

Council of Bay Area Resource Conservation Districts
Equine Facilities Assistance Program
"Working with horse owners to protect San Francisco Bay Area water resources."

Portable Backyard Garden

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Equine Facility Demonstration Projects

*Alameda County RCD
Contra Costa RCD
Marin County RCD
San Mateo County RCD
Southern Sonoma County RCD*

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Water quality

Overwatering can cause nutrient laden runoff. Be aware and contain runoff, especially if placing on a driveway surface.

Safety first!

Produce grown in a portable backyard garden should be handled, washed, and refrigerated, the same as other produce.

The organic portable equine garden is designed for households that may or may not have room for a traditional garden plot. It is a self-contained box that can be placed in a backyard or on the driveway. The main ingredient in this design is horse manure. Horse manure is plentiful in many areas of the Bay Area and often creates a disposal problem for horse owners. This garden design addresses both the problem of minimal space for gardening and horse manure disposal.

The benefits of such a garden are many:

- It provides you with quality, good tasting vegetables.
- It uses recycled waste materials.
- The raised and self contained beds provide an ease in cultivation.
- The design allows for an extended growing season.
- The homeowner is not limited by the lack of soil or soil contamination.

The design is urban but can be used commercially or in rural areas. Start with a basic box, and add a top later if necessary.

Materials

The materials listed below are based on constructing a 20 ft by 4 ft by 1 ft garden.

For box: Materials for an inexpensive box are given. If the boxes will be used for a long time, consider using a wood frame for the entire garden (material specs not included), and use wire as described below to keep gophers out.

- Supply of horse manure, composted or fresh (3 cu yd)
- Light soil or grow mix (1/2 cu yd)
- 22 ft of 14 gauge galvanized welded wire (6 feet wide with 1"x1" or 1"x2" spacing)
- 20 ft of 14 or 16 gauge smooth galvanized wire or heavy nylon cord

- 22 ft of 4 mil black plastic (6 feet wide)
- 4-10' lengths, 2-2' lengths and 2-4' lengths of 1x4 fir wood (for longevity consider redwood or pressure treated fir)
- 11-2 ft metal stakes OR if garden is placed on hard surface 10-2"x4"x1' wooden blocks
- 40 galvanized 2" screws
- Black plastic to cover box if using fresh manure

For top (optional):

- 4-20 ft, and 2 10' ft pieces of 3/8" or 1/4" rebar to make hoops across width of garden. OR 3/4" to 1" PVC plastic pipe (schedule 40), plus 8 cross joints, 12-90 degree ell joints, and PVC cement and primer. (Note: lengths may vary depending on construction style.)
- Chicken wire (7 ft x 25 ft), note dimensions will depend on box size and size of the top
- Tie wire or clips to attach chicken wire to frame
- Greenhouse plastic
- Agricultural fabric (such as Remyay or Pro 17)
- Burlap sack material

For water system (optional):

- Plastic pipe and connectors
- Mist water sprinklers
- Soaker hose

Construction

The layout and construction of the garden can be completed by one or two people in an afternoon:

Box

- First lay out the galvanized wire mesh on the site you selected for your garden.
- Cut slits in galvanized wire in corners one foot down and one foot in (figure 1).

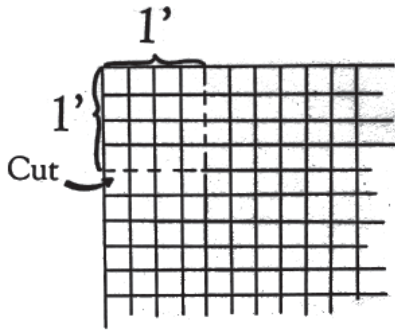


Figure 1: Cutting corner of wire mesh

- Bend up the four sides and secure the corners together with wire or any other means to form a box.
- Fasten together (2) 10 foot lengths (figure 2) and (2) 4' lengths and secure with plastic ties or clips to top of wire box form (figure 3).

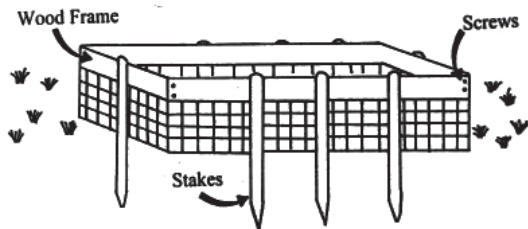


Figure 2: Garden box plans

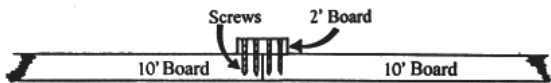


Figure 3: Splice 2 boards together

- To keep box from bowing out, stake garden frame, 1 on each end and 3 on each side and secure to sides - this will help support the frame (figure 2). OR If placed on cement

driveway, use 2" x 4" x 1' blocks as support stiffeners. Fasten into top wooden frame (figure 4). Fasten bottom of wooden stakes to wire.

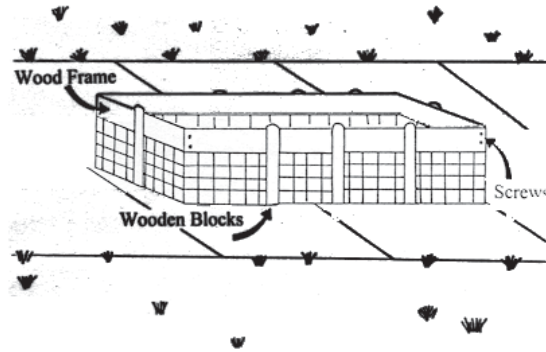


Figure 4: Garden on concrete surface, using wood blocks tied to woven wire for support.

- Lay black plastic (4 mil) inside box (bottom and sides), do not cut holes in the plastic.
- After filling the box, wire the widths together every 4' to keep the box from bowing out (figure 5).

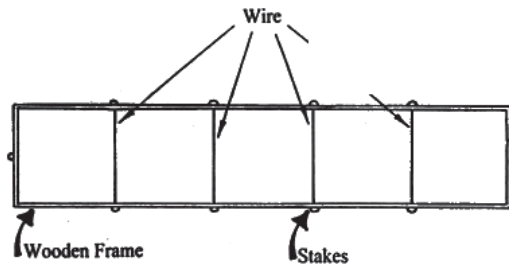


Figure 5: Wire together frame to keep from bowing out (top view)

Top - A top can be built to keep out birds, cats, kids, etc.

- For a wire frame top, weld or wire together rebar as shown in figure 6. A semicircular shape has more utility (will shed rain).

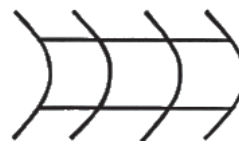


Figure 6: Wire frame top

For a plastic frame top, use joints and cement together PVC plastic pipe as shown in figure 7.

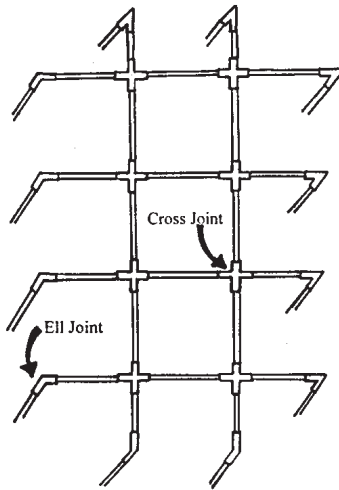


Figure 7: Plastic frame top

- Cover frame with chicken wire. Wire to frame.
- Cover top with greenhouse plastic, agricultural fabric or burlap sacks, depending on cultural practices.

The Growing Medium

Once the box has been constructed, fill it to the top with horse manure, either fresh or composted. Pack down the manure. Now add two inches of a light soil, or a grow mix, on top of the manure. Avoid using sandy soil mixes, worms don't like it. Water the box well but don't soak it. If using fresh horse manure, cover the box with black plastic and let it sit for three weeks.

Always take precautions when handling fresh manure. Wash up directly after handling manure and use gloves if possible. Although horse manure is relatively benign, there is still bacteria in it.

Planting

During the year, you can plant the garden for three seasons. The first planting can begin as early as February (in Gilroy). Some suggested crops to grow in the early, cooler season are: radishes, beets, short carrots, turnips, lettuce, onions, herbs, chard, and broccoli.

The second planting can be planted after the first has been harvested or in a second box. Plant

in late spring or early summer. The crops suited for this time of year are: summer squash, tomatoes, cucumbers, carrots, beans, or a repeat of the first crop.

The fall or third season planting can be started in September-October. Some of the vegetables which can be planted now are: garlic shallots, scallions, cole crops, beets, radishes and spring leaf vegetables.

Some vegetables have problems growing in this type of garden. They are melons, corn, pumpkins, and peppers. Experiment on your own - you may come up with different results.

Cultural Practices

Ideas that may help in maintaining your garden:

- Water when needed, a soaker hose works well once the plants are established. Do not over-water, which may cause nutrients to leach out of the box.
- Covers must be removed during the day when the plants are flowering to allow the bees and bugs to pollinate the plants. Options include:
 - Cover with greenhouse plastic on cold nights, cover during the day in the cooler seasons for crops requiring more heat.
 - Cover with burlap during hot days and wet the burlap; this will shade and help keep the heat-sensitive crops cool.
 - Cover with an agricultural fabric (i.e. Remay or Pro 17) that will provide frost protection, act as a windbreak, keep the crop warm, and help keep kids, dogs, cats, birds, and bugs out. The fabric can be suspended over chicken wire to allow air to circulate around the plants.
- Spray chili pepper juice around beds to control slugs and snails.
- Put down gravel or sand walkways on slippery soil areas.
- Place garden on a flat area, a driveway is an excellent area.

Design Attributes

The benefits of this garden design are:

- The wire mesh frame keeps out gophers and moles.
- The ammonium from fresh horse manure fumigates the soil in the first ten days
- No sprays or fertilizers are usually needed
- The fresh horse manure warms itself in the first planting by chemical breakdown and creates a barrier to cold soil.
- The horse manure serves as a water mattress in later plantings during the warm weather. It reserves moisture for plants and slows heating action, so there is no disruption of growth and nutrient absorption on extremely hot days.
- The boxes are ready to cultivate again after the third planting has been harvested. The soil from the last year's box can be used to cap any new boxes you wish to have in the next season or it can be used around trees and plants in the yard.
- Taste is the ultimate measure of quality

Final Thoughts

Experiment and keep records. You can form a club and sell the produce cooperatively at farmers' markets. Share your information. Let other people know what successes and failures you have experienced in using this type of garden.

Do you want to be a missionary? How about assisting an older couple who may need a few extra vegetables to live better?

There is nothing more relaxing than soil running between your fingers. Enjoy the many benefits of gardening.

Caution

Animal manure can contain bacterial pathogens that cause human illness. A short composting period of two or three weeks may not fully sterilize animal manure. Also, the composting process may fail entirely if too much or too little water is present. As a safety precaution, all produce grown with composted animal manure should be washed thoroughly before it is eaten.



About the Author: Steven "Burt" Malech is retired from organic farming, and now farms on a small scale basis. Burt is a Director on the Loma Prieta Resource Conservation District, and Vice President of the Central Coast Resource Conservation and Development. He is a graduate from Cal Poly, San Luis Obispo. Call Burt Malech for further information at the Central Coast RC&D, 1025 Masten Ave, Gilroy, CA 95020 telephone number (408) 842-6005.

This fact sheet is part of a series prepared and published by the Council of Bay Area Resource Conservation Districts in cooperation with the USDA Natural Resources Conservation Service and the University of California Cooperative Extension. The Equine Facilities Assistance Program's goal is to protect San Francisco Bay Area water resources by assisting in effective management of possible non-point source pollutants associated with horses. Resource Conservation Districts (RCD) are non-regulatory, special districts governed by a volunteer board of directors. In addition to educational programs, RCDs provide landowners and the general public with technical assistance in natural resource management.

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