

What are soil blocks?

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Figure 1. Soil blocks.

Soil blocking is an alternative method for growing transplants. Instead of plastic flats with individual cells, soil blocks are free-standing blocks of compressed growing media. Not a new technique, soil blocks were first used in Central America thousands of years ago and are still popular in Europe today.

To make soil blocks, a specialized tool called a soil blocker is used. Growing media is moistened and pressed into the block form and then released onto a carrying tray. A dibble creates a small area for a seed to be placed in the top of the block.

Why use soil blocks?

- Better root development. In the cells of flats, roots reach the wall between the plants and begin to spiral. On the other hand, in soil blocks when roots reach the edge of the block, they either reach air (which causes them to stop growing) or grow into the next block. This can improve the lateral root growth and prevent root spiraling.
- Reduced transplant shock. Soil blocks are transplanted with less root disturbance because the plants don't need to be pulled out of the cell. This, combined with the improved lateral root growth, reduces transplant shock, allowing the transplant to establish quickly once in the field.
- Reduce plastic use. Soil blocks are often held in sturdy, plastic trays or wooden boxes that are easily reused year to year. No need to store flimsy plastic flats throughout the year.

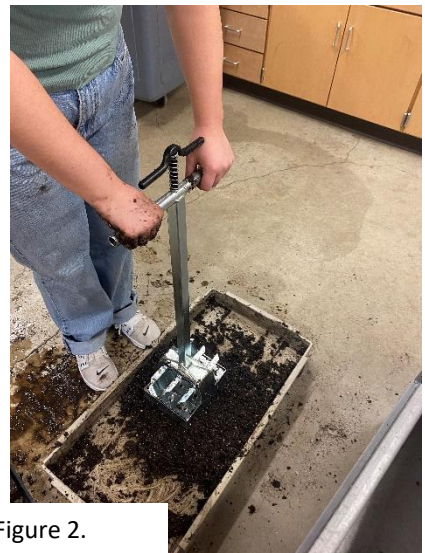


Figure 2.

How to make soil blocks?

Soil blockers come in various sizes, similar to the cell sizes of plastic flats. A mini-block is also available, which can be potted up to larger sized blocks without disturbing plant roots. One needs to choose the appropriate block size for the transplant they are growing, taking into consideration the length of time it will be growing before transplanting.

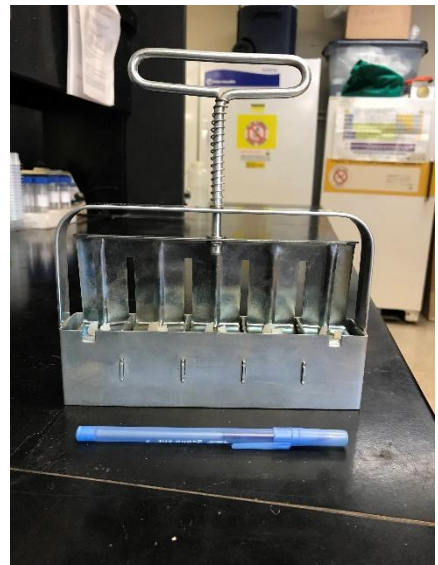


Figure 3. Hand-held 4 Soil Blocker.

Step 1. Wet the growing media (on average three parts growing media to one part water).

Step 2. Mound the moistened growing media.

Step 3. Press soil blocker into mound of media repeatedly until all blocks are full. An easy way to ensure a block is full is to look for excess water pushing out the top of the soil blocker.

Step 4. Release blocks into desired carrying tray.

Step 5. Sow seeds into blocks and gently water.

Tips for soil blocking success



Figure 4. Bell peppers grown in soil blocks for too long have grown into neighboring blocks.

- Right growing media moisture. If the media is too wet, the blocks will fall out of the blocker and not hold their shape. Similarly, if the media is too dry, the blocks will crumble. Test different moisture levels for your specific growing media to find the right ratio.
- Right growing media. There are many recipes for mixing your own growing media for soil blocking online, but you can also use a commercially available product. It is important the media has a fine texture, without large sticks or rocks. Products containing peat or coconut coir work best. Many products will say specifically if they work well for soil blocking.
- Right block size. Because soil blocks are not separated by walls, plant roots can grow into the surrounding blocks. If this occurs, you should increase the size of the block or reduce the amount of time the transplant is growing before being planted in the field.
- Right watering. High pressure water from overhead watering can break apart soil blocks. Consider using a gentle setting or watering from below.

Additional resources

How to video

<https://www.extension.iastate.edu/vegetablelab/soil-blocks-vegetable-transplants>

Where to buy soil blockers

Johnny's Selected Seeds



Where to learn more about soil blocking

Coleman, Eliot. 1995. *The New Organic Grower*. Chelsea Green Publishing. White River Junction, VT.

Coleman, Eliot. "Soil-Block Making." Johnny's Selected Seeds.

<https://www.johnnyseeds.com/growers-library/methods-tools-supplies/seed-starting-transplanting/soil-block-makers-eliot-coleman.html>

Page-Mann, Petra. 2021. "Soil Blocking in Five Easy Steps". Cornell Small Farms Program. <https://smallfarms.cornell.edu/2021/04/soil-blocking-in-five-easy-steps>



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