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I do most of my plant breeding work in raised beds and I often get questions about them when I post pictures, so this article will hopefully answer those questions. I have about 250 concrete block beds, which is a pretty big endorsement of their advantages. Making all those beds was a considerable investment of labor, but I think it was overwhelmingly worthwhile.

Why raised beds?

There are a lot of advantages to using raised beds, particularly when breeding plants. I grow on a grid system so that I can identify individual seedlings. If you have several thousand seedlings from different crosses to track, using plant tags is really not a great option. They get lost or become unreadable and they can be hard to find regardless. By growing on a grid, I only have to know where a plant is growing in order to identify it. I used to grow in ground and that worked reasonably well, but the raised beds make the grid spacing much easier to discern.

I am also concerned about managing disease, since I deal mostly with clonally propagated crops. Raised beds keep plants of different varieties separate from each other and make it easy for me to quarantine a particular bed if I discover something I need to eliminate. Any individual bed can be covered in plastic and solarized or, in a worst case scenario, sterilized or removed entirely. It is much easier to control volunteers as well, because they can only occur in confined areas. I don't have to worry about tubers on long stolons escaping out of bounds.



I started growing in lazy beds, which accomplished the same thing, but required a lot more maintenance, ironically.

Our native soil isn't great. I have lived with it for years, but it is depleted and rocky, so raised beds filled with good quality soil are definitely a luxury.

Raised beds make weeding faster and easier. I can use a string trimmer around the beds without the risk of decapitating valuable seedlings.

One of the biggest advantages is that I don't have to bend over as far and have a convenient place to sit while working. I spend hours every day weeding and doing hand pollinations. I previously had to do a lot of that on my hands and knees. It is sure nice to be able to sit instead.

Oh, not having to do field prep each spring in a climate that gets more than 100 inches of rain? Priceless.

How are they built?

My beds are all the same dimensions. The interior dimensions are 2 x 16 feet. The exterior dimensions are 40 inches x 17 feet, 4 inches. There is no particular reason for the 16 foot length, other than that it divided into a equal number of beds for a plot of my size. Also, the longer the bed, the more obvious poorly leveled ground becomes. A two foot wide bed can fit one or two rows of plants, depending on size. Beds of this size accommodate 32 potato or oca plants, 16 ulluco or dahlia plants, 12 mashua or yacon plants, for example.

The beds are built out of 29 8x8x16 inch standard masonry blocks and 29 2x8x16 inch pavers. These are just dry stacked. Together, these make a bed that is 10 inches tall, which is a convenient sitting height.

There is no barrier on the bottom of the beds. They sit on the native soil and soil organisms can come and go. We don't have any damaging burrowers here, like gophers. There is no way to grow and harvest root crops that doesn't involve a lot of soil disturbance, but permanent beds at least eliminate all the collateral damage that would otherwise be required. I have done no measurements at all, but I am guessing that the beds are recolonized much more quickly after disturbance than they would be if I tilled the whole field every year like I used to.

The paths between the beds are 16 inches wide. That happens to be the same length as a concrete block, so that makes it easy to measure out. I just use two blocks to set the spacing to the next bed.



A bed of this size requires 1 cubic yard of soil, which makes planning and ordering soil convenient.

I do some gross leveling of the ground before I build new beds, but I don't worry about perfection. Beds can always be re-leveled later by tipping over the blocks on one side and using a grub hoe to flatten the ground.

Some renovation is required from time to time. They need to be topped up with compost every other year, usually requiring about 4-5 cubic feet per bed. Concrete blocks sink into the ground over time and they need to be adjusted after four or five years.

Dangers?

A lot of people have told me that concrete blocks will leach dangerous substances into the soil. This idea seems to come from the time when many concrete blocks were actually "cinder" blocks, made from the byproducts of coal burning, mixed with concrete to lighten them. It is possible that true cinder blocks might still be available in the east, but we have very little coal burning in the west, so no piles of coal ash to get rid of. Concrete block is usually made close to where it is sold because it is heavy. It is pretty easy to tell the difference between construction grade masonry blocks and cinder blocks - just pick them up. Real concrete blocks are heavy. But, if you are in doubt, you can just ask the company that makes them. The maker of the blocks that I use confirmed that they are 100% concrete - nothing but gravel, sand, and cement.

The cement portion of concrete contains lime, which can leach out and possibly increase the pH of the soil. I haven't found this to be a problem, even though I grow many acid loving plants. My guess is that most of the leaching takes place the first year, when the blocks are new and getting washed by rains for the first time. Soil tests have not revealed any change in pH outside the margin of error.

As far as I can tell, the only real danger with concrete blocks is that you will drop one on your foot.

How much do they cost?

This will depend on your area and the exact materials that you use. There are different grades of concrete blocks. I use the heavy ones because I noticed that the lighter blocks tend to degrade more in our heavy rains. The cost of blocks and pavers currently runs about \$80 per bed here. The cost of good top soil delivered to my location is about \$30/yard, so each bed costs about \$110. With occasional renovation, they should last much longer than I will. Sometimes I wonder what the next owner of this property will do with them.

Here is some fun math to close out this article: Each concrete block weighs 36.5 pounds. Each paver weighs 17 pounds. So each bed uses 1551 pounds of concrete block. And I have 250 beds, so I have moved 387,750 pounds of concrete block or 194 tons. It seems like I should have much bigger muscles.

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