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UNIVERSITY OF ALASKA FAIRBANKS

# Raised-Bed Gardening in Alaska

Alaska's short growing season and sometimes extreme climate create many challenges for the home gardener. Cold soils, excessive or inadequate rainfall and poor soil conditions are some of the challenges Alaska gardeners experience. Raised-bed gardening can help overcome the problems of wet, cold and poorly drained soils.

**Benefits of raised beds**:

- Plant growth is enhanced through soil warming, which results from an increased drainage capacity and an increase in the exposure of the soil surface to the direct rays of the sun.
- Productive growing areas can be developed in locations where conventional gardening techniques are not possible. Raised beds reduce the effort and, if they are high enough, back bending involved in planting, weeding and harvesting.
- Many raised beds are intensively managed and therefore have high production rates per square foot.

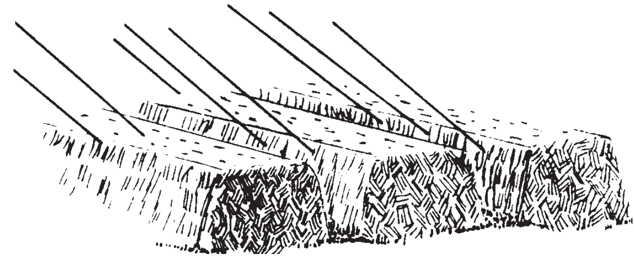
Before you build raised beds, either mounded or framed, have the soil tested to determine what fertilizer and liming additives are needed. The soil test will help you determine the amount of lime required to raise the soil pH and the type and amount of fertilizer needed for sustained plant growth.

Materials are usually added to increase the soil fertility or air exchange and water drainage characteristics of the soil. Some materials used are sand, compost, manure and peat moss. Use a rototiller or spade to mix the lime, fertilizers and other materials into the soil.

A raised-bed garden can be as simple as mounded rows that are higher than the surrounding soil level. Or, you can mound the soil in a framework of lumber, like a bottomless box, to create a raised bed.

The simpler form of a raised bed is constructed by mounding soil into a ridge approximately 12 inches high with sloping sides and a top surface 18 to 48 inches wide (see figure 1). Wider rows work well with the square-foot gardening method. Aisles should be at least 18 inches wide. This ridging method provides the benefits of a raised bed and requires less energy and expense. The disadvantage is that it may erode and the sloping sides may have to be rebuilt after heavy rain or wind and formed again each year.

Figure 1. Built-up rows.

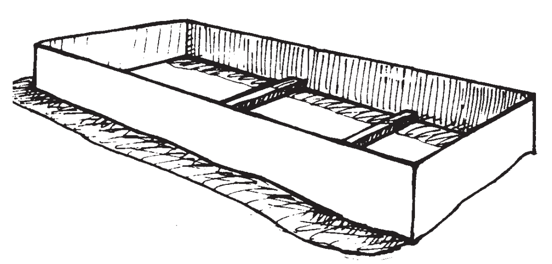


Some of the advantages of the ridging technique can be achieved by digging parallel walkways into the existing garden plot and placing the soil from the walkways onto the plant growing area. The sides of the walkways (ditches) should be sloped to prevent soil collapse.

A framed raised bed offers all the advantages of a mounded raised bed without the problems of erosion or soil movement. It also provides an elevated working platform for planting and weeding. The framework for the bed should be built so the soil does not bend or dislodge the frame. However, this type of bed is initially more expensive and labor intensive to build and it can be more difficult to till.

Build the frame with 2×12s that are securely fastened at the corners. At 2- to 4-foot intervals either drive stakes into the ground or use cross members on the bottom of the frame to prevent bowing from the pressure of the soil (see figure 2).

Figure 2. Framework for raised gardens.



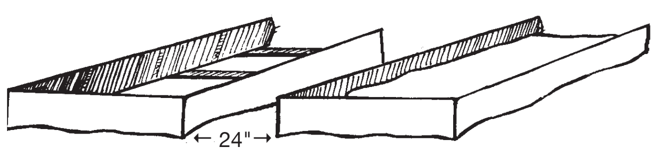
The wood can be treated with a wood preservative to prevent rot. (Note: Do not use creosote and pentachlorophenol because these chemicals may damage plants upon contact.) A frame liner of plastic can be used to keep the soil from direct contact with the wood.

The dimensions of the raised bed depend upon a number of factors: space available, anticipated production, materials available and the size of the garden. The width should be such that the gardener can comfortably reach to the middle from either side. In wet climates this should not exceed 48 inches to provide good drainage. A width of 36 inches is even better.

Prepare the soil and fill the frame to about 12 inches deep. The amount of soil required can be determined by the container dimensions: length × width × height. A container 20 feet long, 3 feet wide and 1 foot deep will require 2.2 cubic yards: 20 feet × 3 feet × 1 feet = 60 cubic feet ÷ 27 feet (1 cubic yard) = 2.2 cubic yards.

Place the constructed frames in a location with a suitable growing environment and adequate drainage. Multiple beds should be placed at least 24 inches apart to provide a walkway (see figure 3). A board placed across this space gives the gardener a comfortable place to sit or kneel while working. A gravel walkway will provide a cleaner, drier walkway throughout the season. Alternatively, flatten corrugated cardboard and place on the walkway. Then place 2 inches of wood chips on the cardboard.

Figure 3. Placement of frames.




To increase the efficiency of raised beds consider using a simple technique that produces a greenhouse effect: hood the bed with a clear greenhouse-grade plastic supported by a framework of hoops of 12-gauge wire or PVC pipe (at least ¾ inch (attached to the sides of the wooden frame. This technique increases soil and air temperature, reduces the amount of rain on the bed (an advantage in areas of excessive rainfall) and reduces moisture evaporation (an advantage in areas of insufficient rainfall). This technique can also extend your growing season by raising the temperature inside the raised beds and protecting crops from wind damage. The plastic can be attached to the bed with lath or grommets placed along the bottom edge of the sheeting and secured over nails along the bed (see figure 4).

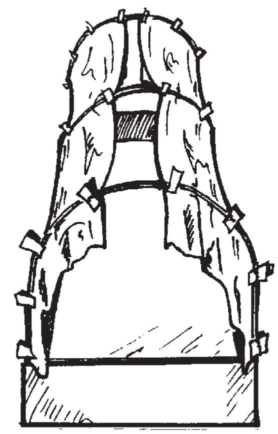


Figure 4. Temperature and moisture control.

Place the beds so the plants can take fullest advantage of available sunlight. Arrange plants so one plant does not shade another as it grows. The air and soil temperature under the cover can increase dramatically during a sunny day and get so hot the plants can be damaged or killed. Ventilation slits and open ends in the plastic help prevent excessive heat buildup, which could damage the plants. Complete removal of the plastic may sometimes be necessary. When the growing season is over, the plastic can be removed and stored for the next season.

Alternatively, a floating row cover or frost cloth can be used instead of clear greenhouse-grade plastic. A floating row cover is a water-permeable, semitranslucent, lightweight polyester fabric that is placed directly over transplants. The edges of the floating row cover are secured by pieces of wood or stones. Sufficient slack is allowed for plants to grow under the row cover. Floating row covers provide protection from many flying insects and from wind, and they also increase the air and soil temperatures beneath them.

Many garden crops thrive in raised beds. A few examples are lettuce, radishes, Swiss chard, carrots, cabbage, Brussels sprouts, cauliflower, beets, turnips, zucchini, peas, potatoes and, in the warmer areas, tomatoes, cucumbers and beans. Using raised beds can provide the gardener with increased production and decreased maintenance.

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