Hoophouse Internal Winter Cover

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See the video for Hoophouse Internal Winter Cover online at www.mifma.org or on MIFMA's YouTube channel.

Internal covers are used in hoophouses in Northern climates to allow for winter harvesting from December through March. They also provide cold protection for warm season crops in April and November. There are two main materials and two common covering techniques used by farmers.

The materials are row-cover (spun polypropylene) and greenhouse plastic (polyethylene). Row cover materials are less durable but are lighter weight so they require less infrastructure and cost less to use. Greenhouse plastic, on the other hand, is more durable but is also heavier so requires more investment in a support structure. Both of these options work well but also require different management techniques. Regardless of material, the internal covers should be opened on warm or sunny days in the winter to allow the soil to capture and store heat and to also decrease the humidity levels under the coverings in an effort to decrease fungal disease pressure.

Row cover for winter use comes in various weights ranging from 0.5 oz/sqyd to over 4.0 oz/sqyd. The most common weights used for winter protection are either 0.5 oz/sqyd or 1.0 oz/sqyd. These weights allow for light transmission and are breathable so that if they are not removed or opened on sunny days, the temperature under the covering does not reach extremely high temperatures. Row cover can be purchased from most agricultural material suppliers in various widths and weights. Larger pieces may need to be special ordered.

A hoophouse with row cover over multiple small beds.

A system using high tensile wire spaced approximately 8ft apart and wire strainers is inexpensive and sufficient for supporting the internal row cover. This is often placed around 40in from the ground. This height allows for easy opening and closing without much bending over. It also allows for harvesting without removing the cover on days when the temperature is just warm enough to harvest (above 32°F) but not warm or sunny enough to remove the covering. If the wires sag over time, they can be tightened with a strainer handle (wire strainer tightening tool) or a pair of vise grips.

Materials for set up in a 30 x 96ft hoophouse would include:

- Wire strainer (4)
- 17-gauge high tensile wire (¼ mile)
- Bolts for attaching wire strainers to end wall (4)
- Nuts for attaching wire strainers to bolts (8)
- Drill and drill bit for drilling holes in endwalls at each end
- Row cover (40 x 100 ft piece, cut in half)
- Clothes pins, as needed to secure covering

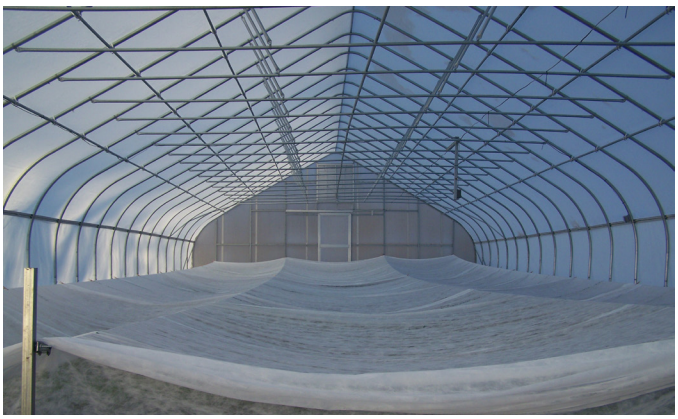
Greenhouse plastic comes in various thicknesses with the most common for winter protection being either 4-mil or 6-mil. It is possible to use the covering of an old hoophouse for this purpose after it has been removed from the roof. This material is not breathable so requires more maintenance to manage temperature and humidity on sunny winter days. Greenhouse plastic is also heavier than row cover and so requires a stronger support system such as EMT conduit, to hold the weight of the greenhouse plastic.

Beds can be covered with both of these materials individually, or the entire production area can be covered with one to two larger pieces. Both of these ways will allow winter harvesting. Covering the production area as one unit has less surface area to lose heat over the night and so is potentially warmer than covering individual beds.

Row cover over a single small bed

Plastic covering over all beds, closed

Row cover over all beds, open



Row cover over all beds, closed

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