

Seed-Starting Secrets of a Greenhouse Professional

This blog post shares some of the simple techniques learned through many years of experience by someone who grows vegetable seedlings for a living.

<http://www.motherearthnews.com/organic-gardening/seed-starting-secrets-greenhouse-professional-zbcz1403>

By The Natural Gardening Company (<http://www.motherearthnews.com/biographies/the-natural-gardening-company.aspx>)

We began producing certified organic vegetable transplants 23 years ago at The Natural Gardening Company with very little experience under our belt. Since the early days we have produced well over a half million seedlings, learning by trial and error. I have no doubt there is more to learn, but this blog will provide you with a summary of our seed starting technique. Where we learned from mistakes, you can have the benefit of our two+ decades of experience.

Our Soil Mix

We've fiddled around with our seed starting mix over the years. In the beginning we used a classic formulation: 1/3 peat moss, 1/3 perlite and 1/3 organic material (usually compost or aged steer manure). These are readily available materials and they work well, with one shortcoming. When seeds using this formula are planted in plug trays and placed in a sunny location, direct sunlight and high heat can cause mold to grow on the surface. This mold eventually becomes a crust. This crusty layer impedes the penetration of water from above and suppresses the upward development of the seed from below. The crust does not completely inhibit the development of seeds in the tray, but it greatly reduces the rate of germination.

By chance, there was a shortage in the perlite supply one season. This forced us to turn to alternative materials. We chose vermiculite, and what a difference it has made. Vermiculite absorbs moisture and keeps the soil materials evenly damp so no crust forms, even under hot, sunny conditions. This moisture retaining property also enhances seed germination, as the most common cause of failure when starting seeds is desiccation – drying out.

Then we simplified our formula further, eliminating the organic material. Seeds carry a layer of starch in the cotyledon and can nourish themselves in the first phase of development. We were already fertilizing our seeds after they germinated with a liquid fertilizer, a combination of fish and kelp, so we stopped using the compost/manure. This left us with a simple, light, easy-to-mix soil formula of equal parts peat moss and vermiculite. This is the mix we use today. If you don't want to mix it yourself you can find our seed-starting mix (<http://www.naturalgardening.com/tools/propagation>) on our website.

Our Propagation Trays

If you're seriously interested in success with seeds, and you respect the time and materials you put into this process, there's only one way to go when you buy your propagation trays (<http://www.naturalgardening.com/tools/propagation>): use the trays professionals use when they start seeds. Commercial trays work better, last longer and offer more options than anything you will find at your local garden center. They cost only a fraction more but are much more durable and will last longer.

We start our seeds in 128 and 288 cell trays both because of the volume of our production and space limitations of our greenhouses. You may be more comfortable using 72 or 128 cell trays. The larger the cells (the cells in a 72-cell tray are substantially larger than the cells in a 288 cell tray) the longer the transplants can be held before they need to be moved.

Our Sowing Technique

We have a vacuum seeder that lets us plant whole trays in seconds, but we also do a fair amount of hand seedling. We fill our trays to the top, level the soil with a brush of our hands, and sow our seeds into dry soil. Instead of covering the seeds with a light layer of soil, a common recommendation, we lightly press each into the soil surface so there is good contact between the seed and the soil. You can see the indentation from the tip of our fingers in the soil surface. You can often still see the seed, pressed into the soil.

Water Conscientiously

The most important additive to initiate germination is water and the most common cause of seed failure is drying out caused by inconsistent watering. After sowing the seeds, we water using a brass seedling nozzle (<http://www.naturalgardening.com/tools/watering>) which sprays a fine mist. It takes a while for the soil to absorb the water. We usually make at least three passes at five minute intervals to insure the soil is sufficiently moist. When you pick up an adequately watered tray you will feel the weight of the water.

Cover with Plastic Wrap

For years our planting process ended at the step above. Last year we tried something new with miraculous results. Like many of you, we'd grown accustomed to spotty germination with pepper and eggplant seeds. Unlike many of you, we have a commercial incentive to maximize results so we don't waste time and space when both are at a premium. Faced with several unsuccessful rounds of peppers early in the season, we decided to experiment by covering our trays with a layer of plastic wrap. Wow, what a difference. Our germination rate increased from an average of 50 percent to 90 percent and sometimes as high as 99 percent. Trays that had previously been spotty were thick with sprouted seeds.



After our trays are sown and covered with plastic wrap, we move them to a professional incubation chamber to initiate the germination process. This chamber is about the size of a refrigerator with trays inside like an oven. At the bottom is a stainless steel basin that we fill with water. Inside the basin there is a water heater element which is controlled by an external thermostat which we usually set at 70 degrees. You may not have a germination chamber, but you should consider trying a location where you can keep your seeds in warmth and in complete darkness for several days. You may find this speeds up the germination process. Our incubation chamber allows us to germinate tomato seeds in three days and pepper and eggplant seeds in 6-7 days. If you don't have access to a germination chamber, hermetically sealed heat mats that maintain a constant temperature of 70 degrees Fahrenheit are tried and true and make a big difference to success with seeds.

Next time we'll take a look at how we transplant and care for our seedlings until they're ready to transplant into the garden. See you in two weeks!

