

High Tunnel System for Crops

TEXAS JOB SHEET – 325

OCTOBER 2015



Photo Source: Hightunnels.org

Definition

A seasonal high tunnel is a polyethylene, polycarbonate, plastic or fabric covered structure, at least 6 feet in height, which extends the growing season for crops grown in the natural soil profile or in raised beds not to exceed 12 inches in depth within the covered space.

Purpose

The purpose of the seasonal high tunnel is to extend the crop growing season, protect crops from sun and wind exposure, improve plant health and vigor, improve soil quality, and improve water quality from reduced nutrient and pesticide transport.

Where used

A seasonal high tunnel may be used where crops can be grown 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 could be covered with a single layer of polyethylene, polycarbonate, plastic, or fabric. 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 System

Water runoff from the high tunnels or from other nearby sources can cause erosion and ponding issues. These concerns must be addressed and may require the application of other practices such as guttering systems, infiltration trenches, rock, weed barrier cloth, diversions, underground outlets and critical area plantings. These additional practices should be planned and installed as a condition of the installation of a high tunnel. Other practices to be considered as a part of a conservation plan include nutrient and pest management and crop rotation.

High Tunnel System – Job Sheet

Producer _____ Location _____
Field Office _____ Conservation Contract _____
Growing Season _____ Purpose of High Tunnel _____

Materials List

High Tunnel Structure planned, designed, and constructed in accordance with manufacturer’s recommendation, size(s) _____

- Polyethylene cover, 6 mil greenhouse grade or better, UV resistant
- Polycarbonate cover*
- Plastic cover*
- Fabric cover*

*According to Manufactures Recommendations

Supporting Practices as Required:

- Gutter System
- Critical Area Planting (Appendix 1)
- Infiltration Trench along each side (Rock, Barrier Cloth)
- Diversion
- Other _____

High Tunnel System Construction

- The owner/operator shall complete a [TX-ENG-80A](#), Utilities Inventory and a [TX-ENG-80B](#), Cooperator Confirmation of the One-Call Utility Safety System prior to layout or any ground disturbance and return it to a NRCS representative. Locate structure to avoid buried utilities.
- Obtain any required permits. Participants who carry out conservation practices are responsible for obtaining the authorities, rights, easements, permits, or other approvals necessary for the implementation, operation, and maintenance of conservation practices in keeping with the applicable laws and regulations
- Locate structure near a viable water source for irrigation.
- Prepare site according to manufacturer's instructions.
- Lay out building location according to site plan.
- Assemble high tunnel structure according to manufacturer's instructions.
- Install supporting practices as required, according to construction plans provided.
- Where wind loads may damage the structure, select the tunnel cover and structure designed by the manufacturer to withstand expected wind loads or manage the tunnel system in a manner that limits wind damage.
- Where snow loads may damage the structure, the tunnel cover shall be removed or rolled up at the end of the growing season unless the structure is designed by the manufacturer to withstand expected snow loads.

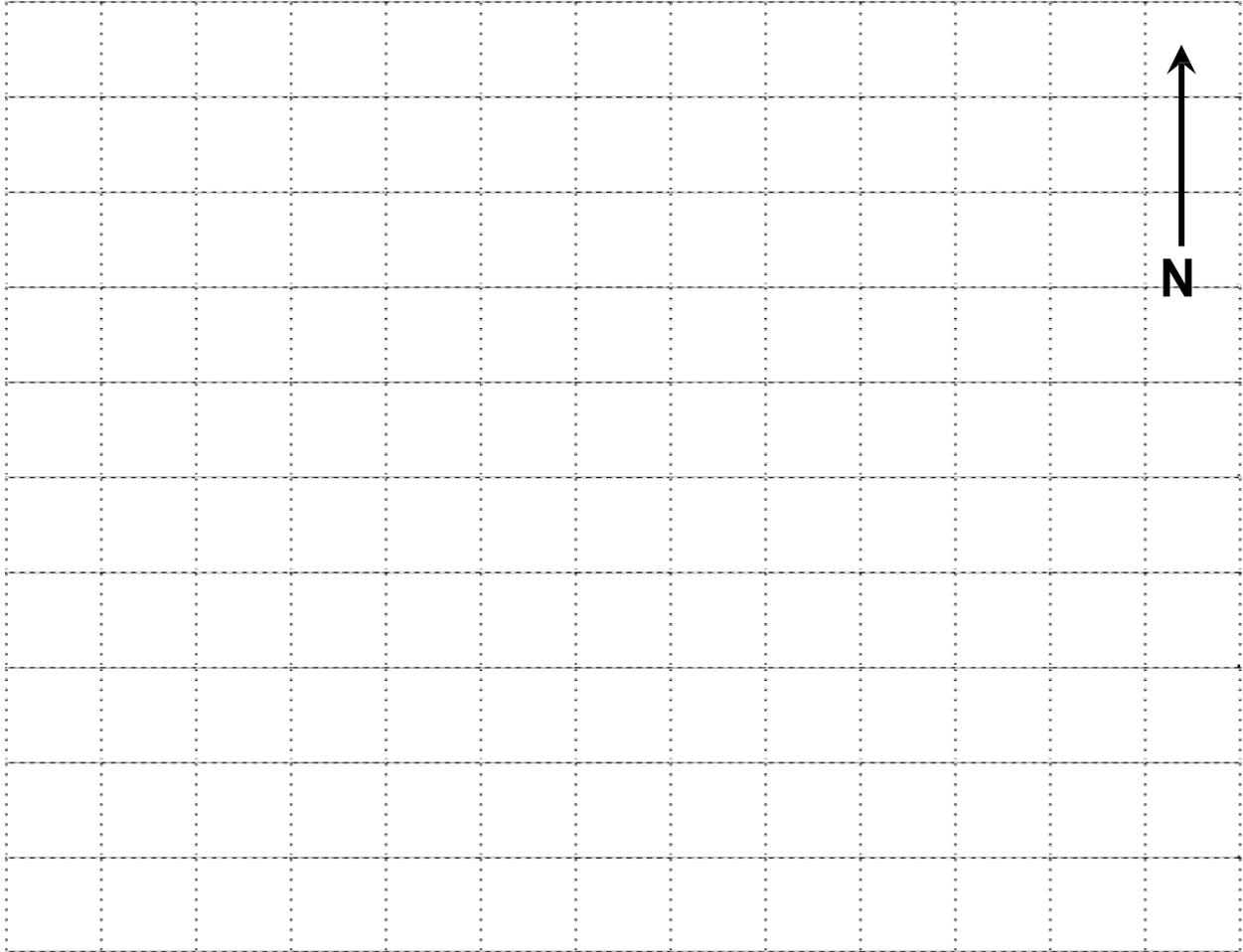
Operation and Maintenance

- Periodically inspect structure and cover for damage. Reinstall or repair promptly.
 - Follow manufacturer's instructions for operation and maintenance of the high tunnel structure.
 - 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.
 - Removal of cover materials shall be consistent with the intended purpose and site conditions.
 - Removal of the cover should be done prior to expected inclement weather that could damage the cover and/or structure.
 - Shade cloth should be added or replaced as needed to protect the cover or crops from the sun.
-
-

High Tunnel System – Layout and Location

Plan view of seasonal high tunnel system site shown below.

Scale 1"= _____ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")



Additional Specifications and Notes:		
Design Certification		
This High Tunnel System plan meets the requirements of NRCS Conservation Practice Standard 325.		
_____	_____	_____
Signature	Title	Date

NRCS, TEXAS
October 2015

High Tunnel System – Construction Checkout

Seasonal High Tunnel Structure – *as-built measurements*

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

Supporting Practices Installed

Gutter System
 Critical Area Planting
 Infiltration Trench along each side
 Underground Outlets
 Diversion
 Other _____

Quantities and detailed checkout information for supporting practices shall be documented separately.

CHECK OUT:

Amount Completed: _____ square feet.

Mark As-Built location on plan map.

Remarks _____

This practice was constructed in accordance with the manufactures recommendations and meets

NRCS Standards

Yes No

Check out by: _____

Date: _____

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication program information (Braille, large print, audiotape, etc.) should contact the USDA Office of Communications (202) 720-2791.

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

NRCS, TEXAS
October 2015