

FARMER TO FARMER - PRACTICES FOR RESILIENCE SERIES

# COOK ISLANDS FISH EMULSION

Fish emulsion is a nutrient source for soil microbes. Feeding microbes' fish emulsion results in an increase in the activity and diversity of the microbial community in the soil. In turn, this improves soil health. Improved moisture, nutrient and reduced diseases are some of the indicators of good soil health.

It also replenishes micronutrients in the soil, which help plants grow and stay healthy. A fish emulsion typically contains nitrogen, phosphorus, potassium, calcium and oil.

The five main ingredients in this fish emulsion prepared by Cook Islands farmers is fish waste, water, phosphoric acid and time.

## Step 1: Get the Fish



Separating the fish, *tuna* and *mahimahi*



Stack fish in well



Breaking down fish meat into smaller pieces with a pounder or you can chop it up or even better mince it so that it breaks down faster to form the emulsion

Get ready gallons or drums to make emulsion. The size of the drum, container, or bucket depends on your need. Two forty gallon drums were used for the purpose of this demonstration. Get waste parts of fish from a fish factory or family meal. The two main species of fish used here are *Tuna* and *Mahimahi*. Keep fish separate. In an emulsion, use only one fish species as mixing fish may create diseases. You can use any fish species. Chop it up into smaller pieces or break it down

## Step 2: Water and Sugar

Add water to cover the fish. Water acts as the agent to carry all the nutrients, bacteria to move around, dissolves other dry ingredients. If the fish dries up, it mummifies and is hard to break down. Water prevents this from happening.

Also, add a handful of sugar. The sugar feeds the bacteria that is breaking down the fish. It energises them and makes them work harder and faster. Feed the emulsion a cup sugar every week.





### Step 3: Phosphoric Acid

Add a cup of phosphoric acid, in the beginning and once every month. The acid stabilises the emulsion. It causes the acidity of the solution to drop and break down the fish.



Phosphoric acid

### Step 4: - Cover and Leave Standing

Cover gallons with lid. Stir the mixture at least once a week to get oxygen into the emulsion. Oxidation gets fish to break down faster.



### Step 3: Ready for Use

With optimum care, the emulsion is ready in two months. Use five millilitres of emulsion for a litre of water.



A



B



C

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