

Seasonal High Tunnel System for Crops

Interim Conservation Practice Information Sheet

PA325



Photo Source: www.hightunnels.org

Definition

A crop production system using a plastic covered high tunnel structure, at least 6 feet in height, used to extend the growing season of vegetable and other specialty crops planted in the natural soil profile within the covered area in an environmentally safe manner.

Purpose

The purpose of the seasonal high tunnel system is to improve plant health and vigor.

Where used

A seasonal high tunnel system may be used where it is possible to grow crops and season extension is necessary due to climatic conditions. All crops grown within the high tunnel must be grown in the natural soil profile. The practice does not apply to greenhouses, low tunnel systems that cover single crop rows, or crops grown on tables, benches, portable pots, or hydroponic systems etc.

The high tunnel structure covers several crop rows, is wide enough to allow the crop to grow to maturity under the tunnel, and is tall enough to accommodate spraying, cultivating, and harvest within the intact tunnel.

General Description

High tunnel structures must be planned, designed, and constructed according to manufacturer's recommendations to withstand local climatic conditions for the 5 year lifespan of the practice.

Commercially available structures are made in numerous widths and lengths typically ranging 14-30 feet wide by 30-96 feet long. They must be constructed of metal, wood, or durable plastic bow frames and covered with (as a minimum) 6 mil greenhouse-grade, UV resistant polyethylene. Passive 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.

Significant modifications to the high tunnel structure must be verified and approved by the manufacturer prior to construction to ensure that any warranties remain in effect. Where snow or ice loads may damage the structure, the operator must manage the snow or ice load to ensure the integrity of the structure or remove the tunnel cover at the end of the growing season.

In general, a single layer of plastic on the high tunnel may provide one hardiness zone of protection from cold temperatures. A second layer of plastic or a individual row cover can be used within the structure to provide another possible zone of protection.

Water runoff from the structure or from other nearby sources can cause erosion and ponding issues that must be addressed by appropriate combinations of other practices such as infiltration trenches, diversions, underground outlets, and critical area plantings. Additional management practices including irrigation water management, nutrient and pest management, or conservation crop rotation may be necessary to achieve conservation purposes.