SEASONAL HIGH TUNNEL SYSTEM FOR CROPS

Florida Conservation Practice Standard Interim 798 Guidance

Natural Resources Conservation Service (NRCS) **June 2011**

PURPOSE

The purpose of this guidance is to provide additional information for seasonal high tunnel systems as outlined in Florida Conservation Practice Standard Interim, Code 798.

Seasonal High-Tunnel Systems are to promote locally grown vegetable and other specialty crops. High tunnels are applicable to all farms, but may offer particular advantages to small, limited resource, organic, and specialty crop farmers.

There are many commercially available high tunnel structures on the market 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.

Since this is a national interim practice and a 3 year pilot, we will have to provide NHQ with an annual report on these systems. This will probably require assistance from the producer and field employees to gather pertinent information when needed.

GUIDELINES

- The **maximum area allowable for cost-share is 2,178 sq. ft. (5% of 1 acre) per operation**. The area may include multiple smaller structures. For example, instead of doing one house that is 30x70, you can do two houses that are 20x50 each, four houses that are 15x35 each, and so on.
- The systems are required to be built from **pre-manufactured kits**. Homemade ones will not be cost-shared. Manufactured structures consisting of, or including, rigid panels or components are not allowable.
- The tunnel frame must be made of metal, wood, or durable plastic; and the house **must be at least 6 feet in height**. **As a minimum, a 6-mil greenhouse-grade, UV resistant polyethylene cover will be used.**
- The life span of the practice will be 4 years.
- Participants will be allowed to add electricity, heat, or mechanical ventilation to the structure**, but at their own expense.**
- Applies to cropland (as defined in Section III of the FOTG) where the growing season extension is needed because of climate conditions and where crops can be grown in the natural soil profile.

- Crops must be grown in the natural soil profile; **containers of any type are not allowable.**

- Black mesh cover for shade or insect control can be added at the participant's expense.

- A water supply for crops grown within the structure needs to be considered, regardless of its cost-share status, due to rainfall exclusion.

- An irrigation system (Micro-irrigation 441) can be planned as a supporting practice according to the normal EQIP criteria. **The land has to have been irrigated 2 out of the last 5 years.**

- No engineering job approval is required.

- The practice standard requires RUSLE2 calculations for the area where the structure will sit.

- If the structure is moved during the life of the contract, then it must still be within the field for which the contract was written.

- Additional practices should be considered to address increased runoff volumes around the structure, such as cover crop, diversion, grassed waterway, etc.

- At no time during the length of the contract will the high tunnel be used for material and/or equipment storage.

- If hazardous weather is forecasted for the contract area, such as high winds, tropical storms, and hurricanes then the high tunnel plastic cover will be removed and stored to prevent damage.

- This practice is not for home gardens, but for commercial agriculture. It is also not for starting transplants – it must be full season production grown in the natural soil profile.

- Participant agrees to maintain the structure for a period of at least 3 years and maintain a record system on at least an annual basis to document:

    - How long the structure extended the growing season?
    - Was there an increase in production and by how much?
    - What were the before and after rates of nutrient inputs applied prior to and following construction of the High Tunnel?
    - What were the before and after rates of pesticide inputs applied prior to and following construction of the High Tunnel?
    - Any other pertinent observations and evaluations.

ADDITIONAL SUPPORTING PRACTICES

The planning and use of the seasonal high tunnel systems for crop production generally requires the planning and installation of other conservation practices to address the resource concerns and to facilitate the proper functioning of the structure to achieve its intended purposes. The following practices may support the use of the seasonal high tunnel systems.

328 – Conservation Crop Rotation:

- Revising the crops and/or sequence of crops grown under the seasonal high tunnel systems to address:
    - Pest control
    - Nutrient management
    - Market demand
    - Erosion control
    - Improve water use efficiency

340 – Cover Crop

- Seeding and management of a cover crop after the tunnel is removed to address:
    - Pest control
    - Nutrient management
    - Erosion control
    - Manage soil moisture

590 – Nutrient Management

- Manage the amount, source, timing, and method of application of nutrients using the seasonal high tunnel system to address:
    - Crop nutrient needs
    - Change in water management system (e.g., from rainfall use to drip irrigation)
    - Minimize nutrient runoff and/or leaching
    - Reduce nitrogen emissions

595 – Integrated Pest Management (IPM)

- Reduce the risk of pesticide runoff and/or leaching, development of an IPM Plan

412 – Grassed Waterway

- Install to convey runoff from diversions, concentrated flows, and stabilize ephemeral/gully erosion.

607 – Surface Drainage, Field Ditch

- Install to convey excess surface water from and around the seasonal high tunnel system

606 – Subsurface Drainage

- Install to improve the soil environment for crop production by removing excess soil moisture and remove surface runoff.

342 – Critical Area Planting

- Establish permanent vegetation to stabilize erosion prone areas.

441 – Irrigation System, Microirrigation

- Install and manage a Microirrigation system to efficiently and uniformly apply irrigation water and maintain soil moisture for plant growth and prevent contamination of ground and surface water by efficiently and uniformly applying chemicals.
- The Microirrigation system may be eligible for financial assistance if the field had a history of irrigation within 2 of the last 5 years.

362 – Diversion

- Install a diversion to divert surface water away from the seasonal high tunnel structure.

449 – Irrigation Water Management

- Developing and implementing a plan to determine and control the volume, frequency, and application rate of irrigation water in a planned and efficient manner.

620 – Underground Outlet

- Installed to convey surface water to a stable outlet.