

Seasonal High Tunnel System for Crops

Interim Conservation Practice

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Photo Source: www.hightunnels.org

Definition

A seasonal high tunnel is a polyethylene covered structure used to modify climatic conditions to extend the growing season. The practice does not include greenhouses or low tunnel systems that cover single crop rows

Purpose

The purpose of the seasonal high tunnel is to improve plant quality, improve soil quality, reduce nutrient and pesticide transport, improved air quality through reduced transportation inputs, and reduce energy use through local consumption.

Where Used

A seasonal high tunnel will only be used on cropland where an extension of the growing season is needed due to climatic conditions and crops can be grown in the natural soil profile.

Design Criteria

The seasonal tunnel structure must be planned, designed, and constructed in accordance with manufacturer's recommendations. The tunnel frame must be constructed of metal, wood, or durable plastic; and be at least 6 feet in height.

The cover shall be of a significant thickness to withstand weather conditions during the period of use. As a minimum, a 6-mil greenhouse-grade, UV resistant polyethylene cover will be used.

In climate conditions 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 to withstand expected snow loads.

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.

Supporting Conservation Practices

Runoff shall be directed away from the tunnel structure to avoid ponding. Runoff may be captured and used for irrigation purposes. The minimum design capacity for runoff structures shall be a 10-year storm frequency, 5-minute rainfall precipitation event. Runoff may empty into surface or underground outlets, or onto the ground surface when properly protected. Surface and underground outlets shall be sized to ensure adequate capacity. Provide for clean-out as appropriate. When runoff from tunnel covers empties onto the ground surface, a detention basin, storage reservoir, or stable outlet shall be provided.

Surface or ground outlets such as rock pads, rock filled trenches with subsurface drains, concrete and other erosion-resistant pads, or preformed channels may be used.

Seeding and vegetation shall be established on all disturbed earth surfaces.

Seasonal High Tunnel System Design

Producer _____ Location _____

Field Office _____ Contract _____

High Tunnel System Construction

- High Tunnel Structure, size(s) _____
- Prepare site according to manufacturer's instructions.
- Lay out building location according to site plan.
- Assemble high tunnel structure according to manufacturer's instructions.

Planned Supporting Conservation Practices (Attach applicable job sheet)

- Subsurface Drain (606)
 - Critical Area Planting (342)
 - Underground Outlet (620)
 - Diversion (362)
 - Conservation Crop Rotation (328)
 - Nutrient Management (590)
 - Pest Management (595)
 - Irrigation System, Microirrigation (441)
 - Irrigation Water Management (449)
 - Grassed Waterway (412)
- _____

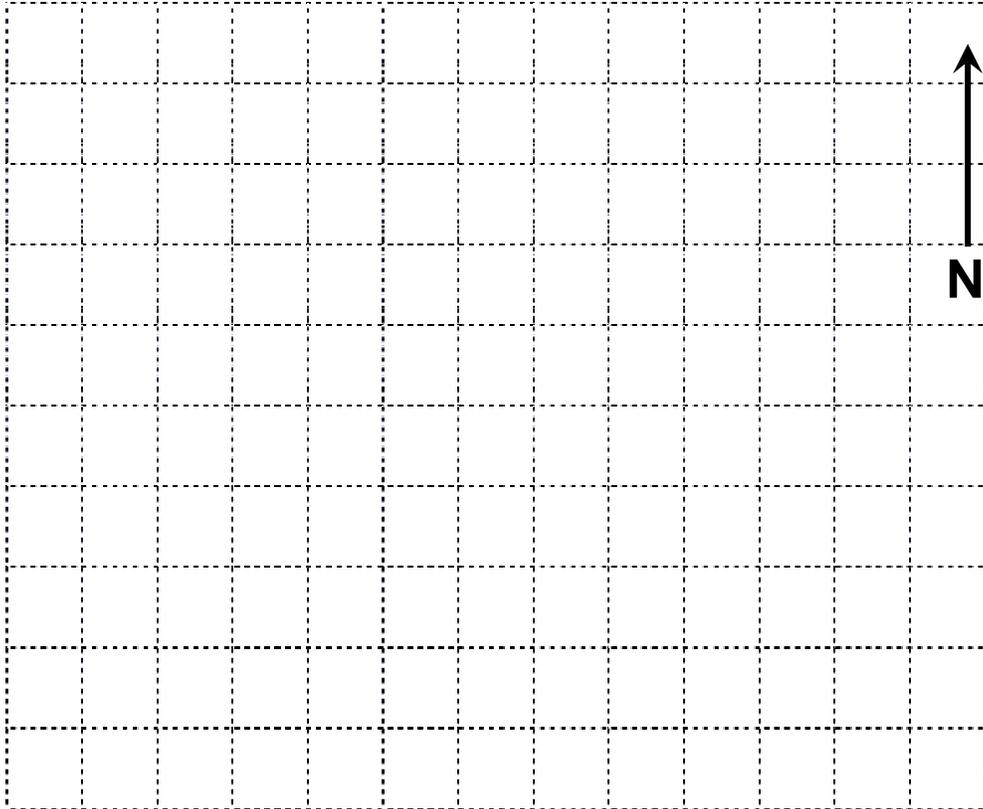
Operation and Maintenance

- 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.
 - Where damage from snow loads may be an issue, remove and store high tunnel cover at the end of each growing season. Replace cover prior to use in the spring.
- _____
- _____
- _____

Seasonal 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:

Natural Resources Conservation Service Representative or Technical Service Provider

Layout by _____ Date _____

Designed by _____ Date _____

Checked by _____ Date _____

Approved by _____ Date _____

Producer's Statement

The design of this practice has been discussed with me, and I concur with the design. **No Changes are allowed without the approval of the NRCS Representative or the Technical Service Provider.**

Signature _____ Date _____

Seasonal High Tunnel System – Construction Checkout

Seasonal High Tunnel Structure – as-built measurements	
Length (ft)	Height in Center (ft)
Width (ft)	Structure Manufacturer
Amount Completed (sq ft)	

Supporting Practices Installed
<input type="checkbox"/> Subsurface Drain (606) <input type="checkbox"/> Critical Area Planting (342) <input type="checkbox"/> Underground Outlet (620) <input type="checkbox"/> Diversion (362) <input type="checkbox"/> Conservation Crop Rotation (328) <input type="checkbox"/> Nutrient Management (590) <input type="checkbox"/> Pest Management (595) <input type="checkbox"/> Irrigation System, Micro irrigation (441) <input type="checkbox"/> Irrigation Water Management (449) <input type="checkbox"/> Grassed Waterway (412)

Mark As-Built location on plan map.

Certification

This applied practice meets Kansas standards and specifications.

 NRCS Representative or Technical Service Provider Date

This practice has been applied as designed.

 Producer Date

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