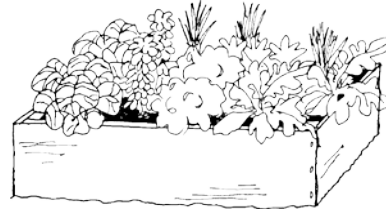


RAISED BEDS Science Page

WHAT IS A RAISED BED?

A raised bed is a mound of soil in which gardeners plant their crops and flowers. Many raised beds are framed or enclosed. Frames help keep the soil in place during rainstorms and watering.



WHAT ARE THE BENEFITS OF A RAISED BED?

* Once the soil is prepared, you don't have to walk on it again during the growing season.

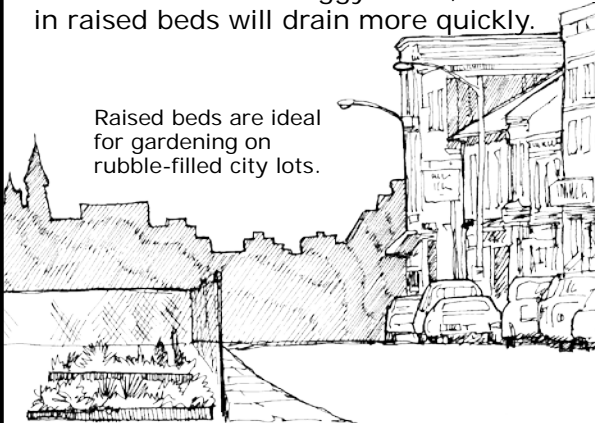
Make sure the beds are no more than two arm lengths wide, so that you can reach everywhere within the bed without stepping in it.



You can work in the garden in wet weather without getting your feet wet or compacting the soil.

* If you have contaminated or poor soil, it's easier to bring in good soil to create a raised bed than to amend the soil in the whole area. In soggy areas, the soil in raised beds will drain more quickly.

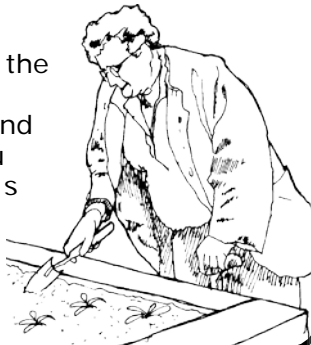
Raised beds are ideal for gardening on rubble-filled city lots.



* The soil in raised beds warms up earlier in the spring and stays warm longer in the fall. This extends the growing season.

* It's easier to tend the garden when it is raised above ground level, because you don't have to do as much bending.

Gardening in raised beds that are 30 cm high is easier for disabled and elderly gardeners.



HOW DO YOU BUILD A RAISED BED?

1. Making a raised bed on a city lot

Use string to mark off where the bed will be. Use a pickaxe to loosen up hard, compacted soil and rubble in the bed. This will help the bed drain, and will allow roots to grow deeper. Have good topsoil delivered to the site. Work some of the topsoil into the existing soil to a 15 cm depth. Build the frame around the bed, and fill it with soil.



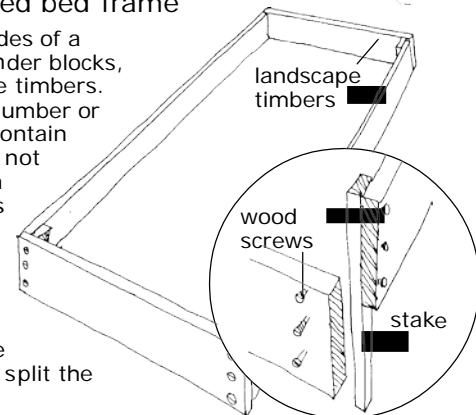
2. Making a raised bed using existing soil

Rake the soil from the walkways to the top of the bed. Make the soil mound about 15 cm high. To make the bed more permanent, build an edge with wood planks, or another material that will keep the soil in place.



3. Making a raised bed frame

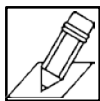
You can build the sides of a raised bed out of cinder blocks, stones, or landscape timbers. Do not use treated lumber or railroad ties. They contain poisons that you do not want in your garden soil. Hold the planks in place with stakes or steel rods or pipes. You can also use wood screws to fasten the corners together. Do not use nails, as they might split the wood.



4. Preparing soil

Mix lots of compost or other organic matter into the soil in your raised bed. Flatten the top with a rake before planting. You can plant crops closer together than in a regular garden. You do not need space between rows of plants, because you walk outside the beds.





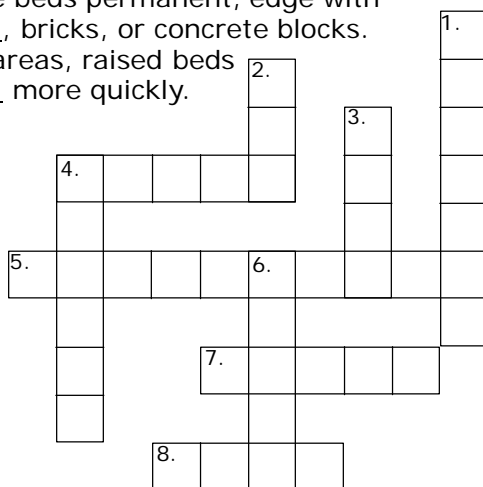
CROSSWORD PUZZLE

Across

- With raised beds, you can _____ earlier and harvest later.
- Mounds of prepared soil.
- Make _____ between raised beds.
- Elderly gardeners like raised beds because they do not have to _____ to garden.

Down

- Work lots of this into raised beds.
- With raised beds, you can work in the garden without getting your feet _____.
- Use a _____ to flatten the top of a raised bed.
- To make beds permanent, edge with _____, bricks, or concrete blocks.
- In wet areas, raised beds _____ more quickly.



TRY THIS

LOOK AND LEARN ABOUT RAISED BEDS IN YOUR COMMUNITY GARDEN

- Watch people working in the raised beds. List some of the pros and cons that you think this system of gardening might have for gardeners.
- Are the raised beds surrounded by an edge? If so, what material is being used for the edge? What are the advantages or disadvantages of this material? Can you think of a different material that might be better for the edge?
- With permission from gardeners, observe the condition of the soil in the raised beds. Is the soil better than the soil that is not in raised beds? Does the soil in the raised beds have more organic matter? (Is it darker in color?) Are there more earthworms and other soil organisms? Does the soil have a better texture, pH, and drainage? (You can find directions for doing soil tests in the Water in Soils, Soil pH, and Soil Texture Science Pages.)
- Look at the plants growing in the raised beds. Does the raised bed system seem to

be meeting the needs of the plants? Would it be possible to grow the same plants at that location without raised beds?

- Summarize your findings in a report to your group. Answer the question: How useful are raised beds in community gardens?



SPOTLIGHT ON RESEARCH

Ancient raised bed methods still work wonders!

Before the arrival of the Europeans in 1492, ancient raised fields covered 1,000 square kilometers of Latin America. The raised fields were about 3 meters wide, and lay between canals. The canals had a number of useful purposes. The water in the canals could be used for watering the raised fields during dry periods. The water also kept the temperatures around the fields higher during cold weather, and so kept the crops from freezing. And the canals produced organic muck that could be used to fertilize the raised fields. It is believed that the canals even may have been used to raise fish and useful water plants.

Scientists wondered if these ancient farming techniques might be useful for farmers today. To find out, they began the Raised Field Agriculture Project. The project took place in the Lake Titicaca Basin in Peru and northern Bolivia. This is a very difficult area for farming. It is located 3,810 meters above sea level in the Andes Mountains. The soil is very poor, and there are frequent frosts, hail storms, floods, and droughts. Despite these limitations, the area supported dense human populations for thousands of years before the Europeans arrived. Scientists on the research team included archeologists, soil scientists, and horticulturists. Archeologists researched how the ancient raised fields and canals were built. Soil scientists investigated how the soil in the raised fields could be improved. Horticulturists and local farmers rebuilt the raised fields and planted potatoes. The results were astonishing. The raised fields yielded two to three times more potatoes than other farms in the area!

Source: Erickson, C.L. (1988). Raised field agriculture in the Lake Titicaca Basin: putting ancient Andean agriculture back to work. *Expedition* 30 (3), 8-16. Special issue on Andean Archaeology. Mohr Chavez, K. (Ed). The University Museum, University of Pennsylvania, Philadelphia.



RIDDLE

Why didn't the vegetables have to get up in the morning?

Answer
Because they were already in a raised bed!