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Constructing Coldframes and Hotbeds

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Both coldframes and hotbeds can be used to protect or grow small plants during periods of low temperatures. Both are built in much the same manner, the major difference being that coldframes use only sunlight while hotbeds use an additional source of heat.

Coldframes

Coldframes are used to protect plants from wind and low temperatures, usually for relatively short periods of time, utilizing solar heat for warmth. The sun heats the enclosed soil during the day, and at night the coldframe cover slows the loss of this heat. To help retain heat during the night, the sides of the frame may be banked on the outside with soil or cased in insulating material.

Coldframes usually are built with wood or metal sides. If you use wood for constructing the coldframe, treat it with a preservative. Sidewalls can be as high as needed for convenience; however, to keep heat loss to a minimum, 8- to 12-inch sides are usual. Make the north wall taller than the south for better sunlight exposure. Place the coldframe in an area reasonably protected from wind where it will receive all possible sunlight during the winter. Cover the top of the coldframe with clear plastic, fiberglass, or glass sash. During sunny and warm weather, raise the cover for ventilation throughout the day and then close the cover at night.

Coldframes can be used to start flower and vegetable plants before outdoor planting, and to grow some of the hardier vegetables during the winter. Lettuce, chives, parsley, carrots, green onions, kale, and radishes, for example, can be grown in a cold frame during mild winters.

Hotbeds

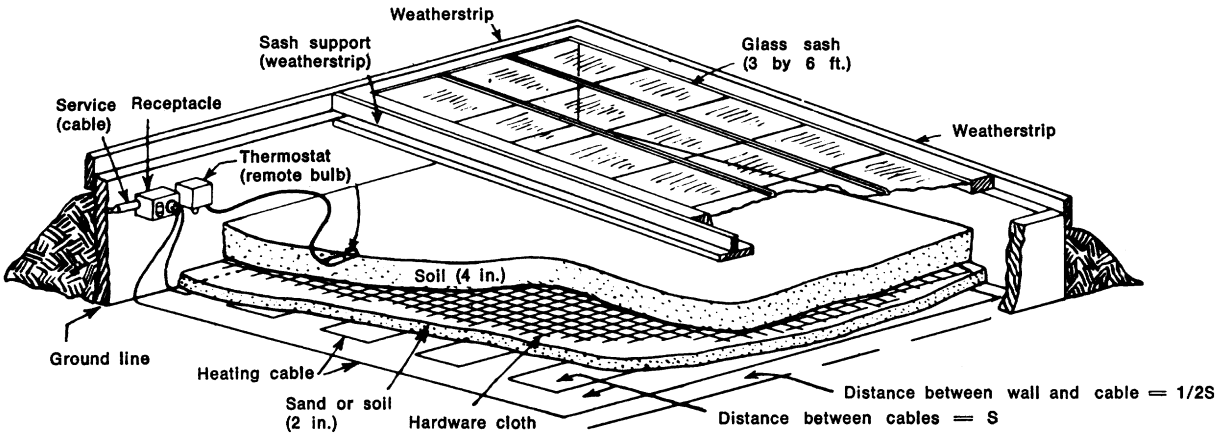
Hotbeds are simply coldframes with an added source of heat. They can provide much the same growing environment for plants as a greenhouse. They require more attention to ventilation requirements than coldframes, since the heat source needs regulation.

Hotbeds usually are heated by electric soil heating cables, steam or hot water pipes, or by placing the hotbed over 12 to 24 inches of animal bedding and manure. The decomposing manure gives off heat; however, this is difficult to regulate and may not supply a constant source through the entire season when heat is needed.

Hotbeds should be lined with moisture-proof insulation. Maintain a temperature of 50° to 70°F. If you use electrical heating cables as the heat source, provide 10 to 15 watts of electric heat per square foot of growing area. Soil-cable thermostats are available at supply houses, and may come with the cable. Automatic temperature and ventilation controls will help provide more effective heat and ventilation control. A small thermometer placed inside the box will help determine when to open for ventilation to prevent excessive heating.

Hotbeds usually are constructed with sidewalls 8 to 16 inches high and a top cover of plastic, fiberglass, or glass. The model illustrated here can be used as a coldframe (without heat) or as a hotbed.

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Construction of an electrically heated hotbed.

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Wood members should be treated with a wood preservative containing copper sulfate, such as cuprinol or copper napthenate. Apply it with a brush or spray. Do not use wood preservatives containing pentachlorophenol or creosote, as these products will damage plants. Coat all the wood with preservative, and air-dry for a week before placing plants inside.

Use weatherproof wire for all hotbed wiring. Use approved terminal equipment, and follow safe wiring practices in conformance with local wiring codes. Heating cables are designed to operate on either 110 or 220 volts. Small beds can be heated satisfactorily on the lower voltage.

General

Plants can be grown in coldframes or hotbeds either in prepared soil within the frame or in pots or flats placed in the frame on sand or gravel. Supply the necessary drainage by placing a 6-inch layer of gravel below the frame. If you use heating cable, place it in sand for best heat diffusion. Prevent damage from digging by placing a layer of screen or hardware cloth an inch or two above the cable.

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