



“Extending Your Season: Row Covers”

March 26, 2016

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Extending the Gardening Season

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Many vegetable crops are very sensitive to cold weather, and the majority of them grow only during the frost-free months of the year. This greatly limits the length of the growing season. There are several methods that you can use to help protect your plants from the cold and extend our short growing season. Plastic mulches and row covers can speed up crop development and allow you to harvest earlier by raising soil temperatures and/or daytime air temperatures around the plant. Structures such as cold frames and hoop houses can extend the growing season at its beginning and end. Hot caps, such as insulating plastic water tubes or wax paper caps, can keep plants warmer and speed up growth.

Plastic Mulches

Plastic mulches help conserve soil moisture, reduce soil erosion, and inhibit weed growth. When stretched tightly over the garden soil surface, they warm the soil, leading to earlier harvest and increased yields, which is most helpful with heat-loving crops. They also improve the quality of your harvest by keeping plants off the ground. Disadvantages include the cost and potential disposal problems.

When applying a plastic mulch, follow these steps:

1. Smooth the soil evenly. Make sure the soil is moist.
2. Stretch the 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. Since colored plastic mulches are left on the soil for the whole gardening season, check soil moisture regularly, and water as needed through the planting holes.

Clear Plastic Mulch (not a good choice to extend the garden season)

Clear plastic mulch warms the soil more than any other type of plastic mulch, since it allows the sun's rays to penetrate. It is typically used to *solarize* a garden plot, and is **removed before planting**: solarizing kills weeds and disease organisms in the top 6 inches of soil. Cover moist garden soil tightly with clear plastic for the six hottest weeks of the summer.

Black Plastic Mulch.

Black plastic warms the soil less than clear plastic, but because it blocks the sun's rays, it suppresses weed growth. In order to get good soil warming with black plastic, make sure it is pressed flat for good contact with the soil surface. Black plastic also helps retain soil moisture by reducing evaporation, so plants may need to be watered less.

There are other specialty mulches: colored and infrared transmitting.

Row Covers

Rather than being placed on the soil around the bases of the plants, a row cover is put over the growing plants to create a greenhouse effect. Row covers are made either of perforated plastic or woven synthetic materials. They enhance growth by raising daytime air temperature around plants by up to 10°F, and insulate the plants with residual heat at night. They offer some wind and frost protection, and provide a barrier to pests. It is important to secure all edges when installing them so that they don't blow around. Remove the row covers for pollination. Like plastic mulches, these materials can be costly and labor-intensive, and can be a disposal problem. If handled and stored properly, they may be used for several seasons.

Woven row covers are lightweight, white fabrics that allow air, water, and sunlight to pass through, but trap heat inside and serve as a barrier to wind and insect pests. This type of row cover can be supported with hoops, or laid loosely over plants and allowed to "float." Secure all edges to keep the covers from blowing away.

Silted or Perforated Clear Plastic row covers are too heavy to be laid directly on plants, and must be supported by wire hoops. It has pre-cut slits or holes so that excess hot air can escape. It is commonly used in combination with black plastic mulch for weed control. Although plant growth is certainly enhanced under this type of row cover, you will need to monitor temperature carefully to avoid overheating on sunny days.

Cold Frames

A cold frame is simply a bottomless box placed over the plants, with a glass or clear plastic top that lets in the sunlight and opens to allow ventilation. It can be built from a variety of materials. It is generally used to harden seedlings off and protect direct-seeded crops from cold temperatures. Cold frames offer a greater degree of frost protection than floating row covers, but if not monitored carefully, they can overheat. Disadvantages include bulkiness and higher cost.

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

1. Select a site with well-drained soil.
2. Orient the glass face toward the south to southeast.

3. Monitor the temperature inside the frame and adjust the opening to ventilate and prevent overheating.

Hoop Houses

A hoop house, or high tunnel, is a temporary, no-frills greenhouse structure that can produce earlier crop yields. The frame comes in various types/ shapes, and is covered with a single layer of plastic. You must make sure you can open them up to prevent overheating. They are costly and labor-intensive, monitoring temperature is important.

Hot Caps

A hot cap is a cone, bell, or tent-shaped individual plant cover that acts as a miniature greenhouse, trapping heat from the sun. They raise soil and daytime air temperatures, accelerate germination and plant growth while providing some frost and wind protection.

Wax Paper Cap

While this cover shelters plants from wind and discourages insect pests, it also greatly reduces light transmission to plants.

Insulating Plastic Water Tubes

This is a flexible ring of connected plastic tubes which, when filled with water and placed around a young plant, gives frost protection by keeping the air around the plant several degrees warmer. They are costly and labor-intensive, so they are practical only for small plantings of high-value crops. Common names: Wall O' Water and Kozy Coat.

Other ideas from the internet:

On extra cold nights, placing an **aluminum space blanket** over the plastic on the frame significantly adds to the frost protection. With the aluminized side placed down (towards the plants), a space blanket reflects 99% of the heat. They are readily available where camping gear is sold.

Christmas tree lights – For additional protection, add Christmas tree lights inside the cold frame. Lights are hung on the frame under the plastic and turned on at dusk and off at dawn. Use incandescent not LED type

Plastic Row covers: Important:

- water as rain won't go through plastic, remember to water
- Secure edges against to prevent wind opening it up
- On hot days, open ends to allow ventilation
- Remove for pollination, and when weather warms to extend life of plastic.

Clear panels deliver direct light while **opaque panels** provide diffused light. If you want to buy a greenhouse to germinate seeds and grow starters which will be transplanted outdoors, then a clear covering has the advantage of bringing full, direct light to the starter trays. This warms the soil and encourages germinating seeds to sprout and develop into a vigorous starter plants for transplanting. If you plan on growing the plants to maturity in your greenhouse, a diffused covering has the advantage of providing even light for balanced foliage growth as well as preventing hot spots within the greenhouse. Diffused light provides superior light for growing plants. Diffused light may appear to be less bright than direct light, but the light that generally produces the most efficient photosynthesis is not visible to the human eye. Diffused light reaches your plants from many angles, so plants are less likely to get 'leggy'. With diffused lighting plants develop a more balanced, compact structure.