Evaluating Table and Wine Grape Cultivars in High Tunnels for Yield and Quality Improvement

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**Introduction**

High tunnels typically offer uninterrupted growing periods for specialty crops in addition to protection from spring frosts, unseasonal hail, and foraging pests. The potential benefits of wine grape production in high tunnels are currently being evaluated in Pennsylvania and Michigan.

**Objectives**

The goal of this new study in Wyoming is to evaluate the growth and production of table and wine grape cultivars in high tunnels so that the cultivars could be sold at local farmers’ markets and other venues in Wyoming and beyond.

**Materials and Methods**

A kit for a 96- by 30-foot high tunnel was purchased from FarmTek® and established on the grounds of the Sheridan Research and Extension Center (ShREC; Figure 1). Materials and installation costs were estimated at $6,500. Following construction of the high tunnel, a 5-feet-tall trellis system with four rows (7 feet between rows) was established using 12.5-gauge aluminum wire and wooden posts spaced 18 feet apart. End posts were securely anchored in the ground with 40-inch earth anchors. The tension on the wires for the trellis system was adjusted using a wire vise tensioning tool.


*Figure 1. High tunnel construction.*
Results and Discussion

From the second year on, grapevines will be pruned in early spring for fruit production. Dates for bud burst and initiation of flowering, time required from flower initiation to berry set, berry growth and development, maturity, and ripening will be recorded for individual cultivars.

Conditions in the high tunnel will be monitored and data recorded for any potential problems including flowering and fruiting disorders, diseases, and pests. Cultural practices such as fertilizer application, weeding, and spraying for pests and diseases will be carried out as required throughout the life of the experiment.

Once berries ripen, yields, individual berry weights, number of clusters and berries per cluster, number of seeds per berry (for seeded cultivars), and berry “total soluble solids” will be recorded.

Taste evaluation will be conducted by volunteers from ShREC and Sheridan College, and fruit from individual cultivars will be evaluated for wine quality by collaboration with local winemakers. A cost–benefit analysis of growing table and wine grape cultivars in high tunnels would help serve as a guide for potential growers seeking to invest in an intensive, high-value horticultural enterprise.

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Figure 2. Grapevines growing inside the high tunnel.