

## How To Make Your Own Garden Inoculant For Less Than \$1

<https://www.smilinggardener.com/plants/garden-inoculant/>

A garden inoculant is really just anything we use to bring beneficial microbes into our organic gardens. These microbes are often deficient for various reasons, but if we can get more of them back in there, they:

- Make nutrients available to plants and even feed them nutrients and water directly
- Protect plants from disease both in the soil and above ground
- Improve the structure of the soil so it has the right amount of air spaces, water spaces, nutrient availability, pH, etc.

Plus there's a whole list of other services they provide for plants and soil. Pretty cool...

### My Favorite Garden Inoculants

High quality compost is one of the best ways to introduce these beneficial microbes, if you're lucky enough to have some around.

I'm also a big fan of using a couple of other things:

- Effective Microorganisms (EM) and SCD Probiotics. This is a mix of especially beneficial microbes that do all kinds of good when sprayed on the soil and plant leaves.
- Mycorrhizal Fungi. These are perhaps the most important soil microbes in the world, forming relationships with over 90% of plants.
- Aerated Compost Tea. A liquid produced by bubbling air through a very small amount of quality compost along with microbe foods.

These garden inoculants have had a huge impact on my garden.

### Making Your Own Microbial Inoculant

But perhaps you'd prefer to make your own inoculant, maybe to save money or to be more sustainable or because you just think it would be cool, man.

I learned this process from Gil Carandang of Herbana Farms in the Philippines.

Personally, I've mostly just done it for fun because they also come in EM, which is something I use a lot and know is more useful.

Still, culturing *Lactobacillus* is great for people who don't have access to or don't want to bring in many external inputs.

### What You Need

All you need is:

- A small amount of a whole grain such as rice
- Milk for the lactose that will dissuade other microbes from living there while being a perfect environment for the lactic acid bacteria. I prefer organic whole milk, but any kind will do. I used to think cow's milk was better, but it doesn't matter at all.

Obviously if you're a vegan you can't use milk. I've never seen it done with anything else, but I imagine there are other liquid mediums that would encourage *Lactobacillus*. For example, I've made water kefir before, which includes several species of lactic acid bacteria, and doesn't use milk. But today, we're using milk.

Let's say you're going to make a pint of garden inoculant, which is a little less than 500mL. That would be 3 Tbsp of grain and 450mL of milk - less than \$1 worth of materials.

### First Steps

Rinse the grain in some warm, dechlorinated water.

If your water has chlorine, you can get rid of it by letting it sit out for 24 hours in a sunny spot. If it has chloramine, you can tie it up by putting pretty much any organic material in there. Vitamin C is often used, but even just a bit of molasses or sugar or lots of things will apparently do it. It happens instantly.

Pour that rinse water into a container, leaving the container 50%-75% empty. This gives us our complex carbohydrates.

Put on a loose lid/paper towel/cheesecloth so that air can still get in, but not fruit flies or whatever else you might have in your place right now.

The grain can be used elsewhere, but isn't needed anymore for this process.

Keep the container at room temperature out of the sun for 2-7 days - the colder the temperature, the longer it takes.

### **Second Steps**

Once you see a thin film on the surface and a sense a bit of a sour smell, strain the liquid into a bigger container and add 10 times as much milk.

This time, it's better to keep air out of the process, so put a lid on tight.

After the first couple/few days, it's a good idea to 'burp' it by unscrewing the lid and screwing it back on, in case any gases are building up.

### **Third Steps**

In another 2-7 days you should have some solids floating on top that can go into the soil or compost, and a clear, yellow fluid underneath that contains the beneficial microbes.

Separate this fluid into another container. It will store in the fridge for a year or more.

You can add up to an equal amount of unsulfured molasses or sugar to keep the bacteria fed, which apparently allows it to be stored out of the fridge, but I just keep it in the fridge.

### **Using This Inoculant**

When it's time to use some, mix it with approximately 1000 parts non-chlorinated water (about 1/2 teaspoon per gallon of water) and spray it as a plant inoculant and soil inoculant.

(When I learned about it this, I was taught to mix it with 20 parts water first, but then that gets mixed with about 60 parts water, so that would mean 1200 parts water total - I just round down to 1000, as this is far from an exact science).

I've never seen an application rate, so I just spray my plants until the leaves are dripping.

These lactic acid bacteria will play some role in doing most of the things I mentioned above - making nutrients more available to plants, protecting from predators, etc.

You can also use it as a seed inoculant, soaking seeds overnight with the above dilution.

Feel free to ask questions below.

Enjoy!

Phil

P.S. Again I should mention that EM contains Lactobacillus along with other beneficial microbes, and is certainly more effective than using a culture with only Lactobacillus, but still, if you don't have EM, it's definitely worthwhile using this one.