in soils by adding organic material.

# Botanicals



## Tithonia Fertilizer Tea

*Tithonia* (*Tithonia diversifolia*) is a shrub often found in abundance throughout sub-Saharan Africa. Since the plant accumulates large amounts of nitrogen and phosphorus from the soil, its green biomass is one of the best natural sources of fertilizer for a permagarden. The best time to use tithonia is when the leaves are dark green and the plant is just about to flower.

### STEP 1

Chop 5 kg (about one large basin) of dark green tithonia leaves.

### STEP 2

Soak chopped leaves in 10 L of water for two weeks, stirring every 3–5 days. After two weeks, most of the nutrients will have dissolved into the water and the mixture should be dark green.

### STEP 3

Dilute with 2 or 3 parts water to 1 part tithonia tea.

### STEP 4

Apply as a fertilizer to the leaves or use to water vegetables, young trees, and grain crops.



## Moringa Fertilizer Tea

*Moringa* is a multipurpose tree that has been planted widely throughout the world. Apart from its widespread use as a food source, moringa leaf liquid fertilizers contain many plant nutrients and a growth-stimulating compound that increases crop yields.

### STEP 1

Grind young moringa shoots (not more than 40 days old) and mix with water, following the ratio of 1 kg of fresh shoots per liter of water. Make enough for only one application, as the compounds in the tea break down within five hours of extraction.

### STEP 2

Strain the solids out of the solution. This can be done by placing the solution in a cloth and wringing out the liquid. The solid matter, which will contain 12–14% protein, can be used as livestock feed.

### STEP 3

Dilute the extracted tea with water, adding 30 cups of water for every 1 cup of tea.

### STEP 4

Spray directly onto plants immediately after extraction. Apply approximately 2 tablespoons of diluted tea per plant. The spray can be applied to any plant leaves 10 days after the first shoots emerge from the soil and again prior to any flowering period.

## Manure Fertilizer Tea

Manures from cows, goats, sheep, chickens, ducks, rabbits, horses, donkeys, and camels are used extensively around the world as a fertilizer. Manure teas are a way to apply the nutrients from manure to plants mid-season when it is not possible to add additional soil amendments. Manure teas can be added to the soil or sprayed onto crop leaves.

### STEP 1

Gather manure and place in a breathable burlap sack.

### STEP 2

Place the closed burlap sack holding the manure in a bucket, modified jerry can, or barrel. Use a rock or heavy object to hold the sack in place.

### STEP 3

For every 1 kg of manure in the sack, add 8 L of water to the container so that the sack is submerged.

### STEP 4

Soak for 3 weeks, making sure that the sack is aerated and stirred every 4 or 5 days.

### STEP 5

At the end of 3 weeks, pull out the sack. The manure that remains can be added to a compost pile or used to fertilize fruit trees.

### STEP 6

Dilute the manure tea until what is left is light brown. This is now ready to be applied to plants.

