

# Recipes for making natural pesticides

— Discover local plants to prepare an environmentally friendly & powerful solution for sprayers —

## Main ingredients

- **Wetting agent** (surfactant): acts like soap and make pesticide more effective
- **Herbal essence**
- **Rainwater or distilled water**
- Optional: Microorganism solution
- Optional: Sulphur preparation



*Figure 1: Using biopesticides can cause spots on the leaves. Wetting agent makes application more effective.*

To make 20 or 500 litres (L) of natural pesticide is required:

Components	20 L	500 L	Comments
<b>Wetting agent</b>	120 to 600 ml	3-15 L	Quantities depend on the degree of severity of the pest or disease.
<b>Herbal essence</b>	120 to 800 ml	3-20 L	
<b>Rain water (best), distilled water or clean well water</b>	19.76 to 18.6 L	494 to 465 L	Clean, soft water increases effectiveness of pesticide agent
<b>Pure clay or cassava starch</b>	25 g	625 g	Increases pesticide effectiveness

## Preparation process

How to mix components for a 20 L sprayer: Add 9 L of water in bucket. Add wetting agents. Stir. Add herbal essence. Stir thoroughly. Always mix each component separately with water before mixing. Then add the remaining water. Fill sprayer. Apply.

**NOTE: Apply in the evening or morning hours and avoid rain during the following hours.**

# How to prepare wetting agent?

## Ingredients for 10 L wetting agent (JADAM Organic Farming Recipe):

- Oil (e. g. sunflower or soya) 1.8 L (1638 grams)
- **Caustic potash (potassium hydroxide) (KOH 90%) 0.320 kg**
- Initial water: 0.25 L
- Additional water: 8 L



**NOTE:** (1) Don't use Caustic soda (NaOH) as this reacts differently with the ingredients and mostly leads to clumps which cannot be used.

- (2) Use rainwater so that the pesticide will penetrate the entire pest when applied.
- (3) Store at warmer temperatures for proper (hardening) curing of the wetting agent
- [Find the full illustrated guide here](#)

## Substances with pesticidal effect

**Insecticidal agents** are found in:

- Gliricia leaves (*Gliricidia sepium*)
- Neem seeds (*Azadirachta indica*)
- Wombwe leaves (*Tephrosia vogelii*)
- Chilly/Tsabola pods (*Capsicum sp.*)
- Marygold/Mnunkadala (*Tagetes sp.*)
- Fresh cow dung

**NOTE:** Species vary according to local climate.

**Fungicidal agents** are found in:

- Garlic and onion (*Allium sp.*)
- Lemon grass (*Cymbopogon citratus*)
- Turmeric (*Curcuma longa*)
- Papaya leaves (*Carica papaya*)
- Solution of microorganism (Document available upon request)
- *Trichoderma* (Soil borne fungi)



Figure 2: Pounded Chilly before getting soaked in water

## Recipes tested in Malawi

**Ingredients for herbal essence** (10 L) based on **Chilly pods**:

- Pound 1kg of pepper and soak in 10 litres of water overnight



Figure 3: Herbal essence and wetting agent ready to use.

- Sieve the next day
- Optionally add 60 – 300 ml of wetting agent wetting for better effectiveness
- Apply on crops

**NOTE:** Careful with hands touching the eyes if handled without gloves!

**Ingredients for herbal essence** (10 L) based on **Wombwe leaves (*T. vogelii*)**:

- Pound 2 hands full of Wombwe leaves in 10 litres of water overnight
- Sieve the next day
- Optionally add 60 – 300 ml of wetting agent wetting for better effectiveness
- Apply on crops

## Recipes tested in Nicaragua

**Ingredients for herbal essence** (8 L) based on ***Gliricidia sepium* leaves**:

- 4.4 lbs of fresh herbs wrapped in cloth bag with stones (to sink in pot)
- 8 L of rainwater
- Turn flame on high or increase the amount of ember.
- When it starts to boil, lower the flame or decrease the fire.
- Cook for 4 hours with covered pot.
- If you want to preserve the essence, fill bottle or container (heat resistant) with hot infusion and turn it upside down to disinfect the lid. Keep refrigerated to prolong shelf life.



For other recipes based on this method see "JADAM Organic Farming - The Ultra Low-Cost-Agriculture".

## Sources:

- Cho, Y. (2018). JADAM Organic Farming: ULTRA Powerful Pest and Disease Control Solution, Make all-Natural Pesticide, The way to Ultra-Low-Cost agriculture!. JADAM.
- [Feed the Future \(2017\): Guidelines for use of natural pesticides in home garden vegetable production](#)
- [Natural Pesticides Facilitator's guide](#)

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