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## Extending the Gardening Season

Most vegetable crops are very sensitive to cold weather, and the majority grow only during the frost-free months of the year, limiting the growing season in New England. Materials such as plastic mulches and row covers can speed crop development and harvest by raising daytime air and/or soil temperatures around the plant. Structures such as cold frames and hoop houses can extend the growing season at its beginning or end. Surrounding individual plants in the field with hot caps such as "wall o' water" or wax paper caps can provide a few degrees of protection and speed up growth.

### Plastic Mulches

Plastic mulches help to conserve soil moisture, reduce soil erosion and reduce the need for weed control. They warm the soil, leading to earlier harvest and increased yields, which is most helpful with heat loving crops like melons, peppers and tomatoes. They also improve fruit quality by keeping it off the ground. Disadvantages are the cost and potential disposal problems.

When applying plastic mulch, follow these steps:

1. Smooth the soil.
  2. Lay plastic tightly over the soil, and bury all edges.
  3. Cut or burn planting holes in the plastic.
  4. Plant seedlings or seeds through the holes.
  5. Monitor soil moisture throughout the season and water as needed.
- *Clear Plastic Mulch:* Warms the soil the most, but encourages weed growth underneath.
  - *Black Plastic Mulch:* Warms the soil less than clear plastic, but suppresses weed growth.
  - *IRT Mulch:* A "hybrid" of clear and black plastic, has intermediate soil warming and weed suppression ability.
  - *Other Mulches:* Red and white plastic mulches have been found to be less effective than black in colder climates.

### Row Covers

Row covers are made of either plastic, spun-bonded or woven synthetic materials. They enhance growth by raising daytime air temperature around plants up to 10° F. They offer some wind and frost protection, and provide a barrier against pests. It is essential to secure all edges when installing, but necessary to remove for pollination. Like plastic mulches, these materials can be costly, labor intensive, and a disposal problem.

- *Vented Plastic:* Use with black plastic to suppress weed growth. Support with hoops. Irrigate underneath.

- *Spun/woven fabric*: Support with hoops or lay loosely over plants and allow to "float"; allows water through. If stored properly, may last 2 to 3 years.

### **Cold Frames**

A cold frame is simply a bottomless box with a glass or plastic top that lets in the sunlight and can be built from a variety of materials. It is generally used to harden seedlings off and protect direct seeded crops from cold temperatures. A cold frame offers a greater degree of frost protection than floating row covers, but if not monitored carefully, can overheat. Disadvantages include bulkiness and cost (if purchased ready-made).

When using a cold frame, be mindful of the following:

1. Select a site with well-drained soil.
2. Orient south to southeast.
3. Monitor temperature inside frame and adjust opening to ventilate.

### **Hoop Houses**

This is a temporary, "no frills" greenhouse structure that can provide earlier crop yields. It is made with metal hoops, usually covered with a single layer of plastic. Sides must be rolled up and down to control temperature and humidity. It is helpful to have an irrigation system, and black plastic mulch on the ground. Hoop houses can be costly and labor intensive, and monitoring and managing pests is critical.

### **Hot Caps**

A hot cap is an individual plant cover that acts as a "miniature greenhouse," trapping heat from the sun. It raises soil and daytime air temperatures, accelerating germination and plant growth, while providing some frost protection.

- *Wax Paper Cap*: Shelters plants from wind; discourages insects. Greatly reduces light transmission to plants.
- *Glass Tent*: Panes of glass held together with aluminum clips. Better light transmission than opaque hot caps.
- *Wall O' Water*: Protects plant from temperature extremes. Costly, labor intensive. Only practical for small plantings of high value crops.

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