

# **Selecting Appropriate Training Systems and Levels of Crop Control to Meet Conditions of Michigan Wine Grape Production**

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# Selecting Appropriate Training Systems and Levels of Crop Control to Meet Conditions of Michigan Wine Grape Production Executive Summary - Vintage 2001

## I. Cabernet Franc at SWMREC

There are three Cabernet Franc plots at SWMREC. In Experiment I six training systems and four shoot densities or crop level is sought. In 2001 crop levels of 2, 4, 6, and 8 T/A were sought, and training systems: Fan, Guyot, (VSP), Hudson River Umbrella (HRU), Low Cordon (VSP), Sylvoz, and Scott-Henry (SH) were employed (See Appendix I).

Experiment II is adjunct to Experiment I and includes 2-yield classes (2.0 and 4.0 T/A). The training systems include: Fan, 2-Tier Cordon, Modified Umbrella Kniffen, Mid-Wire Cordon and Scott-Henry.

Experiment III was initiated in 2002 and employs 2-crop levels and leaf removal to be used in experiments related to the levels of the bell pepper aroma methoxypyrazine (see separate report).

All vines are on C.3309 rootstock.

In Experiment I yields were in 3-classes;  $\approx$  0.5 T/A for Fan, Guyot and Hudson River Umbrella, 1.5 T/A for Sylvoz and 2.5-3.5 for Low Cordon and Scott Henry. The major impact of training system was bud fruitfulness, berry weight and cluster number per vine. It is interesting to note that low yielding vines also showed lower fruit composition values in 2001 and the LC and SH trained vines had the best values.

In Experiment II yield classes of 2.0 and 4.3 T/A showed no differences in fruit composition values. Differences among training systems were not evident and there were no differences in canopy density.

Experiment III is underway and treatments were imposed just after veraison in August, 2002.

## II. Chambourcin at SWMREC

This experiment contains both training and pruning severity components. Since Chambourcin tends to have longer shoots and a somewhat recumbent habit of growth, high systems of training have been pursued based on previous research (see Appendix A). Thus, High Head (HH) and High Cordon (HC) have been employed. These would be best recognized by growers as Hudson River Umbrella and Umbrella Kniffen. Pruning severity employed was 10, 15 or 20 nodes/lb of cane yields in 2001 were excellent, but not statistically different between Head and Cordon trained vines. The consistently higher yield of Cordon trained vines shown over every year except 1998 (since 1994) held true. The very slight increased yield (10.9 T/A) occurred with nearly identical yield components and fruit composition values. The yield data for pruning severity showed higher yields for vines pruned most severely. Improved vine size resulted in higher yield at roughly comparable bud fruitfulness. This was true regardless of training system.

### **III. Chardonnay at SWMREC**

Two clones of Chardonnay cultured for sparkling wine are trained to Low Cordon (VSP) and Low Head (Guyot, VSP) respectively. At similar node number (45/vine) the yields were very different; Colmar was better. Of the training systems, Low Cordon produced greater yield. Colmar had greater bud fruitfulness, cluster number, cluster weight, and berry number per cluster. Yield has been consistently favored by Cordon training (3.64 T/A in 2001).

A second Chardonnay Training experiment employed on expanded array of training systems: Umbrella Kniffen (UK), Fan, 2-Tier Cordon, Scott-Henry, UK-Hedge, and Smart-Dyson. The best yielding treatments were 3.3 and 3.7 T/A from the UK-Hedge and UK trained vines respectively.

### **IV. Pinot noir at SWMREC**

As with the Chardonnay, three Pinot noir clones (UCD-2a, UCD-4 and Espiguette) trained to either Low Head (VSP) or Low Cordon (VSP). There were no clonal differences in yield or fruit composition. For the first time since 1994 the yield of the Head trained vines was higher and had more cluster/node and per vine. The long-term response still favors Cordon training.

### **V. Riesling at Fenn Valley**

Three Riesling clones are matched with 3-training systems in this experiment. The clones are Gm-21, 110, and 198, and the training systems are Guyot (VSP), Low Cordon (VSP) and Sylvoz (a mid-height cordon(see Appendix I).

Yield was best on clone-198 and due to heavier cluster and a few more clusters (not statistically significant) per vine. It also had most mature fruit, based on compositional values.

Training system influence on yield favored Sylvoz and Guyot over Low Cordon and was better due to more clusters/vine heavier clusters. There were significant clone x training interaction. The highest yielding treatment combination was Clone-110 on Guyot training while Clone-21 was very poor on Sylvoz. The robustness of the clones was indicated by the relative similarity of yield across training systems. While Clone-110 was best on VSP, Clone-198 performed well on all three systems. The later development of desired fruit composition values at moderate yields was a negative factor for Clone-21. This trial should continue for another 4-years.