

## ROW COVERS

The 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 and is now really catching on here. Until recently, gardeners had trouble finding row cover material. Now the difficulty is finding good, reliable, research-based data on their use and effect.

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 is 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.

Increase of Yields – Many cucurbit crops have consistently shown larger overall yields, up to 25 percent, 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 4-7 degree frost protection factor under row covers. The 7 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 slitted row covers will limit the access of some pests, the best insect protection results from floating covers which will keep crops virtually insect-free as long as the edges remain securely buried. Crop rotation must be practiced for row covers to effectively prevent insect infestation. If bees are required for pollination, floating covers must be removed. If insect protection is your only goal, you can also try 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. Water is held inside plastic row covers where it condenses and returns to the soil. All row covers slow down evaporation from the soil.

Farmers really like the earliness 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 that we probably would not have much luck with otherwise. Floating row covers give us excellent pest protection in many crops. Old spunbond fabric placed over a seed bed 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, as floating covers may cause crop damage by rubbing on plants.

Mulch – On heat-loving crops, black plastic mulch is recommended under row covers to retard weed growth. Once the soil warms (June), organic mulches can be used. Pulling back the row cover to weed the crop is a hassle and mulch will allow you to do it less frequently. Territorial Seed Company reports that the black plastic “fried” their transplants, but I’ve never seen the problem here.

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

Effect on Crops – Research at WSU (Mt. Vernon Experiment Station) and OSU (Corvallis) have tried a number of crops under row covers.

**Cabbage, Celery, Cauliflower, Endive, Kohlrabi, Leeks** – Significantly enhanced earliness (1-3 weeks) for all crops. Excellent protection from insect pests, such as cabbage root maggots and imported cabbage worm.

- **Lettuce** – Significantly increased yields, up to 60 percent. Increasing covering time has 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 percent.
- **Peas** - Significantly increased total yields, up to 47 percent.
- **Peppers** – Experienced varying results with most significant being earliness (7-10 days).
- **Squash** – Enhanced earliness and excellent pest protections.
- **Sweet Corn** – Enhanced crop earliness with significant increase in total yields (30 to 60 percent).
- **Tomatoes** – Experienced varying results from negative effects on yields to increased (45 to 60 percent) early yields and total yields (10 to 20 percent).

Our demonstration gardens have also found floating row covers excellent protection from rust fly maggot in carrots and from leafminers in beets, spinach and chard.

Last but not least, there was one trial done in New England that came up with interesting results, even though it doesn’t involve Northwest conditions. New Hampshire researchers seeded plots 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 was the same as without a cover (-2 degrees F.). They are theorizing that frost heaving and drying was reduced under the material and are continuing their trails.

