

Seasonal High Tunnel System for Crops

North Carolina Practice Job Sheet 798

Prepared for: _____

Prepared by: _____

Farm: _____ Tract: _____ Date: _____



Photo Source: www.hightunnels.org

DEFINITION

A seasonal high tunnel is a polyethylene covered structure with no electrical, ventilation, or heating system, 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

- Extend the crop growing season.
- Improve plant quality.
- Improve soil quality.
- Improve water quality from reduced nutrient and pesticide transport.

WHERE USED

A seasonal high tunnel may be used where existing specialty commodity crops are

grown in open field conditions, and extension of the growing season is needed due to climate conditions.

Commercially available high tunnel structures are made in numerous widths and lengths. The high tunnels are constructed of metal or plastic bow frames that are covered with a single layer of polyethylene. Ventilation is achieved by means of a combination of roll-up side vents, end vents, and occasionally, roof vents. Generally, the end walls are framed-in to create door and ventilation areas. The high tunnel structure covers several crop rows, is wide enough to allow crop growth to full maturity under the tunnel, and is tall enough to allow spraying, cultivation and harvest to occur with the tunnel intact.

CONSERVATION MANAGEMENT SYSTEM

Water runoff from the high tunnels or from other nearby sources can cause erosion and ponding issues that may require the application of other practices such as infiltration trenches, diversions, underground outlets and critical area plantings. These additional practices must be planned and installed as a condition for the installation of a high tunnel. Additional practices should be considered as a part of a conservation plan, such as nutrient and pest management and crop rotation.

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Materials List

High Tunnel Structure with 6-mil (or thicker) greenhouse grade, UV resistant polyethylene cover; and a frame at least 6-feet high inside the tunnel. A product carrying at least a 3-year manufacturer's warranty is recommended because NRCS expects the structure to be operated and maintained for 4-years after installation.

Your high tunnel structure's outside dimensions will be: _____

Supporting Practices Needed at Your Site for Runoff Control:

- Critical Area Planting (job sheet attached)
- Diversion (construction plan attached)
- Infiltration Trench along each side (construction plan attached)
- Manufacturer's gutter system (roof runoff control)
- Underground Outlet (construction plan attached)
- Other _____

High Tunnel System Location and Construction

- Locate your high tunnel structure on existing cultivated cropland that provides best available growing conditions for your desired crops.
- Select a high tunnel site after consideration of your land's slope, sun exposure, soil quality, soil fertility, water drainage, air drainage, risk of herbicide carry-over, and risk of soil pests.
 - The site must be relatively level and well drained, so the tunnel can be installed without grading or puddled water between the rows
 - Orient your tunnel in a direction that provides acceptable sunlight exposure for the crops to be grown; and good ventilation by the prevailing wind.
 - The site location must have access to enough clean irrigation water to meet your crop needs and allow you to carry out normal farming operations without damage to the structure.
- Request marking of underground utilities in the construction area by telephoning the North Carolina One-Call System (dial 811) at least 2 working days before you start building.
- Prepare the site according to manufacturer's instructions.
- Assemble the high tunnel structure according to manufacturer's instructions.
- Install supporting practices as required, according to construction plans provided.
- Contact NRCS when your work is completed, or before you make changes to you planned installation.

Operation and Maintenance

- Grow crops under the high tunnel in the natural soil profile- not on benches, tables, or in pots.
- Operate the high tunnel to manage temperature and moisture according to the tolerances of crops grown.
- Do not use the high tunnel for storage of material or equipment during the extended growing season.
- Follow manufacturer’s instructions for operation and maintenance of the high tunnel structure.
- Periodically inspect structure and cover for damage. Reinstall or repair promptly.
- Avoid damage to structure from equipment operated in and around the seasonal high tunnel.
- Inspect runoff control measures after every significant rainfall event. Repair promptly.
- If the high tunnel’s cover is removed to protect it from damaging snow loads, tropical storms, or hurricanes- replace the cover prior to using the tunnel again.
- If the high tunnel is relocated, re-install runoff control practices needed to prevent soil erosion and water ponding.

CONSTRUCTION CHECKOUT

Seasonal High Tunnel Structure – as-built measurements

Length (ft):	Height in Center (ft):
Width (ft):	Structure Manufacturer:

Supporting Practices Installed

- Critical Area Planting (job sheet attached)
- Diversion (construction plan attached)
- Infiltration Trench along each side (construction plan attached)
- Manufacturer’s gutter system (roof runoff control)
- Underground Outlet (construction plan attached)
- Other _____

CHECK OUT:

Amount Completed: _____ square feet. Mark As-Built location on plan map.

Remarks _____

This practice meets NRCS standards and specifications Yes No

Check out by: _____ Date: _____

Additional Specifications and Notes:

CERTIFICATIONS

Job Sheet

Prepared by: _____

Title: _____ Date: _____

Approved by: _____

Title: _____ Date: _____

Installation

Meets NRCS standards and specifications? YES NO

Certification by: _____ Date _____