

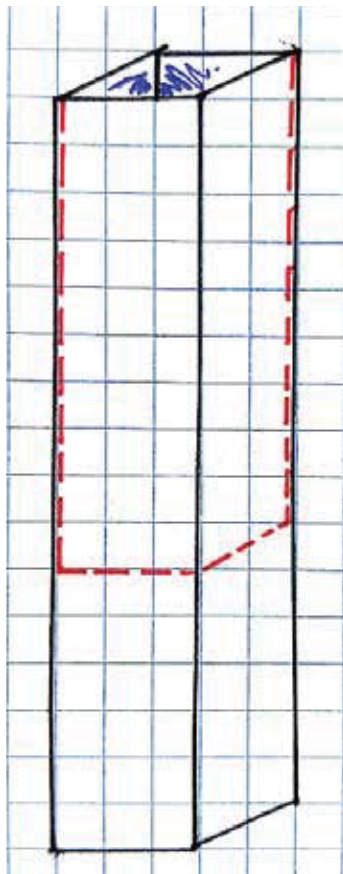
How to construct a hand-operated soil-blocking tool

It can be very practical on many small-scale market gardens to have one or several (different-sized) hand-operated soil blocking tools for growing your own transplants. If you need tens of thousands of soil blocks a year you're better off buying a second-hand electric soil blocking machine (Flier, Dewa, Visser), but for smaller quantities it's great fun to have a hand-operated soil blocker. There used to be a company in Holland which made them (Fabo), but a few years ago the factory burnt down and they stopped trading. Their smallest size blocking tool makes soil blocks 50 x 50 mm in size and 60 mm height, which is actually quite big for lettuce, cabbage and many other crops. That's 150 cc of potting soil, whereas a 126 cell tray has 60 cc cells and the cells in a 216 cell tray are 30 cc. So, I decided to build my own hand blocker, one which created smaller blocks and which would fit neatly in a 400 x 600 mm standard blocking tray.

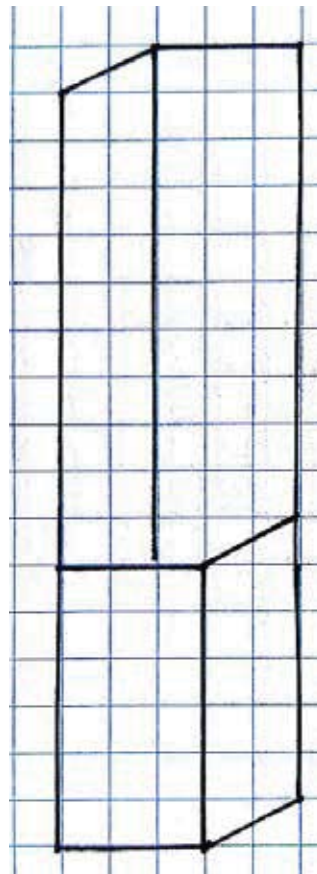


Building instructions

First cut two sides off the 160mm square tubes up to a height of 60mm (see drawing).



Drawing 1: Cut at the dotted line



Drawing 2: Resulting corner tubes

What you need

You can do all the steel cutting yourself (angle grinder) or buy most of the steel ready-cut at the blacksmith's.

8 pc square tube 34x34mm (outside dimensions), 2mm thickness, 60mm length

4 pc square tube 34x34mm, 2mm thickness, 160mm length

1 pc sheet metal 140 x 105mm, 4mm thickness

1 pc sheet metal 135 x 100mm, 4mm thickness

12 bolts M8 x 100mm

12 square washers 26 x 26mm

24 self-locking nuts M8 (nylon insert)

12 cap nuts M8

1 pc threaded rod M14, 1 metre

1 pc steel tube 22mm diameter, 4mm thickness, 600 mm length

2 pc steel tube 22mm diameter, 4mm thickness, 200 mm length

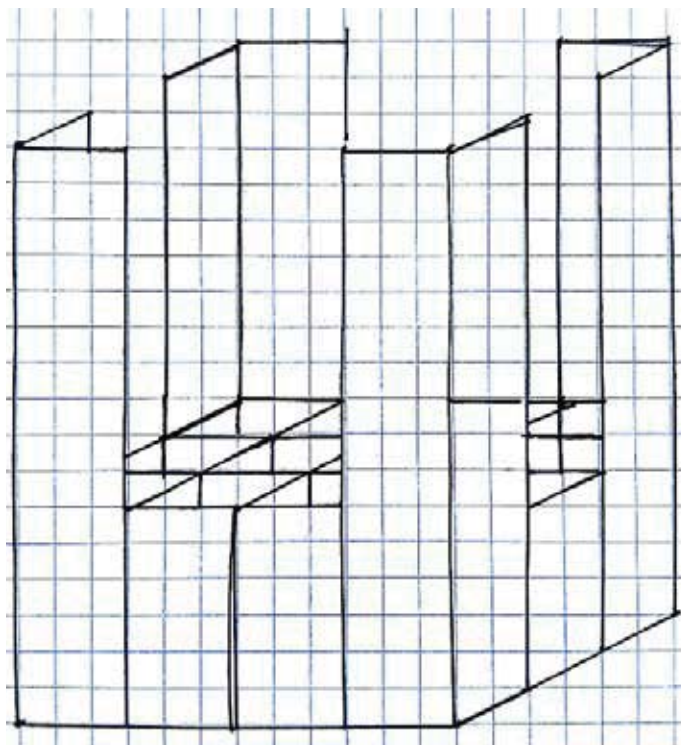
1 pc strip metal 40mm x 10mm x 200mm with a 14mm hole in the middle

some M14 washers

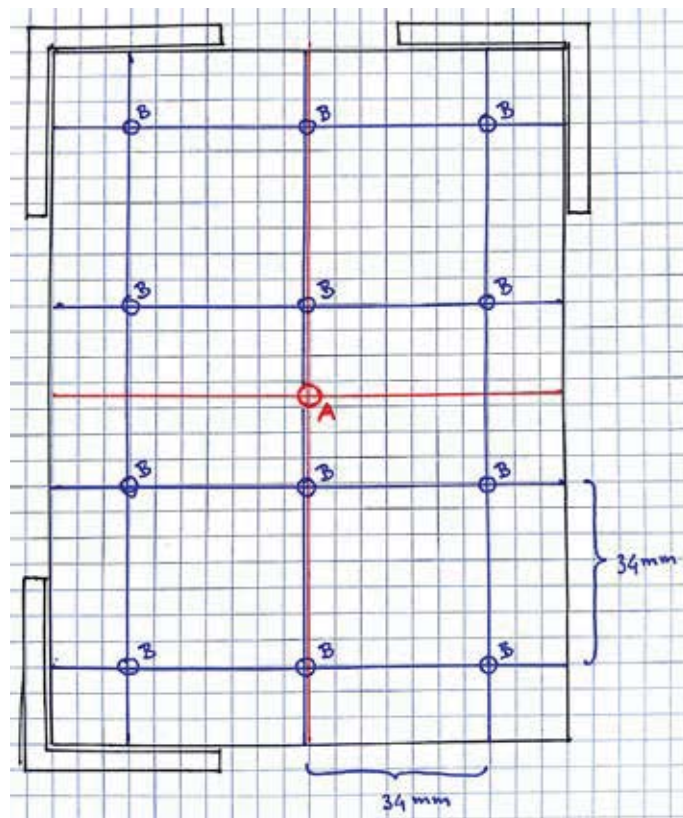
1 pc steel push spring which fits around the M14 rod

3 self-locking nuts M14 (nylon insert)

Arrange the square tubing as in drawing 3 and spot weld them all neatly together.



Drawing 3: Arrange the square tubing in this way



Drawing 4: Positions for 14mm hole (A) and 8mm holes (B)



End result

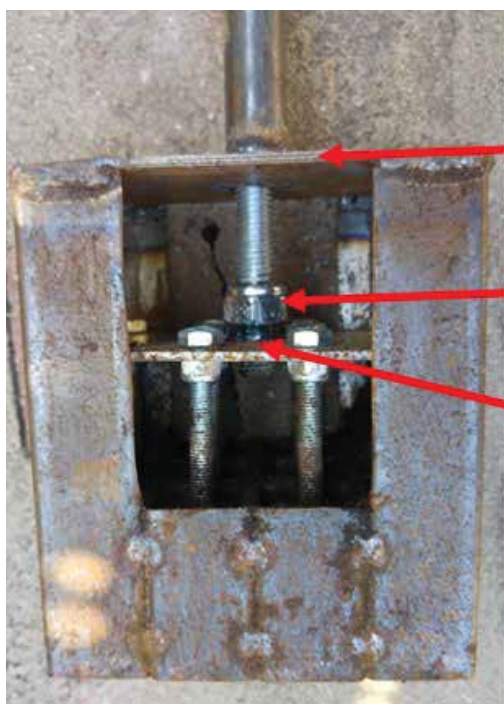
If the inside of the square tubing is not entirely smooth (often there is a seam from manufacturing these tubes), use a flat file and keep filing until there aren't any burs left.

Take the 135x100mm piece of sheet metal and make sure it moves nicely in between the four corners of the matrix. Drill a 14mm hole right in the middle, in the place indicated with an A in drawing 4.

Drill 8mm holes in the places indicated with a B in drawing 4.

Put an M8 bolt through each hole and secure with a locking nut. Put another locking nut near the end of the bolt, add a square washer and finish with a cap nut. When you're finished you have created the ejector unit. Put an M14 locking nut on the threaded rod, and screw it 50mm in. With this nut you will be able to adjust the height of your soil block from 0 to 50mm height. Put the M14 threaded rod through the hole in the middle of the ejector unit and weld it in place. Make sure it sits at a 90 degree angle from all sides (difficult!).

Fit the ejector unit in the matrix. Drill a 16mm hole right in the middle of the 140x105 piece of sheet metal. This will be the lid on the matrix. Weld it in place in such a way that the threaded rod can move freely through the 16mm hole



Lid

Locking nut for adjusting height of soil blocks

Threaded rod welded to ejector unit

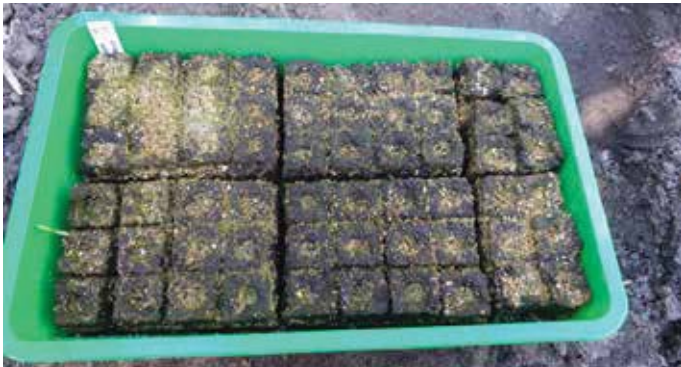
Next weld the 600mm round tube onto the lid. Weld the two shorter lengths of tube each on either side at the top end as handle bars. Put an M14 washer round the threaded rod and add the spring. Finish with an M14 locking nut, the 200mm strip metal (lever) and the last M14 locking nut (see picture).



Underside of the soil blocker with square washers and cap nuts clearly visible

Using the blocker

Take a big cement mixing trough and fill with half a bag of potting soil. I recommend Klassmann organic blocking soil for excellent results. Add water and mix until the soil feels smooth and creamy. Take your blocking tool and stamp several times in the mixture so that the matrix is properly filled with compressed blocking soil. Put the blocker on a flat tray and press the lever while simultaneously raising the tool. If the soil is really sticky sometimes you need to press the lever a few more times to make sure all blocks are being released. Happy blocking!



Arjen Huese

Arjen used to run Wealden Flowers, a 5 acre organic cut flower farm in Sussex, UK. He is currently working as an horticulture teacher at Warmonderhof College in the Netherlands, see www.warmonderhof.nl

ahuese@gmail.com

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