

Seasonal High Tunnel System for Crops

Job Sheet and Specifications

NH-798



Definition

A seasonal high tunnel is a polyethylene covered structure at least 6 feet in height, which modifies the climate to create more favorable growing conditions for vegetable and other specialty crops grown in the natural soil within the covered space.

Purpose

The purpose of the seasonal high tunnel is to extend the crop growing season, improve plant quality, improve soil quality, and improve water quality from reduced nutrient and pesticide transport.

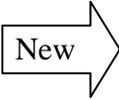
Client		Date	
Planner		Field/Tract	

Purpose: (check all that apply)	
<input type="checkbox"/> Extend the growing season	<input type="checkbox"/> Improve plant quality
<input type="checkbox"/> Improve water quality	<input type="checkbox"/> Improve soil quality
<input type="checkbox"/> Other:	

Selection

Choose models based on the selection criteria listed on the following page. A high tunnel is a versatile structure that can be modified in different ways and often there is no standard “kit”. Producers are responsible for ensuring that the model is ordered with all required components specific to NH. Vendor claims that models are “NRCS approved” may not always be accurate, because minimum criteria/specifications vary from state to state.

High Tunnel Selection Criteria:

- Frame is gothic style (peaked versus round)
 - Tunnel width does not exceed 30 ft
 - Bows and ground posts are at least:
 - (i) 1.90" round 14 gauge galvanized steel or stronger for tunnels \geq 26 ft. wide
 - (ii) 1.66" round 14 gauge galvanized steel or stronger for tunnels $<$ 26 ft. wide
 - (iii) 2.00" square 16 gauge galvanized for all tunnel widths
 - (iv) 1.625" x 2.750" oval 16 gauge for all tunnel widths
 - Bows are spaced 4 ft. apart. Bows may be spaced 6 ft. apart only for tunnels constructed with galvanized steel bows and ground posts that are at least (i) 2.375" round 14 gauge or (ii) 2.0" x 3.56" oval 16 gauge
 - 3 purlins for tunnels $<$ 26 ft. wide, 5 purlins for tunnels \geq 26 ft. wide
 - Trusses with braces/cross-ties every other bow for tunnels \geq 26 ft. wide
 - Wind bracing between last and next to last bow on each end
 - Frame is covered with at least 6-mil, 4-year UV resistant polyethylene film
 - Roll-up or drop-down sides are installed on both sides and rope (or equivalent material) is attached from hip-board to baseboard to protect sides from billowing
 - End walls are framed with wood lumber or metal and covered with UV resistant polyethylene film (at least 6-mil, 4-year), polycarbonate, or plywood
 - At least one end wall contains a door for access
-  Bows/posts shall consist of no more than 5 individual segments, including ground posts. Typically this includes 2 ground posts, 2 half bows, and a bow connector. (Splices/sleeves may be used to join posts/bows and are not considered segments.)

All segments must be through bolted (bolt and nut) at the connection point

High Tunnel Selection Considerations

- Construct a minimum 6 ft. x 6 ft. opening on each endwall for increased ventilation and access (e.g. 2- 36 inch wide doors on each end or larger roll-up, sliding, or hinged doors).
- Evaluate the size of the equipment to be used in the tunnel when constructing the endwalls and the height of the sidewall as it relates to the height of the target crops
- For tunnels \geq 26 ft. wide consider using trusses with braces/cross-ties on every bow.
- Add more purlins and/or wind bracing kits in windier areas.
- Avoid plywood on southern sides of the tunnel. Paint white to increase light reflectance.

Vendors (Suppliers)

Source	Model
Griffin Greenhouse & Nursery Supplies Tewksbury, MA (978-851-4346) www.griffins.com	New England Windjammer Series 5000
Ledgewood Farms Moultonborough, NH (603-476-8829) www.ledgewoodfarm.com	Ledgewood Farm Gothic
Rimol Greenhouse Systems, Inc. Hooksett, NH (603-494-9426) www.rimol.com	Nor'Easter Northpoint Eastpoint Rolling Thunder
Harnois Industries St. Thomas, Quebec (888-427-6647) www.harnois.com	Ovaltech I Ovaltech III
Four Season Tools Kansas City, MO (816-444-7330) www.SmallFarmTools.com	Four Season Moveable Gothic
W.H. Milikowski, Inc. Stafford Springs, CT (800-243-7170) www.milikowski.com	Northern Star Series

Contractors (Installation)

Adam's Greenhouse Construction Loudon, NH (603-545-4856) greenhouses@comcast.net	Deerfield Greenhouse Builders & Repairs Deerfield, MA 413-773-5295
Ledgewood Farms Moultonborough, NH (603-476-8829) www.ledgewoodfarm.com	Griffin Greenhouse & Nursery Supplies Tewksbury, MA (978-851-4346) www.griffins.com

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High Tunnel System Construction

- Prepare site according to manufacturer's instructions. Sites should be level, well-drained, and clear of large stones and other debris. Consider using a site level/transit.
- Consider elevating the soil 2-3 inches (to make a pad) to improve drainage
- Avoid shade from other structures by locating the tunnel a minimum of 12 feet away from other tunnels (on any side) or structures on the north side. The distance from the tunnel to a shading structure on the south, east, or west side should generally be twice the height of the shading structure (e.g. locate the tunnel approximately 40 ft. away from a 20 ft. high barn on the south side).
- The long axis of the tunnel should be oriented East-West if late and early season production is the primary goal. If improving plant quality during the main season is the goal, consider a North-South orientation. Also consider orienting the long axis of the tunnel perpendicular to the direction of the prevailing winds to increase ventilation through the sidewalls.
- Assemble high tunnel structure according to manufacturer's instructions. Do not pound ground posts directly with a sledge hammer, it will damage the ends. Use a large bolt or other material to protect the post from damage.
- Seed down the disturbed area with around the exterior of the tunnel with perennial sod

Operation and Maintenance

- Follow manufacturer's instructions for operation and maintenance of the high tunnel structure.
- Periodically inspect structure and cover for damage. Reinstall or repair plastic promptly.
- Completely close up high tunnel during high wind events
- Inspect runoff control measures after every significant rainfall event. Repair promptly.
- Remove snow on and around the structure.

Other: _____

Seasonal High Tunnel Structure – *as-built measurements*

Length (ft)	Model
Width (ft)	Manufacturer

Recommendation: Attach digital images on another sheet to document practice installation and illustrate practice before and after effects. Include invoice/receipt from manufacturer.

CHECK OUT: Amount Completed: _____ square feet

Remarks _____

This practice meets NH 798 Approved Product List and Selection Criteria Yes No

Check out by: _____ Date: _____