

Indiana - December 2011 (ver. 1.0)

Seasonal High Tunnel System for Crops

Definition

A Seasonal High Tunnel (SHT) System for Crops is a polyethylene covered structure that is used to cover crops to extend the growing season in an environmentally safe manner. This system applies to cropland where extension of the growing season is needed due to climate conditions and crops can be grown in the natural soil profile. Permanently raised beds may be installed to improve the soil condition, fertility, and agri-ability access, but does not apply to crops not grown in the natural soil profile (i.e. tables/benches, portable pots, etc.). High tunnel systems are not greenhouses or low tunnel systems that may cover single crop rows.



Purpose

Tunnel systems are designed to extend the cropping season and benefit natural resources by improving plant quality, soil quality, and water quality through methods such as reduced nutrient and pesticide transport. They also improve air quality through reduced transportation inputs and reduce energy use through local consumption.

General Specifications

- Before you dig, contact the Indiana Underground Plant Protection Services, Inc. toll free at 1-800-382-5544 or 811, at least 48 hours in advance of construction, for location of underground utilities.
- Tunnel systems are commercially available in many lengths, widths and designs. Structures must be planned, designed and constructed in accordance with manufacturers' recommendations. The structure, including post ribs, or hoops, purlins, ridgepole, coverings and all other components must be constructed and anchored according to the manufacturer's recommendations.
- It is important to design the structure to withstand the local snow and wind condition. Remove the cover prior to the "snow season" unless the structure has been designed for expected snow loads.
- Prepare the site according to manufacturer's instructions. Tunnels are to be placed in sites with adequate drainage in full sun and, if possible, with protection from the wind.
- Lay out the building location according to the site plan. The orientation of the tunnel is dependent on the season and crops that will be grown. Usually, a north-south orientation will optimize sun exposure.
- The tunnel frame must be constructed of metal, wood or durable plastic, and be at least 6 feet in height. It should be tall enough to allow spraying, cultivation, harvest and other operations to occur while keeping the tunnel intact.
- The plastic covering of the tunnel will be a minimum 6 mils thick, greenhouse grade, and UV resistant polyethylene.
- Baseboards, as applicable, should be treated lumber or rot-resistant wood. (Note: Treated

lumber may not be acceptable in organic production. Please check your organic plan for acceptable material.)

- Ventilation is important to moderate temperature within the tunnel. Ventilation is provided by rolling up the sides of the tunnel, and is greatly influenced by the height of the structure. Taller structures allow for better airflow. Mechanical ventilation systems can be used for temperature regulation and improving airflow.
- Allow for adequate surface water drainage. If placed side by side, the minimum spacing between structures with north-south orientation should be 4 feet and an east-west orientation requires a spacing of 2 times the structure height.
- Water runoff from the high tunnels or other nearby sources can cause erosion. Ponding and drainage problems may require the application of other conservation practices. Additional practices, such as diversions, grassed waterways or critical area seeding, must be planned and installed as needed, as a condition for the installation of a high tunnel system. It may also be possible to capture runoff in a cistern for later use.
- All disturbed areas need to be seeded to control erosion.

season” unless the structure has been designed for expected snow loads. At a minimum, accumulated snow should be periodically removed to avoid structural weakening and/or collapse.

The cover should be inspected regularly for wear and tear. Damage from wind or other normal weather-related occurrences should be repaired immediately.

Surface and subsurface drainage and other associated conservation practices must be maintained and any drainage problems near the tunnel will be corrected.

Plans and Specifications

The plans and specifications for seasonal high tunnels will be in accordance to the manufacturer’s recommendations and this job sheet. Prepare the site according to manufacturer’s recommendations.

References

- Indiana Field Office Technical Guide (FOTG) Standard (798) [Seasonal High Tunnel System for Crops](#).
- [Community Garden Guide Season Extension – High Tunnel](#), NRCS – Rose Lake Plant Material Center.
- [High Tunnels.org](#)

Operation and Maintenance

High tunnels are intended to be “seasonal” structures. Remove the cover prior to the “snow

Tunnel System Job Specification Sheet

Name _____ Farm # _____ Tract # _____

Assisted by _____ Field Office _____ Contract # _____

Tunnel Information

Manufacturer _____

Height (min 6') _____ Width _____ Length _____ Total Square Feet _____

Materials

Cover – Greenhouse grade, UV resistant polyethylene a minimum of 6 mils thick

Ribs, purlins, post and other components (size and type of materials)

Optional Systems Planned

Supplemental Heating System Mechanical Ventilation System Electrical System

Location and Tunnel Orientation (Show on site plan map)

Other conservation practices planned (Show location on site plan map)

Diversion Underground Outlet Critical Area Planting

Infiltration Trench Irrigation Cover Crops

Nutrient Management Integrated Pest Management Other

Seeding recommendations for erosion control on disturbed areas:

Species and rate to be planted: _____

Lime: _____ lbs/ac. Fertilizer: _____ lbs of 12-12-12/ac.

REQUIRED: Attach a site plan map.

Certification

This structure was constructed and installed using all manufacturer's recommendations. I have read and understand the operation and maintenance requirements associated with this practice.

Landowner Date

Technical Service Provider (if applicable) Date

Practice has been installed. Supporting practices meet NRCS specifications.

Attach Site Plan Map