

5. Basic Inoculation

EM Extended is now ready to use as a diluted solution. It's part of the Big Solution. If you feed the soil and manage it according to the 10 Fundamentals you will see tangible results. We will discuss these fundamentals in the following chapters. Let's go over the basic application procedure for EM Extended first. Then I will tell you how we do it at Aloha House. Once you have the hang of it, there are more advanced applications.

We started by spraying every week. For livestock, spraying the yard daily may be necessary to control odors in the beginning. There is more concentrated waste. Spraying daily will help out the first week.

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You will catch up on the backlog of problems from previous management. We had a backpack sprayer which was very easy to use and replacement parts were easy to come by. We used it so often that we wore out our sprayer handle. Larger operation may spray monthly and still see good results.



The power sprayer makes a fine mist to distribute your microbes. Be sure to keep the setting around 10 bars or you will damage the microbes and limit the effectiveness.

Then we graduated to an electric pressure sprayer with a 100-meter hose that winds up onto a reel. It's a very handy accoutrement. It makes it a lot easier to spray our 8,000 sq. m (2-acre) growing and grazing areas. We have the garden house and nursery centrally located. In it we have a 200 L (50 Gal.) drum for mixing our various concoctions, so we can reach the entire spread with our sprayer. During rainy weeks we spray every Monday and Friday.

The sprayer also comes in a gasoline or diesel version so that you can mount it on a tractor or utility vehicle for mobile spraying. We use 1 drum for every 1 hectare (2.5 acres), so a large system would need to carry the liquid too. Foliar application is 200 to 500 parts water to 1 part EME. For soil treatment you can increase the concentration to 100 parts water to 1 part EME. That would allow you to cover more area with less fluid sloshing around and less refills as well. We don't spray more than 200:1 on plants, as it is possible to burn them due to the acid level of the EM. Once it grows in the environment it actually works as a buffer through organic matter, but in its dormant state the pH is 3.5.

Table 2- EM Diluted, or EMA, or AEM

Use	Size	EME	Molasses	Water
Plants 1:1:500	16 Liter Backpack Sprayer	30 ml	30 ml	15 Liters
Plants 1:1:500	50 gallon (200 Liter) Drum	400 ml	400 ml	199 Liters
Livestock 1:100	15 Liter Backpack Sprayer	150 ml	NONE	15 Liters
Livestock 1:100	50 gallon (200 Liter) Drum	2 Liters	NONE	198 Liters

Follow the recommended concentrations to start with. Livestock concentrations can be higher than for agriculture use. We use molasses for agriculture. In some regions they call it E.M.A.S.-EM Activated Solution. Others call it AEM, Activated EM. Basically, we're giving the microbes additional nutrients when we send them off to work. We premix the AEM 2-12 hours ahead of use, usually over night. In the USA they call EME by the confusing term EMAS. They are cautious to call it EM *EXTENDED* because it will not propagate a second time. It will be inferior to the original EM1 and you would be wasting your efforts.

So basic inoculation is pretty simple, the more often you spray, up to a point, the sooner you succeed. Some large systems spray only once per month or less, it depends on the crop and management system you have as well as soil conditions, season and climate. Just take good

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notes and keep a keen eye on what you are doing. Later we will discuss how to enhance your EME to increase its effectiveness. First, we have to feed the soil. So let's start with the Ten Fundamentals!



We inoculate the pig house using a backpack sprayer. Spray weekly for small-scale livestock to minimize odors and diseases.

Table 3- EM Economics

Conventional backpack sprayer- 4 gallons or 15 liters

EM 1	EM E	Back Pack Sprayer	ml/sq. M	Area Covered
	30 ml.	1	100	150 m ²
30 ml.	1 L.	33	100	4,950 m ²
1 L.	30 L.	1,000	100	15 Hectares

The economy of EM speaks for itself. One bottle covers a lot of area. Just 30 ml. of EM1 makes 1 liter of EM Extended which makes 33 backpack sprayers, which covers ½ hectare or 1.25 Acres. A bottle of EM1, extended and diluted, will cover 15 hectares or 37 acres.

EM 1	EM E	200 L Drum	ml/m ²	Area Covered
	400 ml.	1	100	2000 m ²
1 L.	30 L.	75	100	15 Hectares

We fill a 200-liter drum and use a power sprayer to cover our farm.



Seedlings respond well to compost teas and EM sprays. We cover them every week with millions of beneficial species. We also make our own fruit flytraps for the nursery. Microbial sprays are only part of an overall solution.



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Bringing fresh, tasty, high quality food to the market is very rewarding to the grower. When you practice the fundamentals, a profitable venture is assured.