BOOTSTRAP FARMER

Seed Starting Bundle Guide

4-26-23

Getting started with your school garden bundle.

The why:

Starting plants from seed offers students a multitude of learning experiences. The opportunity for life science lessons abound from discussions about adaptations, life cycles and photosynthesis. There are also great ways to discuss and practice the scientific method. Because plants grow in varied ways depending on the environment they are placed in, it is easy to develop experiments with controls and variables of all kinds.

Growing edible plants from seed is also a way to expand on healthy eating habits and long term lifestyle changes that keep kids healthy. Research has proven time and again that children who are exposed to growing and gardening eat a wider variety of foods and are more likely to choose fruits and vegetables.

For convenience we have included a link to our ever growing page of STEM based lesson plans focused on growing and gardening.

The what:

These guides will explain the basics of seed starting and transplanting for common varieties of edible plants. Whether these are then planted out into a school garden, sold for fundraising, donated to community gardens, or sent home with students is completely up to your program.

This kit comes with all the equipment needed to start 360 plants. Some types of seeds do well in smaller containers and will grow in the 6-cell trays until they are ready to be transplanted out. Others will be potted up into the colored pots before going outside.

Some plants do not like to be transplanted and should be started in the 2.5” pots for minimal root disturbance.

The kit you are receiving contains the following equipment:

- 6 cell trays, 60
- 1020 Deep no hole trays, 10
- 1020 Shallow no hole trays, 10
- 2.5 Multicolor Pots, 400
- 32-Cell Tray Inserts, 10
- Humidity Domes, 10

In addition to the kit you will need:

- Seeds
- Seed starting mix or potting soil. It is helpful to have a large tub with a lid to keep the soil in to keep mess to a minimum.
- Spray bottles
- Sunny window sills or grow lights
- A baker’s rack or some open shelf space
- A warm place for germination
- Craft sticks or chalk pen for labeling

Before you plant

You will need to do a few things before you get planting. Read the basic information included below to get ready for any growing. Then select the appropriate PDFs for your plans and get started.
Wash your trays with hot soapy water and allow to air dry.

The how:

Starting seeds of any type begins with the same basic process. Most annuals grown for the garden or farm do not need special treatment of the seeds but may need different environments to germinate properly. After the basics of getting your equipment ready

we have given instructions based on the four families of annual plants most common in the garden.
Before you start planting it is important to have an idea of your end goal. For the rest of this guide we will assume that the goal is producing plants for an onsite school garden. If your goals are different you can account for that as you make your plan.

For planting any type of seed

Start with moist but not wet soil, you will water thoroughly once you have planted the seeds. Once seeds are planted you can water with spray bottles or by bottom watering.

Most seeds should be planted around 1-2 times as deep as the size of the seed. This means a seed that is ⅛ of an inch in diameter should be planted ¼ inch deep. Larger seeds like beans and squash should be planted at least an inch deep as the roots can push the seed upward.

To bottom water, place all of your planted trays in a tray with no holes. Fill the tray without holes with water and allow the soil to absorb the water. Capillary action will draw water up into the soil. After about an hour you can pour off any excess water from the bottom tray. Do not leave trays sitting in standing water as this can lead to root rot.

How to plant tomatoes.

Tomatoes, tomatillos and peppers are very similar so these instructions can be used for those types of seeds as well. All of these can be started in 6-cell trays and then potted up into the 2.5 inch pots to give them a longer growth period indoors. Since this family requires the most heat to germinate and grow they benefit from staying inside until outdoor temperatures are consistently warm.
Tomatoes have a special adaptation that allows them to produce roots from the little hairs that grow on their stems. This means that if you bury the stem your plant will

produce even more roots. Every time you transplant and bury the stem by a few inches you are strengthening the plant.

Using the 6-cell trays:

- Fill each tray with soil to the top edge.
- Use a second pot to compress the soil, this will give you a divot in which to place the seeds.
- Place 1-2 seeds in each cell.
- Fill the remaining space with soil. The soil should cover the seeds with ¼ to ½ an inch of soil.
- Water thoroughly and place in the tray under a humidity dome until the seeds sprout. (If too much water is condensing on the sides of the dome and dripping, open the vents.)
- Once you have around 50% germination remove the humidity dome to prevent fungal issues.

How to plant legumes.

Peas, bush beans, and pole beans can all be started in the same way. Although peas are best planted out as soon as possible therefore can be planted in the 6-cell as well. All legumes should be transplanted once they have a single set of true leaves to avoid transplant shock.

Using the 2.5 pots:

- Fill each pot with soil to the top edge.
- Use a second pot to compress the soil lightly.
- Using a pencil or finger make a hole 1 to 1 ½ inches deep.
- Put 1 or 2 seeds in the hole and cover with soil.
- Water thoroughly and place in the tray under a humidity dome until the seeds sprout. (If too much water is condensing on the sides of the dome and dripping, open the vents.)

- Once you have around 50% germination remove the humidity dome to prevent fungal issues.

How to plant brassicas.

Collards, kales, turnips and broccoli are all from the brassica family and are similar in their planting needs.

Using the 6-cell trays:

- Fill each tray with soil to the top edge.
- Use a second pot to compress the soil, this will give you a divot in which to place the seeds.
- Place 1-2 seeds in each cell.
- Fill the remaining space with soil. The soil should cover the seeds with ¼ to ½ an inch of soil.
- Water thoroughly and place in the tray under a humidity dome until the seeds sprout. (If too much water is condensing on the sides of the dome and dripping, open the vents.)
- Once you have around 50% germination remove the humidity dome to prevent fungal issues.

How to plant cucurbits

The Cucurbitaceae family includes cucumbers, summer squash, pumpkins and melons. These plants are all sensitive to root disturbance and should be transplanted as little and as carefully as possible. Try to schedule your planting so that you can transplant before too many roots are visible through the sides of the pot.

Using the 2.5 pots:

- Fill each pot with soil to the top edge.
- Use a second pot to compress the soil lightly.

- Using a pencil or finger make a hole 1 to 1 ½ inches deep.
- Put 1 or 2 seeds in the hole and cover with soil.
- Water thoroughly and place in the tray under a humidity dome until the seeds sprout. (If too much water is condensing on the sides of the dome and dripping, open the vents.)
- Once you have around 50% germination remove the humidity dome to prevent fungal issues.

Transplant FAQ

When can I transplant outside?

Gardeners in growing zone 8-11 can transplant seasonally appropriate plants all year round. However, for those living in colder zones, the best time to transplant seedlings outdoors is when nightly temperatures reach at least 45℉.

When are my seedlings ready?

Seedlings are ready when they have developed their second set of true leaves and their roots are sufficiently developed - otherwise the root ball may break apart while being removed from its tray.

Check for proper optimal root growth by grasping one of your seedlings at the soil surface and gently pulling it from the tray while pushing up from the bottom. The entire plug should slide out of the cell tray.

What happens if the plants stay in the tray or pot too long?

If the seedling is overdeveloped it will come out of the tray easily but be root bound. Root bound seedlings are easy to identify because there will be numerous roots showing out of the drainage holes. These plants may be stunted when you move them outside because the roots will not grow into the soil properly.

Transplanting from cell trays

- Dig or push out a hole in your pot or garden bed a little bigger than the individual cell size.
- Push the cell plug up from the bottom hole while holding the stem gently.
- Put the entire ball of roots and soil into the hole.
- Back fill the hole around the plant and press the soil down firmly around the stem.
- Water thoroughly.

Transplanting from pots

- Dig a hole a little larger than the size of the pot.
- When transplanting out of the 2.5 inch pots it is best to loosen the edges before you try to turn out the plant. This can be done with a craft stick or butter knife slid along the edges of the plant.
- Place your hand over the top of the pot and soil surface allowing the stem to rest between two of your fingers.
- Turn the plant upside down and tap the bottom of the plant until it slides out into your hand.
- Put the entire ball of roots and soil into the hole.
- Back fill the hole around the plant and press the soil down firmly around the stem.
- Water thoroughly.

How do I Choose the Right Seeds?

It is imperative to consider a few things when picking out seed varieties. What types of vegetables do well in your area, and what can you start indoors?

Locate your growing zone and use that as your guide when browsing seed companies to pick the best fit. Pay attention to the “Days to Harvest” one the listing or seed packet. You want varieties that will be available to eat within the school year. Next, consider

what vegetables your students and their families enjoy. This is a good time to consider foods that are culturally relevant for the community you serve.

The last thing to consider is your skill level. If this is your first garden, focus on easier-to-grow crops to start. Some crops we recommend are squash, lettuce, tomatoes, collard greens, bush or pole beans, peas, and turnips. Pick varieties that are labeled as disease-resistant when possible. Once you've picked your crops, get them on paper and start a garden plan.

How Long Do Seedlings Need to Grow Indoors?

This depends on the type of plant you are growing. Between 2 and 8 weeks is the most common time frame. Heat loving crops should be given 8 weeks. Cucurbits, peas and beans should be transplanted quickly, closer to 2 weeks.

Find out when the last frost date is in your area and subtract 6-8 weeks from that date. Knowing this date, you will be able to nail down the best timeframe to plan and ensure that the seedlings have enough time to develop before the transplant date.