

High Tunnel System

Virginia Conservation Practice Job Sheet

325



Definition

An enclosed polyethylene, polycarbonate, plastic, or fabric covered structure that is used to cover and protect crops from sun, wind, excessive rainfall, or cold, to extend the growing season in an environmentally safe manner.

Purpose

The purpose of the seasonal high tunnel is to improve plant health and vigor.

Conditions Where Practice Applies

This practice applies to land capable of producing crops. This practice applies where sun or wind intensity may damage crops, or where an extension of the growing season is needed due to climatic conditions.

Criteria

The high tunnel structure must be planned, designed, and constructed from a new manufactured kit in accordance with manufacturers' recommendations. The high tunnel frame must be constructed of metal or wood; and be at least 6 feet in height at the peak of the structure. If required for enclosure, end wall covering may be greenhouse-grade plastic, polycarbonate, wood, or other. Use structures with the entry/exit point sized to facilitate movement of equipment and supplies needed for the production of planned crops.

Select the high tunnel covering material of a significant thickness to withstand the

temperature change for the period required and shall have a 4-year-minimum lifespan. For polyethylene covers, use a minimum 6-mil greenhouse grade, UV-resistant material.

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.

Where wind loads may damage the structure, select the tunnel cover and structure designed by the manufacturer to withstand expected wind loads and manage the tunnel system in a manner that limits wind damage.

Construct high tunnel structures on level grade or the naturally occurring slope if the slope does not exceed five percent. Select a site that will have sufficient sunlight for the crop(s) that will be grown. Where possible, select a site that is sheltered from the wind. Avoid placing the high tunnel structure in the 25-year floodplain unless there is not another suitable location.

Crops must be grown in the natural soil profile. Raised beds may be installed to improve soil condition, fertility, and access. Raised beds are a maximum of 12 inches in depth.

The practice does not include greenhouses or low tunnel systems.

The practice cannot be used to provide shelter or housing for any livestock, or to store supplies or equipment.

High tunnels shed a large amount of water and can create drainage and ponding issues where none previously existed. Direct runoff away from the high tunnel structure to avoid ponding. Supportive conservation practices will address all environmental concerns associated with the installation and use of the high tunnel systems such as erosion, irrigation, and runoff.

NOTE: This summary does not address all requirements and considerations in the VA High Tunnel System Standard (VA-325). Consult Standard for further details.

High Tunnel System – Job Sheet

General Information

Client: _____ County: _____
Field Office: _____ Contract #: _____
Farm #: _____ Tract #: _____
Field # and acreage: _____

Client's Purpose

Improve plant health and vigor.

Practice Specifications

The high tunnel will be built from a new manufactured kit per the attached manufacturer's directions.

Manufacturer & model no: _____

Planned width, length, and height (minimum 6 feet at peak) of Tunnel: _____

Manufacturer Warrantee:

- 4- year-minimum Lifespan
- Polyethylene cover- minimum 6-mil greenhouse grade, UV-resistant material

Planned Growing Season

As appropriate, specify timing of overall crop rotation. Consider using and attaching Cropping System Description & Evaluation (D&E) Specification Sheets (see VA NRCS Tech Notes SharePoint Site for D&E Spec Sheet document).

Cover Management

See complete standard for details required on timing to roll up or remove the polyethylene cover prior to inclement weather and shade cloth (if used).

Site Preparation and Supporting Practices

Site Preparation:

- Natural grade of slope 5% or less or level grade

Supporting Practices Required:

- Manufactured Gutter System
- Critical Area Planting
- Infiltration Trench along each side
- Underground Outlet
- Diversion/ Waterway
- Other _____

Operation and Maintenance

- Remove and store high tunnel cover at the end of each growing season prior to inclement weather, unless manufacturer warrants the cover for snow or wind loads. Close sides and ends before storm events. Replace cover prior to use in the spring after the danger of snow is past. If storm events occur, remove snow and ice from structure cover and sides promptly to prevent structure failure. When structure is at a serious risk of failure, consider slashing the plastic cover to relieve pressure and save the framework.
- Periodically inspect structure and cover for damage. Reinstall, repair, or replace failing components promptly. Plan for proper disposal of the cover at the end of its useful life.
- If utilized, remove and replace shade cloth used for tunnel cover protection.
- Follow manufacturer’s instructions for operation and maintenance of the high tunnel structure.
- Avoid damage to structure from equipment operated in and around the high tunnel.
- Inspect runoff control measures after every significant rainfall event. Repair promptly.
- Perform soil tests regularly to monitor nutrients and to monitor salt build-up. The soils under the immobile high tunnels may require periodic “flushing” to remove salt build-up. This is accomplished by removing the cover for a season to allow natural precipitation to infiltrate, or by artificially flooding the ground under cover.
- If needed, seed all disturbed earth surfaces outside of the high tunnel and maintain the vegetation throughout the structure’s life.

Planner Certification

This Seasonal High Tunnel System plan meets the requirements of NRCS Conservation Practice Standard 325.

Signature

Title

Date

Certification of Practice Completion

The high tunnel practice planned in this job sheet has been completed according to NRCS specifications (indicate in Specifications any changes to planned activities and acreage).

Signature

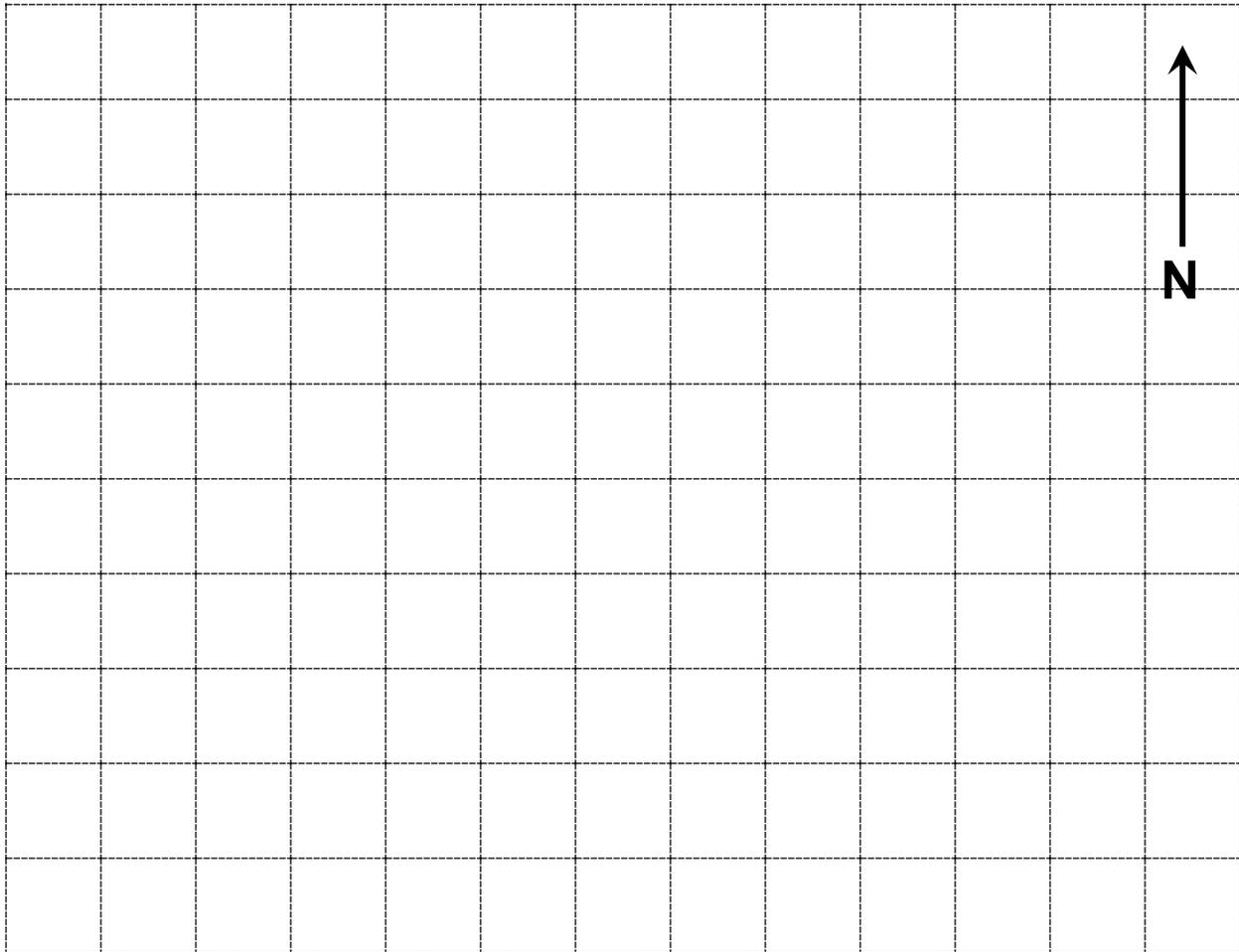
Title

-Date

High Tunnel System – Layout and Location

Plan view of 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:

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