

Grapes

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Weed Control In Vineyards: 'Weed control' refers to the management of weeds in the 2-3 ft. strip under the trellis. The first step in developing a management strategy is to ID weed species. *Weeds of the Northeast*, co-authored by CCE Weed Specialist Dr. Andy Senesac, is a very useful reference to diagnose weed species and develop management strategies.

How much weed competition can vines tolerate? Young vines with shallow root systems may be negatively impacted by anything more than light weed cover. Older vines with deeper root systems can tolerate more competition assuming vines are not otherwise stressed. Between bloom and veraison is the most critical time to minimize weed competition. After veraison, a pristine strip under the trellis is not necessary though controlling tall weeds later in the season will minimize interference during harvest. Throughout the season, controlling younger, smaller weeds is easier than older, lignified, deep-rooted weeds or dense stands of weeds. Also, allowing weeds to reach maturity only increases the number of propagules (seeds, tubers, rhizomes) that will be present to deal with in the future.

In local vineyards, the under trellis region is being managed with a range of strategies: herbicides, hand hoeing, mechanical cultivation, under trellis mowing, weed whacking and cover crops with follow up weed whacking. Sometimes growers use a combination of techniques. Each has advantages and disadvantages.

Hand hoeing is easiest to implement but hard to maintain long-term especially if weeds are larger and lignified. Mechanical weed control can be effective; however, timing is everything. Once weeds become well rooted and lignified, cultivation is difficult. Use of a cultivating implement requires a skilled tractor driver to avoid vine, trunk and root and trellis damage. Mechanical weeding long term may reduce soil organic matter and increase soil erosion. Alternating cultivation with a timely postemergent herbicide such as glyphosate or under trellis mowing may be one way around that concern.

In recent years, several vineyards have been mowing under the trellis. We have been evaluating under trellis mowing in research plots for the last three years. We have seen a slight but statistically significant reduction in vine size in plots where weed cover was maintained. One glyphosate in late June/early July mitigates that effect. We have not yet seen any impact on yield, cluster architecture or fruit quality in Merlot or Chardonnay (the latter is a non-replicated demo plot). The hope was that set would be reduced slightly, an advantage in a rot-prone variety such as Chardonnay. We have a single sided mower mounted on a custom frame. With lots of practice, we can now mow an acre in about 3 hrs. In industry, dual under trellis mowing heads are mounted on a row middle mower, significantly decreasing labor costs. As with cultivation, mowing has to be timely. It is difficult to impossible to mow dense stands and/or tall weeds. Growing of cover crops under the trellis has been the subject of many research projects. In the mid-90's, we evaluated annual bluegrass and subterranean clover. At the time, the goal was to find winter annual species that died down during summer months to minimize competition with vines. Recent experiences however suggest that some competition during the summer months may actually be desirable. Especially in wet seasons, where repeated canopy hedging is necessary to manage vine shading, a reduction in vine size would be very beneficial.

Growers throughout the eastern US and on Long Island have also experimented with various combinations of grasses and clover. With the widespread use of drip irrigation in local vineyards, concerns about too much competition are alleviated. Disadvantages - establishment on a large scale is a challenge. Cover crop seed is another expense. Most especially, managing taller escape weeds by hand pulling and/or weed whacking is necessary to keep weeds out of the trellis.

Judicious herbicide application remains the most cost effective for under trellis management. Herbicides are divided into two groups: those that prevent weed seed from germinating (emerging), known as preemergence materials, and those that are applied to existing weeds, known as postemergence materials. Attention must be paid to weed species, as control of broadleaf weeds such as horseweed, dandelion, groundsel, pineappleweed etc. can be slightly different than that for grasses such as bluegrass, quackgrass, crabgrass etc.

For details on preemergence herbicides including a list of materials, check the vineyard manager list serv. (AW and AFS)