

## Seasonal High Tunnel System for Crops

### Virginia Interim Conservation Practice Job Sheet

798



Photo Source: [www.hightunnels.org](http://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

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

#### Where used

A seasonal high tunnel may be used where specialty commodity crops can be 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.

## Seasonal High Tunnel System – Job Sheet

Producer \_\_\_\_\_ Location \_\_\_\_\_

Field Office \_\_\_\_\_ Contract Number \_\_\_\_\_

### Materials List

- High Tunnel Structure, size(s), manufacturer, model no.  
\_\_\_\_\_

#### **Supporting Practices Required:**

- Manufactured Gutter System
- Critical Area Planting (job sheet attached)
- Infiltration Trench along each side (construction plan attached)
- Underground Outlet (construction plan attached)
- Diversion/ Waterway (construction plan attached)
- Other \_\_\_\_\_

### High Tunnel System Construction

- Contact Miss Utility (811) to mark locations at least 3 working days prior to construction for location of underground utilities.
- 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.

### 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.
  - Remove and store high tunnel cover at the end of each growing season, unless manufacturer warrants the cover for snow loads. Replace cover prior to use in the spring.
- \_\_\_\_\_
- \_\_\_\_\_

### Design Certification

This Seasonal High Tunnel System plan meets the requirements of NRCS Conservation Practice Standard 798.

\_\_\_\_\_  
Signature

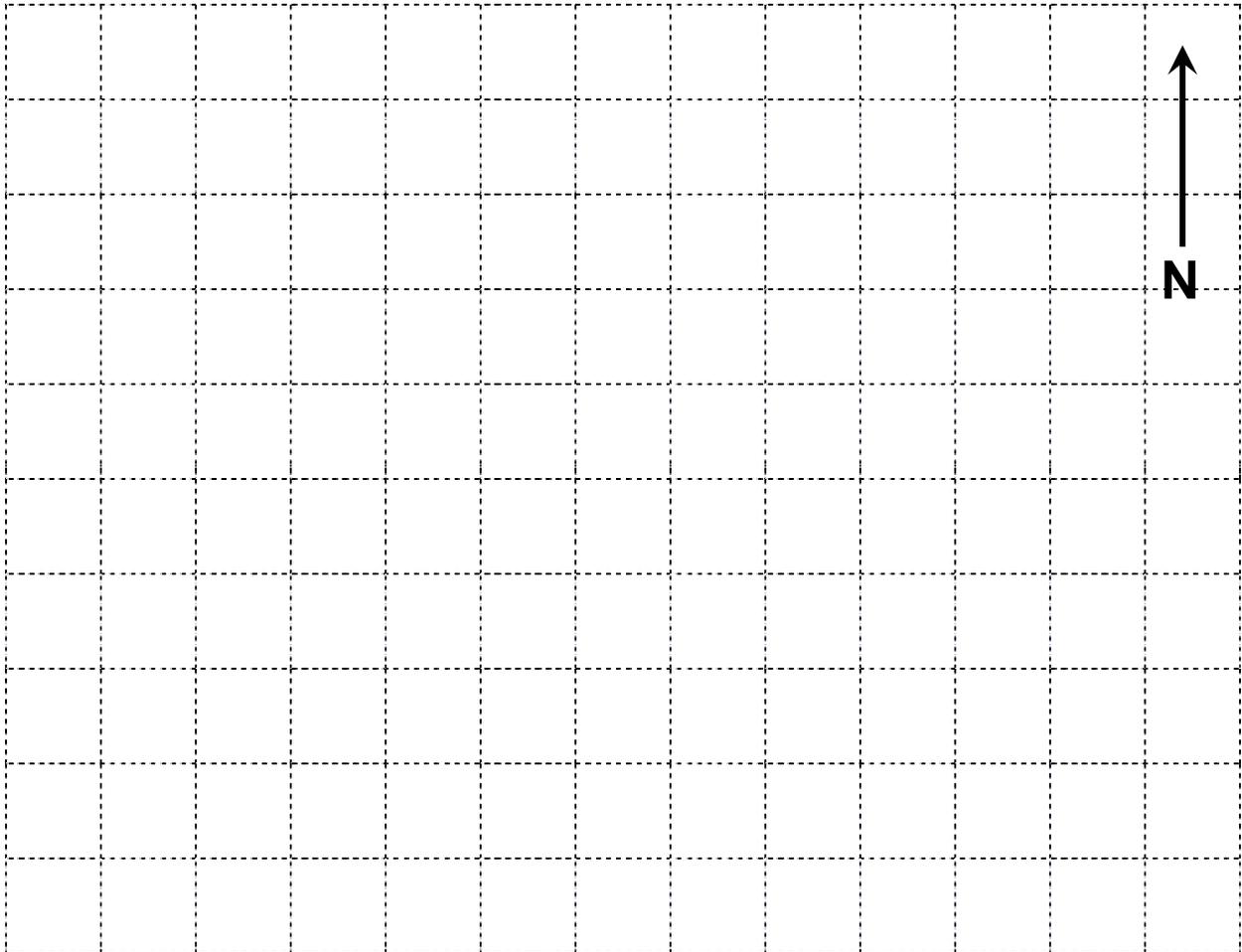
\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## 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:

**Seasonal High Tunnel System – Construction Checkout**

Seasonal High Tunnel Structure – <i>as-built measurements</i>	
Length (ft)	Height in Center (ft)
Width (ft)	Structure Manufacturer
Supporting Practices Installed	
<input type="checkbox"/> Manufactured Gutter System <input type="checkbox"/> Critical Area Planting <input type="checkbox"/> Infiltration Trench along each side <input type="checkbox"/> Underground Outlets <input type="checkbox"/> Diversion/ Waterway <input type="checkbox"/> Other _____	Quantities and detailed checkout information for supporting practices shall be documented separately.
<p><b>CLIENT CERTIFICATION:</b></p> <p>I have installed this high tunnel in accordance with the manufacturer’s recommendations that were submitted to NRCS for review (attach evidence for NRCS review).</p> <p>I also understand as part of my responsibility in this program that I am to provide records for the next three years to NRCS to test the validity of potential conservation benefits associated with this high tunnel. I will provide information for each annual report that are true and accurate to the best of my knowledge and discuss the strengths and weaknesses of the seasonal high tunnel system for crops.</p> <p>Client Signature: _____ Date: _____</p>	
<p><b>NRCS CHECK OUT:</b></p> <p>Amount Completed: _____ square feet      Mark As-Built location on plan map.</p> <p>Remarks _____</p> <p>This practice meets NRCS standards and specification      <input type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p>Check out by: _____      Date: _____</p>	

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Producer \_\_\_\_\_ Location \_\_\_\_\_  
 Field Office \_\_\_\_\_ Prepared by \_\_\_\_\_  
 Report Date \_\_\_\_\_ Contract Number \_\_\_\_\_

- Actual cost of Seasonal High Tunnel System \$ \_\_\_\_\_ (attach copies of bills)
- Number of hours to assemble the Seasonal High Tunnel System \_\_\_\_\_ hours
- Labor expenses or any other costs incurred with assembly  
 \$ \_\_\_\_\_ (attach copies of bills if applicable)

- First year maintenance requirements : (add more sheets if necessary)

Activity or Item (list)	Cost
	\$

*In sections below select the resource concern(s) or purpose(s) the Seasonal High Tunnel System is addressing and fill out appropriate documentation for each potential benefit. Provide information on how the high tunnel addresses the concern(s).*

- Improve Plant Quality: \_\_\_\_\_

If available, provide previous records for crop(s) planned to be grown in the seasonal high tunnel for the next 3 years and records for crops grown this year in the high tunnel: (this will potential show a benefit to plant quality by increasing yields, growing season, and plant condition such as productivity, health and/or vigor with the installation of this high tunnel)

Crop (type)	Crop Year	Yield	Season Dates	Length of Growing Season (Days)

- Improve Water Quality - Reduced nutrient and pesticide transport: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

If available, provide previous records for crop(s) planned to be grown in the seasonal high tunnel for the next 3 years and records for crops grown this year in the high tunnel: *(this will potentially show benefits to water quality by reducing nutrient/pesticide transport with the tunnel)*

Crop (type)	Crop Year	Yield	Nutrients (Fertilizer)			Pesticide(s)		
			Type	Rate	Timing	Type	Rate	Timing

- Improve Soil Quality: \_\_\_\_\_  
 \_\_\_\_\_

Sheet and rill erosion before the installation of the Seasonal High Tunnel System, using RUSLE2:

Rotation	Sheet & Rill Erosion <i>(tons/ac/year)</i>

- Improve Air Quality: \_\_\_\_\_  
 \_\_\_\_\_
- Reduce Energy: \_\_\_\_\_  
 \_\_\_\_\_
- Producer's recommendations and observations: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Seasonal High Tunnel System – Second Year Annual Report**

Producer \_\_\_\_\_ Location \_\_\_\_\_

Field Office \_\_\_\_\_ Prepared by \_\_\_\_\_

Report Date \_\_\_\_\_ Contract Number \_\_\_\_\_

- This year's maintenance requirements : *(add more sheets if necessary)*

Activity or Item <i>(list)</i>	Cost
	\$

- This year's crop in the Seasonal High Tunnel:

Crop (type)	Crop Year	Yield	Nutrients (Fertilizer)			Pesticide(s)		
			Type	Rate	Timing	Type	Rate	Timing

- This year's growing season:

Crop (type)	Crop Year	Yield	Season Dates	Length of Growing Season (Days)

*In sections below select the resource concern(s) or purpose(s) the Seasonal High Tunnel System is addressing and fill out appropriate documentation for each potential benefit. Provide information on how the high tunnel addresses the concern(s).*

Benefits for plant quality: \_\_\_\_\_

Benefits for water quality: \_\_\_\_\_

Benefits for soil quality: \_\_\_\_\_

Benefits for air quality: \_\_\_\_\_

Reduced energy benefits: \_\_\_\_\_

Producer's recommendations and observations: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Seasonal High Tunnel System – Third Year Annual Report**

Producer \_\_\_\_\_ Location \_\_\_\_\_

Field Office \_\_\_\_\_ Prepared by \_\_\_\_\_

Report Date \_\_\_\_\_ Contract Number \_\_\_\_\_

- This year’s maintenance requirements : *(add more sheets if necessary)*

Activity or Item <i>(list)</i>	Cost
	\$

- This year’s crop in Seasonal High Tunnel:

Crop (type)	Crop Year	Yield	Nutrients (Fertilizer)			Pesticide(s)		
			Type	Rate	Timing	Type	Rate	Timing

- This year’s growing season:

Crop (type)	Crop Year	Yield	Season Dates	Length of Growing Season (Days)

*In sections below select the resource concern(s) or purpose(s) the Seasonal High Tunnel System is addressing and fill out appropriate documentation for each potential benefit. Provide information on how the high tunnel addresses the concern(s).*

Benefits for plant quality: \_\_\_\_\_

Benefits for water quality: \_\_\_\_\_

Benefits for soil quality: \_\_\_\_\_

Benefits for air quality: \_\_\_\_\_

Reduced energy benefits: \_\_\_\_\_

Producer’s recommendations and observations: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_