

Row Covers for Vegetable Gardens

Use of row covers has increased dramatically in the last decade. The glass cloches and bell jars in use early in the century have been replaced with plastics and now "floating" row covers. This technology has been used for many years in Europe, Asia, and Israel. Using row covers is now popular here, and the material is easy for gardeners to find.

Row covers are being made of a wide variety of materials for use as supported tunnels or floating covers. There are many materials available for row cover use. The availability of new materials has served to create some confusion over what cover to use on each crop in each area of the country. Here, clear, light-gauge polyethylene (unvented, slit or punched) is often used as supported tunnels over heat-loving crops. Floating covers of spunbonded polyester or pointbonded polyethylene are used where some warming and insect protection is needed.

Manufacturers make some pretty big claims for these products, but university research has now confirmed a number of benefits:

Early Yields -Virtually all trials have shown early yields with most crops. The greenhouse effect warms soil and speeds germination, root growth, and nutrient uptake, which in turn produces a larger, healthier plant.

Increases of Yields -Many cucurbit crops have consistently shown larger overall yields, up to 25%, over the life of the plant. Pepper and tomato crops may experience pollen neutralization in temperatures over 90 F° when grown under supported plastic.

Frost Protection -There is a four-to-seven-degree frost protection factor under row covers. The seven-degree figure applies to mature fruit protection and not the plant. Spring planting is still recommended at or near the frost-free date with less risk of late frost damage. Materials may be reused in the fall to extend the season by protecting mature fruit from the first fall frost.

Pest Protection -While silted row covers will limit the access of some pests, the best insect protection results from floating covers that will keep crops virtually insect-free as long as the edges remain securely buried. If bees are required for pollination, floating covers must be removed. If protection from insects is your only goal, you can also use 1/8" mesh netting, the old-fashioned kind that is available at fabric stores everywhere.

Water Conservation -Generally, less irrigation is required with row covers, because water is held inside, condenses, and returns to the soil.

Farmers really like the early harvest they get with row covers, since the first vegetables of the season bring the best price. In our home gardens, other benefits are more important. Plastic row covers let us grow eggplant, bittermelon, hot peppers, and other crops we probably would not have much luck with otherwise. Floating row covers give us excellent pest protection for many crops. Old spunbond fabric placed over a seedbed seems to greatly improve germination and seedling survival, too.

There are a few other details you should know about row covers.

Wind Protection -In very windy areas, supported tunnels may be necessary, because floating covers may cause crop damage by rubbing on plants.

Mulch - Black plastic mulch is recommended for use under row covers to retard weed growth. Pulling back the row cover to weed the crop is a hassle, and mulch will allow you to do it less frequently. There are a few reports of the black plastic "frying" transplants in other parts of the Northwest, but there are no reports of that problem here.

How Long to Cover -We still don't have good guidelines here. - four to five weeks on spring-seeded, cool-weather crops and longer on crops that appreciate warmth. You must remove row covering at flowering to get bee pollination of squash-family plants. You may as well remove it at harvest time of tomatoes and other fruiting crops to make picking easier and to increase light levels in late summer.

Crop researchers at WSU (Northwest Washington Research and Extension Center, Mt. Vernon) and OSU (Corvallis) have experimented with a number of crops under row covers in the Northwest.

- *Cabbage, celery, cauliflower, endive, kohlrabi, leek* - Significantly enhanced earliness (1-3 weeks) for all crops. Excellent protection from insect pests.
- *Lettuce* - Significantly increased yields, up to 60%. Increasing covering time has been shown to increase yields.
- *Melons* - Significantly enhanced earlier yields (5-28 days) with peak harvest 7 days early.
- *Onions* - Significantly increased total yields, up to 42%.
- *Peas* - Significantly increased total yields, up to 47%.
- *Peppers* - Experienced varying results with most significant being earliness (7-10 days).
- *Squash* - Enhanced earliness and excellent pest protection.
- *Sweet corn* - Enhanced crop earliness with significant increase in total yields (30-60%).
- *Tomatoes* - Experienced varying results from negative effects on yields to increased (45-60%) early yields and total yields (10-20%).

Last but not least, there was one trial done in New England that came up with some interesting results you might like to know about even though it doesn't involve Northwest conditions. In New Hampshire, plots were seeded in October with nine varieties of lettuce and three of spinach. By spring, those plots with floating row covers had perfect stands of lettuce and spinach. Without cover, not a single plant survived the winter. The researchers admit they don't understand why there was such dramatic protection, since the temperatures recorded under the cover were the same as without a cover (-2 degrees F°.) They theorize that frost heaving and drying was less severe under the material and are continuing their trials.