

Mechanical Pruning of Wine Grapes

Written by Maxwell Norton, Viticulture Farm Advisor, UC Cooperative Extension, Merced County

To successfully compete with wine grape growers in other parts of California and the world, Stanislaus County growers must find ways to improve quality and reduce costs. Pruning and harvesting by hand can easily represent 1/3 of a San Joaquin Valley (SJV) wine grape grower's annual production expenses. Switching to mechanical pruning can significantly reduce costs and improve quality. One of the original reasons for hand pruning to 2-bud spurs on bilateral cordons was to simplify hand harvesting. If you plan to harvest by machine, consider mechanical pruning. Below is an article written by Merced County Viticulture Farm Advisor, Maxwell Norton.

Farm Advisors around the state have received questions this winter about mechanical pruning (MP) of winegrapes as a way of reducing costs. MP has been done successfully in Italy and Australia for many years. Some vineyards in the SJV have been MP for several years also. Besides the obvious cost savings, MP also allows you more flexibility in scheduling, as you are not dependent on the availability of crews.

There are two basic types of MP with many variations of each. Box or hedge pruning involves hedging back the canopy into a small box. The dimensions of the trellis often determine the size of the box. Large, complicated trellises may need to be removed to prevent the fruiting area from becoming too large. A hand crew follows behind to remove any wood below the cordons or canes the cutters miss. Commonly found in Australia is the "V" or minimally pruned cordon trained (MPCT) system. Once the cordon is established they make a V cut that starts at the cordon and extends upward and outward, leaving any upright growth. As you can imagine, that is a lot of wood to leave on a mature vine that has been spur pruned in the past. Like the box system, a crew follows behind and cleans off any low hanging wood.

Ideally vines should be trained into an MP system from the start but you can convert a mature block if you do not leave too much wood initially and you reduce the crop early in the spring as soon as the canes drop below the vine. You simply skirt off any crop that is below the cordon. You can also run a harvester over the vines and shake off a portion of the crop. You need to prevent the vines from over cropping. Newly converted vines will run a few days behind in maturity initially depending on how well you regulate the crop. In 2-3 years the vine will come into balance.

Fancy cross arms and trellis systems are not needed as the fruit is already spread out in an MP vine. No cross arm or a simple catch wire is ideal. The canopy is self-supporting and does not flop over. I think a vertical shoot positioned system can be adapted if you cut close enough. Fruit on MP vines is dispersed through the canopy instead of being concentrated near the cordon. The clusters will be smaller and looser. Berry size will be smaller. My experience is you can virtually eliminate bunch rot and MP fruit holds a little better on the vine. Because bunches are loose and more dispersed it is easier to get good penetration and coverage of powdery mildew sprays. There is also better air circulation. Because you are making fewer large cuts and can prune later, Eutypa and "Bot" canker are reduced. Scientific studies have shown that fruit quality can be enhanced by having smaller berries, looser clusters and better color.

Equipment does not need to be elaborate. A simple cane trimmer can be adapted if the trellis is not complicated. If you are at all interested, go to the farm equipment shows and look at the many models that are available. You can also view models on manufacturer web sites or call them and they will send you literature. A few manufacturers/dealers are Kingsburg Cultivator in Kingsburg 559/897-3662, L&H in Selma 559/896-1971, Bechthold in Lodi 209/368-2031 and Bubco in Lodi www.bubco.com.