

Seasonal High Tunnel System for Crops

Interim Conservation Practice Job Sheet

798



Introduction. A seasonal high tunnel is a polyethylene-covered structure at least 6 feet in height that uses passive solar heating to create more favorable growing conditions for vegetables, fruits, and other specialty crops. Electrical, heating, and/or mechanical ventilation systems may also be used to assist with climate control.

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.

To be eligible for financial assistance, high tunnels must be commercially manufactured, meet NRCS minimum materials and lifespan requirements, and be installed, maintained, and monitored as described in this job sheet.

Where and How Can This Practice Be Used? A seasonal high tunnel can be installed on land where crops are currently grown or are capable of being grown in the ground. Crops must be grown in natural soil profile, including permanent raised beds, but not on benches, tables, containers, or pots.

Financial assistance is limited to structures covering up to 2,178 square feet per farming operation. A structure that is larger than the payment maximum can be installed, but payment will be limited to 2,178 SF.

The seasonal high tunnel has an expected practice life of 4 years and needs to be maintained at least for that period of time. In addition, high tunnels that receive financial assistance cannot be used to: (1) provide a feeding area and/or shelter for livestock or poultry, or (2) to store equipment and supplies.

Features of High Tunnels. There are dozens of high tunnel systems on the market and are commercially available in a variety of widths and lengths. These structures are constructed of metal frames, anchored to

the ground, and are covered with a single layer of polyethylene that is at least 6-mil greenhouse-grade and UV-resistant.

Ventilation is achieved by means of a combination of roll-up side vents and end vents. Often, the end walls are framed-in to provide doors and ventilation areas. For optimum ventilation, the high tunnel should be no more than 26 feet wide and have vertical roll-up sidewalls.

Selection of the high tunnel type depends on local climatic conditions, crops to be grown, and budget. Consider working with a vendor in the same general geographical area because they should be familiar with conditions that must be considered when selecting a high tunnel. Most high tunnels come with 6-foot bow spacing. This is adequate where little snow accumulation occurs. Heavy snow areas require a closer bow spacing of 4-5 feet. The landowner shall properly manage snow loads to ensure the integrity of the high tunnel structure for the 4-year lifespan of the conservation practice. High tunnels with a “Gothic arch” (peaked roof) configuration tend to shed snow more effectively than “Quonset hut” (rounded) style structures.

Conservation Management Systems. Water runoff from the high tunnels can cause problems that require the implementation of other practices such as critical area plantings, heavy use area protection, roof runoff structures (infiltration trenches), and underground outlets. Additional practices must be planned and installed where needed along with the high tunnel. Other practices that should also be considered as a part of a conservation system include crop rotation, nutrient and pest management, micro-irrigation, and irrigation water management.

Producers who want to use a seasonal high tunnel will also need a reliable source of water and a method for watering the crops. Financial assistance may also be available for installation of a micro-irrigation system.

Seasonal High Tunnel System – Job Sheet

Producer _____ Location _____

Field Office _____ Conservation Contract No. _____

Materials List

High Tunnel Structure, Size _____ Style (Gothic or Quonset) _____

Supporting Practices Required Outside Houses:

Critical Area Planting (job sheet attached)

Heavy Use Area Protection (construction plan attached)

Roof Runoff Structure (Infiltration Trench) along each side (construction plan attached)

Underground Outlet (construction plan attached)

Other _____

High Tunnel System Construction

- It is the responsibility of the landowner or operator to **contact Miss Utility at 1-800-257-7777** (or dial 811) at least 2 business days in advance of construction to locate and mark underground utilities.
- Prepare site according to manufacturer’s instructions.
- Lay out building location according to site plan.
- Assemble high tunnel according to manufacturer’s instructions.
- Install supporting practices as required, according to construction plans provided.

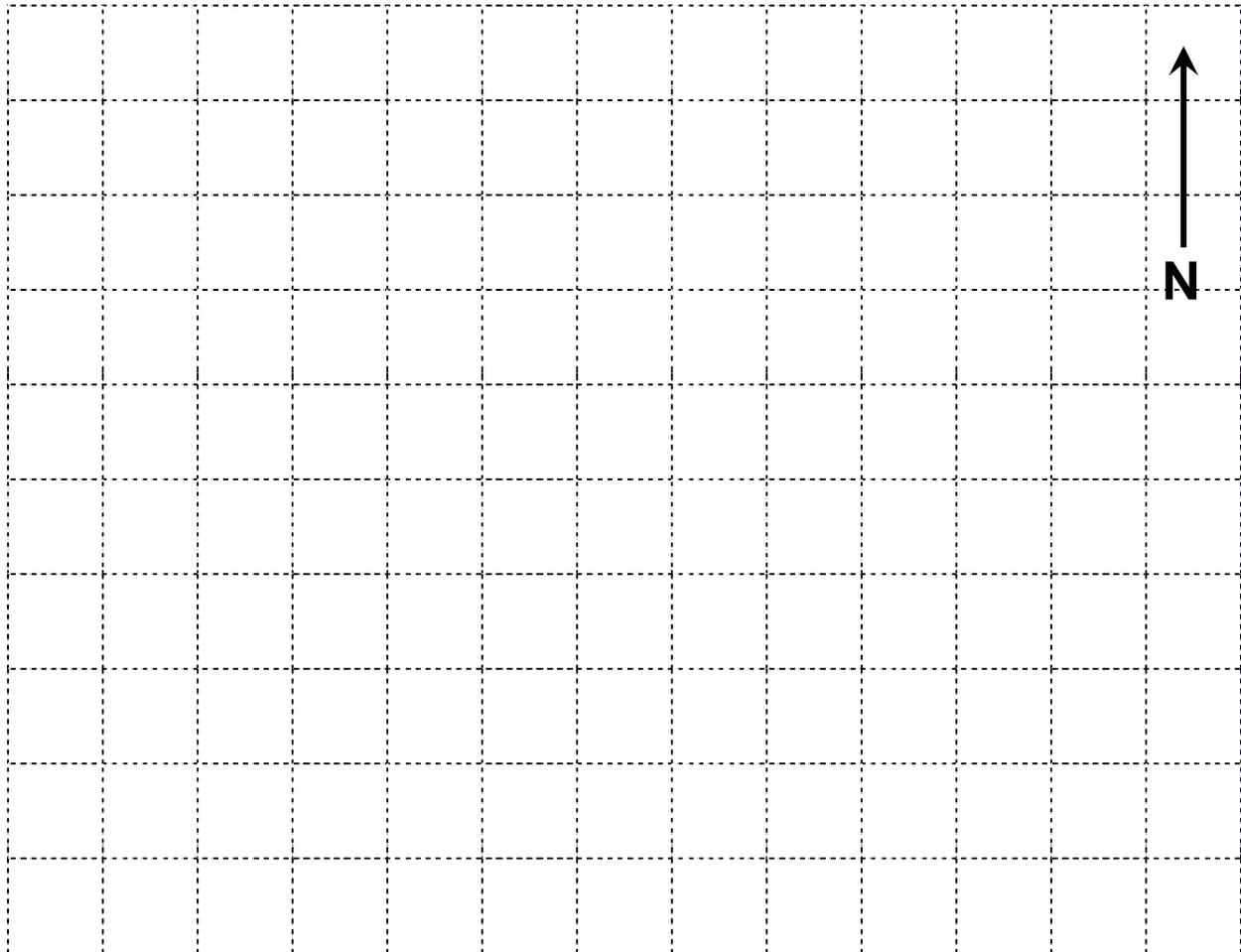
Operation and Maintenance

- 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 the plastic cover after the growing season and before heavy snow/ice to avoid damage to the structure from snow/ice loads. Re-install cover prior to use in the spring.
- If the landowner chooses to use the structure for the entire year, the landowner shall properly manage snow loads to ensure the integrity of the high tunnel structure for the 4-year lifespan of the conservation practice.
- **Owners will be responsible for repairing any damage to the high tunnel, such as that caused by operating equipment, wind, or snow for the 4-year lifespan of the practice.**

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: |
|--------------------------------------|
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Seasonal High Tunnel System – Construction Checkout

| Seasonal High Tunnel Structure – <i>as-built measurements</i> | | |
|---|------------------------|---------------------------|
| Length (ft) | Structure Manufacturer | |
| Width (ft) | Height in Center (ft) | Style (gothic or quonset) |

| Supporting Practices Installed Outside Houses |
|--|
| <input type="checkbox"/> Critical Area Planting (job sheet attached) <input type="checkbox"/> Heavy Use Area Protection (construction plan attached) <input type="checkbox"/> Roof Runoff Structure (Infiltration Trench) along each side (construction plan attached) <input type="checkbox"/> Underground Outlet (construction plan attached) <input type="checkbox"/> Other _____ |

| |
|--|
| Producer/Landowner Signature: _____ Date: _____ I certify that that this practice has been completed according to NRCS plans and specifications. NRCS/District employee: _____ Date: _____ Check Out: Amount Completed: _____ sq. ft. As-Built Completed. Remarks _____ |
|--|

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Seasonal High Tunnel System – First Year Annual Report **page 1 of 2**

Producer _____ Location _____
 Field Office _____ Conservation Contract _____
 Report Date _____

Report due on or before January 1st of the first growing season

- Actual cost of Seasonal High Tunnel Structure \$ _____ (*attach copies of bills*)
- First year maintenance costs: (*add more sheets if necessary*)

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

- Cropping history two years before installation of Seasonal High Tunnel:
 (*add more sheets if necessary*)

| Crop (type) | Crop Year | Yield | Nutrients (Fertilizer) | | | Pesticide(s) | | |
|-------------|-----------|-------|------------------------|------|--------------|--------------|------|--------------|
| | | | Type | Rate | Date Applied | Name | Rate | Date Applied |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

- First year's crop in Seasonal High Tunnel:

| Crop (type) | Crop Year | Yield | Nutrients (Fertilizer) | | | Pesticide(s) | | |
|-------------|-----------|-------|------------------------|------|--------------|--------------|------|--------------|
| | | | Type | Rate | Date Applied | Name | Rate | Date Applied |
| | | | | | | | | |
| | | | | | | | | |

Seasonal High Tunnel System – First Year Annual Report **page 2 of 2**

Growing season (past 2 years, plus the first year in the Seasonal High Tunnel):

| Crop (type) | Crop Year | Season Dates | Length of Growing Season (Days) |
|-------------|-----------|--------------|---------------------------------|
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Benefits for plant quality: _____

Benefits for soil quality: _____

Benefits for water quality: _____

Producer’s recommendations and observations:

Seasonal High Tunnel System – Subsequent Year Annual Report

Producer _____ Location _____

Field Office _____ Conservation Contract _____

Report Date _____

Report due on or before January 1st of the subsequent growing seasons

This year’s maintenance costs: *(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 | Date Applied | Name | Rate | Date Applied |
| | | | | | | | | |
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This year’s growing season:

| Crop (type) | Crop Year | Season Dates | Length of Growing Season (Days) |
|-------------|-----------|--------------|---------------------------------|
| | | | |
| | | | |

Benefits for plant quality: _____

Benefits for soil quality: _____

Benefits for water quality: _____

Producer’s recommendations and observations:

