Undercover Research: Growing Sweet Cherries Under High Tunnels in Michigan

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Tunnels are expensive and alter many production factors; the economics are more favorable when tunnels improve multiple factors (i.e., more than covers for cracking!)
Multibay (3-Season) Tunnels

Probably most suitable for growers:

- with non-ideal growing conditions
- whose clientele value local/regional or organic produce (i.e., farm markets, pick-your-own operations, or premium retailers)
- who can provide intensive management
Tunnel Management Objectives for Sweet Cherry Production?

Increased protection from:
- rain-induced fruit cracking
- rain-disseminated diseases
- spring frosts?
- wind damage to fruit
- altered early/late ripening
- harvest in any weather
- reduced chemical inputs
- bird protection
Clarksville (CHES)
Three connected $8.6 \times 49 \text{ m} (28 \times 160 \text{ ft})$ tunnels were established in 2005 in the middle of an existing high density sweet cherry orchard (planted in 2000).

Southwest (SWMREC)
Four connected $7.4 \times 62 \text{ m} (24 \times 200 \text{ ft})$ tunnels; duplicate new research plots, + / - tunnels, planted in 2005

- Luminance polyethylene: transmits 88% PAR, 43% IR, partially screens UVA and UVB light.
At CHES: Tunnels Established over Rainier, Lapins, and Sweetheart on Gisela 5 and 6
SWMREC Tunnels - Whorled Axe (548 trees/acre)

Red: Skeena/Gi5
Blush: Rainier/Gi5
+ 42 Test Varieties

8.8 ft
5 ft 14 ft 5 ft

“Purpose-Built Tree Canopies”

MSU Tree Fruit Research
Black woven polypropylene weed barrier:
- control weeds without herbicides
- reduce host plants for bacteria or insects
- conserve soil moisture
- warm soil for earlier root activity in spring
- absorb heat for re-radiation in spring
- serve as a barrier for soil-emerging insects
- 2007-08 Extenday or Sun-Up applied after fruit set