

An early start, an important factor to both home and market gardeners, can be attained by several methods. Some may not be practical on a large scale, but they could provide the hobbyist with ample rewards.

The most important factor to remember when attempting to get a jump on the weather is that plants must be gradually exposed to an unprotected environment. Shading and watering become important tools in the “hardening” of these plants.

Peat pots, peat pellets, and seed flats can be seeded and plants started indoors. However, space may become limited very quickly in an active household, making it more practical to start plants outdoors.

EARLY GROWTH

There are several things that one may do to hasten growth of plants during periods when the ambient temperature is somewhat lower than most plants require.

Variety selection is important, as some do better than others during cool weather. For example, short-season sweet corn (early cultivars) grows better than mid- or late-season corn. Frost-tolerant cole crops may be started even earlier.

Fertilizer, when properly placed in sufficient quantities, can help in promoting early, vigorous growth.

Irrigation plays an important part. Moist surfaces tend to be cooler than dry ones, due to evaporation; however, drip irrigation seems to result in faster growth. It is a good idea to irrigate with plenty of water but less frequently, and to avoid sprinkling, which cools the soil even more.

Mulches, other than plastic films, tend to keep soil cooler. This is due to the insulating qualities of mulch and the fact that the sun does not reach the soil itself.

Placement of seed in the south side of east–west beds tends to promote faster early growth, as the sun warms up soil on the south exposure faster.

PLANT PROTECTION

There are a number of techniques for protecting seed and young plants from the cold and the wind.

Cold frames provide protection from moderately cold temperatures. They trap solar energy efficiently when properly oriented, but will require ventilation when the outside temperatures warm.

A cold frame is a box-like structure (Figure 1) with a sloping cover (lid) which may be hinged to make ventilation easy if a day gets too hot. The sloping cover should have a south, southwest, or west exposure to trap as much solar energy as possible. The difference in height from back to front should be between three and four inches for each foot of distances between them.

Ample drainage is required in these structures to minimize diseases. Drainage is provided by layers of coarse material, such as gravel and sand.

Glass or non-opaque plastic films may be used for the cover. Plastic films, even though they will need replacing often, are recommended because they do not break as easily. Cold frames need not be permanent fixtures. Temporary cold frames over flower beds can be used efficiently to start plants early for spring transplanting.

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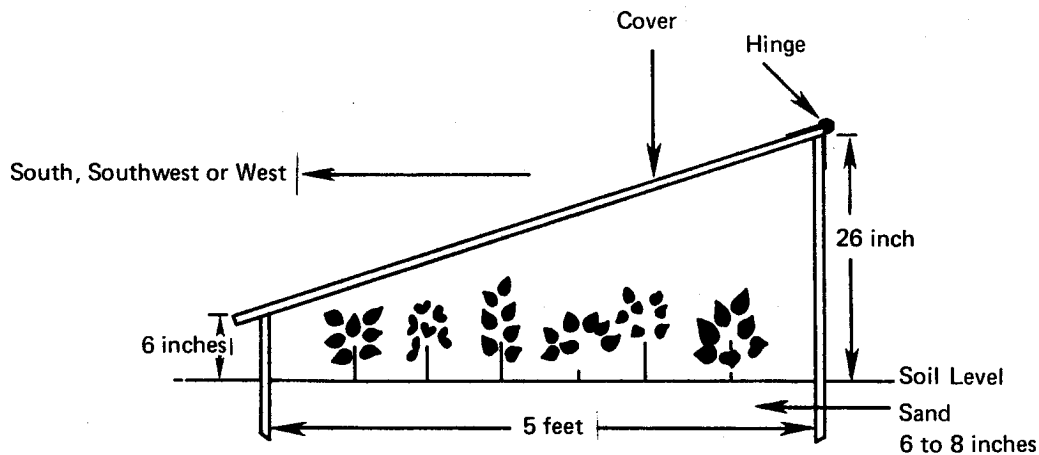


Figure 1. Cold frame construction.

Hot beds are designed in the same way as cold frames except that a source of heat is added.

Heating cables (available through seed catalogs) buried in the soil medium can be used successfully. Caution—Place a layer of hardware cloth over the heat cable to prevent electric shock when digging in the hot bed.

Manure hot beds have been used for a long time. Heating is provided by the decomposing material. A 12- to 24-inch layer of manure should be placed deeply enough in the bed to leave room for an 8- to 12-inch layer of growing medium on top (Figure 2). Over time the manure will lose its heating qualities and need to be replaced. Fresh, not composted, manure should be used. Horse manure, due to its high proportion of straw, is better for this purpose. Ventilation may be necessary to prevent extreme heat build-up within the structure.

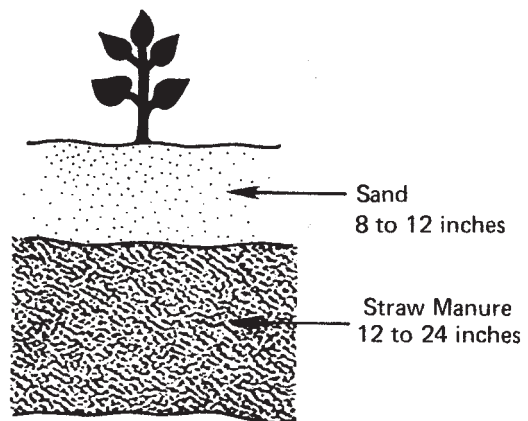


Figure 2. Manure hot bed.

Hot caps and walls o' water are small, greenhouse-like conical devices for protecting individual plants. They are made of translucent paper or plastic film fused to form a ring of water-filled tubes. They must be anchored to the ground. The weight of the water in the wall o' water helps hold them in place. Since they are fairly low, 12–18 inches, plants will outgrow them. Ventilation may be another problem. The hot caps may be torn and the walls o' water may be opened from conical to cylindrical shape to provide ventilation. Both items are available through seed catalogs and many nurseries.

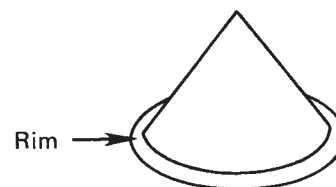


Figure 3. Hot cap and wall o' water.

Greenhouse-like structures (tunnel cloches) can be easily made with wire loops forming a semi-circle above ground and covered with non-opaque plastic films (Figure 4). The plastic needs to be anchored to the ground by piling soil on the edges or by some other means. The ends should be removable to provide ventilation when needed. Clear, translucent white plastic or spun-bonded row cover

fabric may be used to cover these structures. Clear plastic will capture more heat, but may overheat. White plastic will gain less heat, but will help prevent frost damage and is less likely to overheat. Row cover fabric will provide even less heat gain, but still protects against late frosts. The ends of the growing structure may be closed on cold nights and opened during the day to allow ventilation.

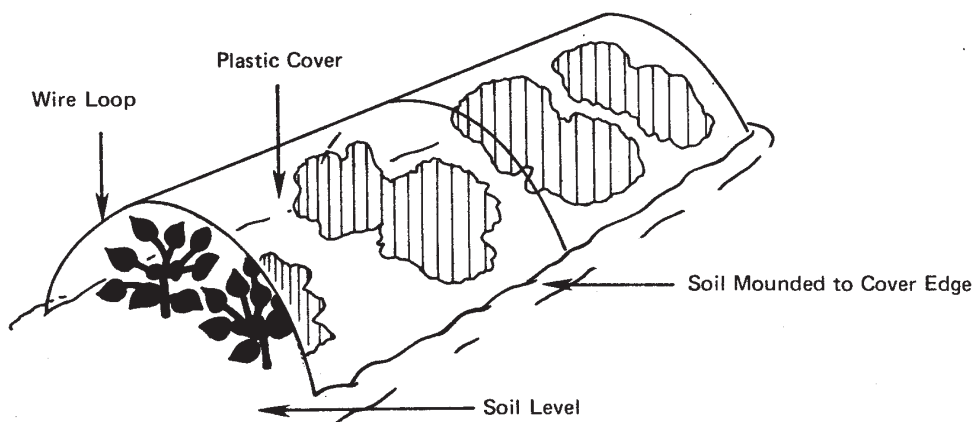


Figure 4. Tunnel cloche construction.

Black-plastic mulch is a film 4 to 6 mils (1 mil = 1/1000 in.) thick that can be used to give seedlings an early start. The film is placed on top of the prepared seed bed and anchored on the sides (Figure 5). Water will infiltrate from the furrow into the seed area. Seeds or transplants are placed in the soil through holes made in the plastic. Since the film is black it will absorb solar energy and heat the soil beneath. Another benefit of the black plastic mulch is that weed prob-

lems will be minimized, since light reaches only the germinating seedlings (near the planting holes). Clear plastic will more rapidly heat the soil by allowing sunlight to heat the soil directly, but will not provide weed control benefits. Both will conserve moisture. When the air temperature gets high, the soil could get too hot unless straw or some other type of mulch is placed on top. Plastic does not readily decompose and must be removed, unless it is biodegradable.

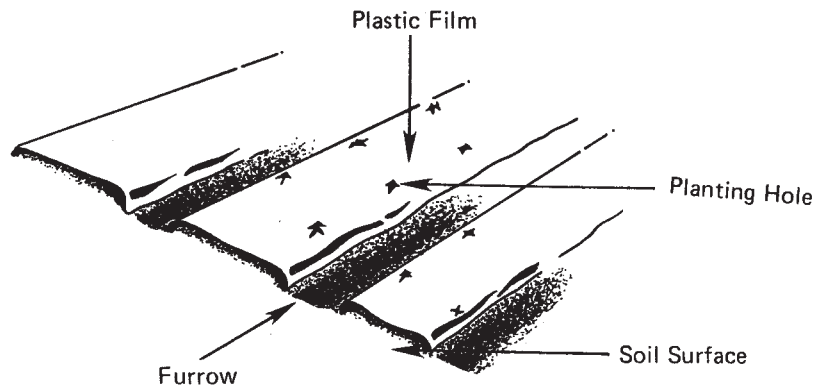


Figure 5. Black-plastic mulch.

Inner tubes, when filled with water, will trap solar energy and release heat during the night, thereby offering some protection. The plant or plants are grown in the soil within the hole of the inner tub (Figure 6). It is removed when temperatures are no longer cold enough to be detrimental to plants. Covering with plastic or other material on cold nights will increase the protection from freeze damage.

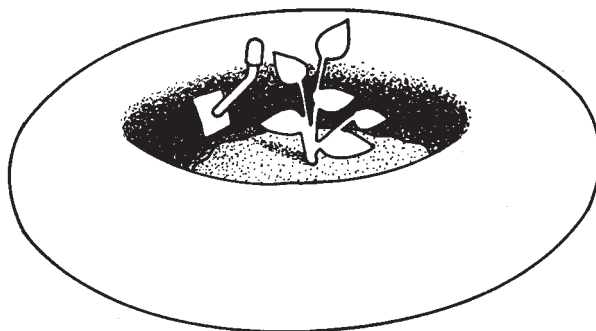


Figure 6. Inner tube.

One-gallon plastic jugs may be used if the bottom is cut off and the container is pushed into the soil far enough to avoid blowing over (Figure 7). The cover may be removed if some ventilation is needed.

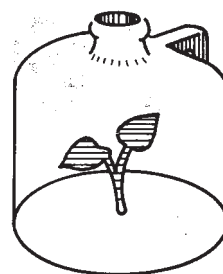


Figure 7. One-gallon plastic jug.

Holes in the ground can be used to start plants such as tomatoes. They may be covered with plastic or other transparent material to allow light to reach the plant. As the plants grow, soil needs to be add-

ed and the holes filled (Figure 8). Not many plants thrive under these conditions; however, tomatoes do very well.

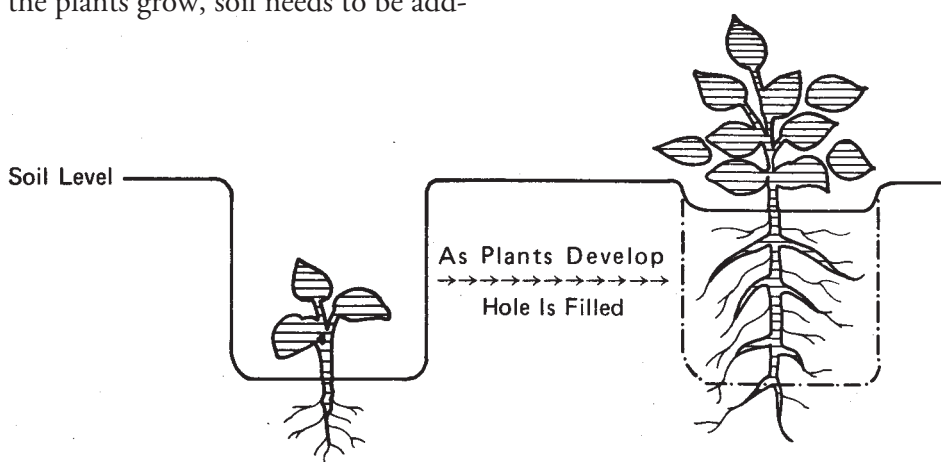


Figure 8. Filled holes in the ground.

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