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Indoor Growing—Soma's Organic Beds

For indoor growing, I have found growing beds to be a great method. Once you try these organic growing beds you will not use pots again. In these trying times of dirty politics, nothing is better therapy than going into your grow room, and getting a little soil underneath your fingernails.

The beds are constructed of wood held together with metal braces and screws; it is on wheels that rotate 360 degrees. (See a diagram of the beds in the color section, page 23.)When finished, the bed's dimensions are 1.25 meters (4 feet) wide by 1.25 meters (4 feet) long and 35 centimeters (13.75 inches) high. I am going to explain exactly how they are constructed and used.

Bed Construction

First I order pre-cut plywood, cut exactly to the dimensions that I need—that way I don't have to do any sawing myself. I order four pieces cut to 1.25 meters (4 feet) long and 35 cm (13.75 inches) wide. Then I have the bottom cut so that it will fit flush with the sides when I make them into a box. Any lumber store should be able to help to figure these dimensions correctly. Sometimes I have to return the next day to pick up the wood after it has been cut.

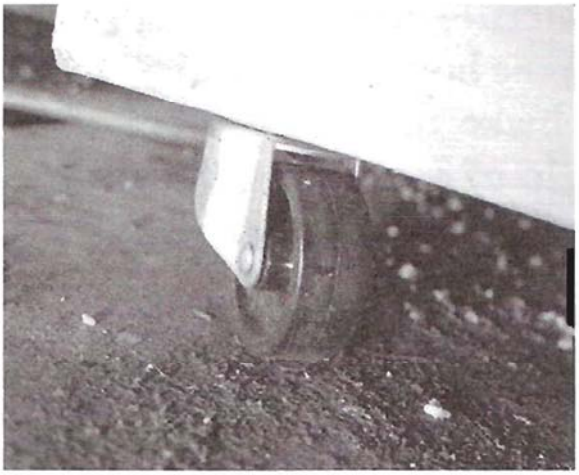
After I order the wood, I get the other items I need to build my beds. These items are:

- Thick waterproof black plastic, vinyl or polyethylene, approximately 5ft. x 5 ft. (150 cm x 150 cm)
- Staple gun
- 150 cm (5 feet) of PVC pipe 70mm (2.75 inches) thick

- One large bag (50 kilos or 110 lbs.) of hydro-corals (the generic name is LECA [Lightweight Expanded Clay Aggregate])
- 3.75 square ft. (about 60 cm x 60 cm) plastic-coated chicken wire
- Approximately 4 square ft. (about 60 cm x 60 cm) capillary felt root cloth
- Large box of screws in the sizes that you need
- 4 multi-directional wheels for each bed
- 16 metal corner braces, 2 for each corner and 2 for each side

Hydro-corals are little clay pebbles that are man-made. They were invented in Holland for use in the hydroponic tulip business. They hold lots of air and are heavy enough to support a root system on their own.

After getting the materials, I construct the box. As I am not a carpenter I get help from a good friend who is. The metal braces are at a 90-degree angle, and they are used to square the sides, which are screwed together through the metal brace piece. The open box that is created is then placed atop the bottom piece and affixed to the bottom. The sides should be flush with the bottom. Two corner metal braces are used on each side to affix them to the bottom. The multi-directional wheels are attached to the bottom at the four corners, about 5 inches in from each side.



View of wheels on grow bed.

Next the waterproof black plastic is carefully placed inside the bed to line the bed and keep it as waterproof as possible. Pull the plastic over the sides and staple it to the outside of the bed. The entire bag of clay pebbles called "hydro-corals" are added to the lined bed, covering the bottom to an even depth of about 5 centimeters (2 inches).

I cut the 70mm (2.75-inch) PVC pipe into lengths of 35 centimeters (approximately 14 inches) and stand one of these cut pieces upright in each of the bed's four corners, pushing it down slightly into the clay hydro-corals. It should be in snugly, but it won't go completely down to the bottom; it rests on about 5 centimeters (2 inches) of hydro-corals. I screw the PVC pipe into the side of the box with 2 screws. These four tubes in each bed help the roots to have a constant air flow. In combination with the hydro-corals, it is almost impossible to over-water your garden.



Wheels bottom view. The lighter offers perspective. The wheels are mounted about 6 inches in from each side of the corner.

I then take plastic-coated chicken wire and place it on top of the hydro-corals, folding it back away from the PVC tubes. On top of that I put a layer of felt root cloth, the kind most nurseries use under their potted plants, cut to fit as exactly as possible, and fit around the PVC tubes. Once soil is added at a depth of about 25 centimeters (10 inches), about 10-15 centimeters (4-6 inches) of the PVC pipe should be above the soil's surface.



Bed fully constructed before soil is added. See the PVC pipes, the black plastic. Hydro-corals line the bottom and are then covered with felt and chicken wire.

The great thing about the beds is that an air layer is created in the bottom where the hydro-corals are. The PVC pipes help with a passive air flow. Roots need air, especially cannabis roots. Many crops have been ruined by plants that have been deprived of enough air. Plants can become trapped in soil that remains too soggy, causing the roots to rot and killing the part above the soil. With the proper amount of water, growing with these beds prevents this problem.

Organic Soil

You are now ready to put in the organic soil. This can be store bought—here in Holland, the Canna fertilizer company has just come up with an excellent new organic soil mix, that is one of my favorites. It is called Terra Professional Plus®. Or you can mix the soil yourself the way I do. People I meet and smoke with always ask me, how do you get your pot to taste so good. I tell them it's because of the soil.

To get medicinal cannabis, I grow on organic soil rich in worm castings and all the other nutrients and trace minerals needed for a healthy weed plant. Cannabis needs nitrogen, phosphorus, and potassium. It also needs micro-nutrients like iron and zinc and magnesium.

Many soil mixes are the wrong pH and have the wrong combinations of nutrients, so when you get your soil do a thorough check of the NPK and the ingredients. The NPK is the amount and ratio of nitrogen, phosphorus and potassium in the soil mix (see sidebar). You want the NPK to be about 7-6-12.



This is one of the guanos I most like to use—Guano Kalong®.

Guano is a must. I prefer Guano Kalong (see appendix for this and other resources). The NPK is 2-15-2 and the flowers that it produces are beyond compare. Even with soil from the grow shop, guano is a necessary component.

NPK, Fertilizers & Organics

Fertilizers are soil additives that supply the chemical components a plant needs to grow and thrive. The three primary elements are nitrogen (N), phosphorus (P) and potassium (K). NPK is shorthand for these three important ingredients in fertilizer. NPK information is always provided on fertilizer labels.

The NPK represents the concentration of these elements in the soil. The numbers mean the percentage of each element. In other words, 7-6-12 fertilizer contains 7% nitrogen, 6 % phosphorus and 12% potassium.

The NPK is also a ratio of these

elements in relation to one another. So, for instance, a fertilizer with an NPK of 14-12-24 is twice as strong as the above listed fertilizer that had an NPK of 7-6-12. This is because the percentages of nitrogen, phosphorus and potassium are double. However, the ratio between the amount of N, P, and K is the same in both of these fertilizers.

Fertilizers enhance the natural soil or replace chemical elements and nutrients that have been depleted because the plant has used them. In addition to the primary three elements, plants rely on secondary elements such as calcium, magnesium, sulfur, and to a lesser extent, boron, copper, iron, manganese, molybdenum and zinc.

Fertilizers that are organic derive their elements from natural sources—they come solely from plants or animals with no synthetic ingredients. Different types of manure and guano are prime sources. Seaweeds are also a common source for micronutrients. Minerals from natural mineral deposits are also approved for organic gardening and organic soil products because they are not processed. Inorganic fertilizers contain the same elements, but they may be from artificial sources or synthetically derived. The common inorganic fertilizers include ammonia, urea, superphosphate, mono and dibasic ammonium phosphates (which contain both nitrogen and phosphate), calcium ammonium nitrate, and potassium chloride.

The desired NPK for cannabis changes between vegetative and blooming phases. In the vegetative stage, you want more nitrogen because it encourages leaf growth and forms proteins and chlorophyll.

Phosphorus mainly promotes root and flower development. You will use a higher phosphorus concentration in the flowering phase to transfer energy to producing flowers. The plant needs less nitrogen at this time because you want it to concentrate on producing flowers rather than more leaves. Potassium supports healthy stem and root growth and aids in the plant's synthesis of proteins. It is used in flowering formulas to balance the pH.

Here is the recipe for my soil mix. This is enough for one of my beds.

Soma's Organic Soil

- One 50 -liter bag (approx. 11 gallons) of worm castings
- Three 50- liter bags (approx. 11 gallons each or 33 gallons total) of black peat

- One 50- liter bag (approx. 11 gallons) of organic potting soil
- Three 50- liter bags of Bio Bizz Light-Mix® (approx 11 gallons each or 33 gallons total)
- Two kilo's (4.4 lbs.) of Guano Kalong
- Two kilo's (4.4 lbs.) of DCM organic fertilizer 7-6-12+ 4 Mgo
- One-third of a large (approx. 30 liter) bag of perlite
- Two kilos (4.4 lbs.) of maerl

Maerl is a sea chalk that acts much like New Jersey Greensand or hydrated lime (two other organic gardening options). Maerl is used for pH neutrality; it brings the pH in the soil to a neutral 7.

All of these ingredients except for one bag of Light-Mix are combined together as evenly as possible and placed inside the bed on top of the root cloth. The remaining bag of Light-Mix is used on the very top of the soil. This is because it is better to have mild soil on top when placing small clones in the beds. It prevents the tender roots from being burned. The soil with stronger nutrients is waiting below for bigger roots.

For the beds, the soil should fill the bed to a depth of 25 centimeters (10 inches). Roots of the marijuana plant love air, so I mix a lot of perlite in with my organic soil mix before filling the beds up. If you choose to use a pre-mixed organic soil instead of mixing your own, I still recommend adding extra perlite to make it airy. This helps the roots get enough air and keeps the soil from getting too soggy. Some resources for good organic soils are listed in the appendix.

After the garden has run its full cycle, the soil can be reused by taking a little old soil to your outside garden, (or your neighbors). I usually remove about one-third of the old soil. Then mix in new soil containing fresh nutrients. This can be done at least three times.

Planting the Beds

Now I am ready for planting. The plants have been growing in a vegetative room under 24 hours of light in 2-liter pots.

Since they rooted, I've been growing them in these conditions for about 3 weeks or until they are about a foot high.

I put twenty plants in each bed, four rows of five plants. I usually use wooden stakes criss-crossed to mark out the places for the plants to make sure they get placed evenly. The plants are spaced out as evenly as possible affording each plant as much light and space as they can get. In the bed set-up, each plant can send roots sideways the whole length of the bed, so plants never become root-bound. When I transplant I give the plants some root stimulator to help them make the transition. Now that the plants are in the beds, the next chapter explains techniques and conditions for growing healthy, happy organic plants.



Finished beds with young plants.



Another view of finished beds.