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Improved Pruning and Training Practices for Grapes

Two of the most important factors in profitable grape production are balanced pruning and proper training. Because of their importance and in the hope that others may be interested, we are outlining in the following article some of the methods which we have used to increase vine yields in the Bright's Wines vineyards. Many growers are apt to confuse pruning and training. We define pruning as the removal of excess wood from a vine according to the amount of growth which the vine makes. Training can be defined as the method of growing a vine on a particular type of trellis.

Improved Pruning and Training Practices for Grapes

There has been considerable interest in balanced pruning during the last year. Because we feel that proper pruning and training are two of the most important factors in profitable grape production, we are outlining some of the methods which have been used to increase vine yields.

Balanced Pruning

Balanced pruning is a refinement of present pruning methods to secure an increase in yield, and can be used with any training system. The "Balance" between vine vigour and yield must be maintained to secure a sustained optimum yield. The methods as suggested by Dr. Partridge of Michigan have been used and further developed by Dr. Shaulis of New York State. There are many growers in all the grape growing areas of New York State who have used balanced pruning profitably for several years.

The basis for this system is to use the weight of prunings as a guide to the number of buds to leave. The following table shows the number of buds to leave for the various wood weights. This outline has been followed in the Bright's Wines Ltd. vineyards for several years with successful results.

<u>Pounds of Prunings</u>	<u>Number of Buds to leave</u>		
	<u>Concord, Niagara Elvira, Delaware & similar types</u>	<u>Agawam, Fredonia & other heavy wooded types</u>	<u>French Hybrids Seibel 1000, etc.</u>
$\frac{1}{4}$	12	12	12
$\frac{1}{2}$	18	20	16
$\frac{3}{4}$	24	30	20
1	30	40	24
$1\frac{1}{2}$	35	45	28
2	40	50	32
$2\frac{1}{2}$	45	55	36
3	50	60	40
$3\frac{1}{2}$	55	65	44
4	60	70	44

For each additional

For each additional half pound of prunings above 4 lbs, leave five more buds, except for Seibel hybrids. We do not recommend pruning Seibel Hybrids to more than 44 buds if grown on clay soil.

In New York State Dr. Shaulis has made a comparison between grower pruning and balanced pruning in several vineyards. Yield increases from $\frac{1}{2}$ ton to over 2 tons per acre have been obtained by using balanced pruning. In our own area one grower to whom we suggested the use of balanced pruning, increased the yield of his 60 acre vineyard from 146 tons to over 300 tons with no apparent decrease in quality, by using this method. The vines in his vineyard were in a very vigorous condition but had been over pruned by cutting back to 8 to 10 buds per arm, and thus were producing vigorous wood growth at the expense of fruit yield.

In the field the practical application of the balanced pruning system is as follows:

A grower approaches an unpruned vine and estimates the weight of one and two year old wood on it. He then selects the canes he wishes to leave and leaves them full length. He next prunes away all the other excess growth and weighs the one and two year old wood. We have found that a small spring scale and a short piece of rope are all the extra equipment required to do this job quickly in the vineyard. After the weighing the grower can figure the number of buds to leave according to the weight and prune the remaining canes to the proper length. After a few hours of estimating, pruning, weighing, and counting the grower has reached the point where he can proceed with only an occasional check each day to see that he is following the system.

The following quotation can not be over-emphasized:

" A vineyardist will be better paid for the extra time spent in pruning than for any other vineyard practice. Control of pruning severity is the best single procedure to obtain higher yields of grapes, to higher quality grapes, and to more uniform production in the vineyard."

New Methods of Training

There are several methods of training used in Niagara Peninsula vineyards. The most common system is the four or six-arm Kniffin; although many vineyards in the western half of the Peninsula are trained on the Fan and Chautauqua systems.

We have found the Kniffin system to give the best results in the Bright's Wines Limited vineyards. There are however some variations from the regular four-arm Kniffin system which have shown advantages. A test of training Delaware vines on several of these variations for a seven year period gave the following results:

1. Increasing trellis height to six and one half feet and training the vines on an eight-arm Kniffin system gave an average annual increase in yield of 38% over the regular four-arm Kniffin system and 27% above the six-arm Kniffin system on a five foot trellis.
2. Using the same height trellis but increasing the number of arms from four to six gave an increase of 11% on a five foot trellis.
3. The Umbrella Kniffin system showed a decrease in yield of 9% below that of the regular four-arm Kniffin system.

A further study of the effect of increasing trellis height to six and one half feet on some other varieties has shown that yield can be increased in vigorously growing vineyards by approximately 20%.

In another test, increasing the trellis height of a nine acre Delaware vineyard to six and one half feet and training the vines on a six-arm Kniffin system increased the yield by more than 25% above that which the same vineyard produced on a four-arm Kniffin system on a five foot trellis.

A test of several of the French and American systems of training

for the French hybrids during the past seven years has indicated that the six-arm Kniffin system is the most suitable to date.

N.B. All of these tests have been made using balanced pruning on all training systems.