

Winter Protection for Tender Cultivars

Covering the grapevines in the fall to protect from winter cold is necessary for all tender cultivars. Fortunately there are new cold hardy cultivars from Elmer Swenson and the University of Minnesota that practically eliminate the need for this practice. Some older cultivars such as Beta, Suelter, Kay Gray, King of the North, Bluebell and Valiant do not need to be protected. Edelweiss, St. Croix, La Crosse, and Maréchal Foch will survive and fruit most years on better sites in southern Minnesota but need protection to fruit reliably. Virtually all the French hybrid cultivars and all the *V. vinifera* cultivars are cold tender and require winter protection. In fact, *V. vinifera* cultivars such as Chardonnay and Gewürztraminer, and no doubt others, have shown the ability to ripen here and produce very palatable wines. Some growers are willing to cover these cultivars to be able to make their home-grown wines.

Even the cold hardiest of the Northern hybrids may need protection during the first winter when grown in the coldest regions, particularly on a fertile soils. When vines grow vigorously during the first growing season, the shoots are often slow to lignify (bark turns brown) in the fall and properly harden off. Typically, these vines experience cane some die-back. When the die-back is nearly to the ground and new shoots have to be trained up to form the trunk, it can put them into a vicious cycle of greater vigorous growth, delayed hardening off and die-back in successive years. Thus, there remains a place for winter protection for tender cultivars and cold hardy cultivars under special conditions that are not that uncommon in the upper Midwest.

When covering is required, most growers prune tender vines in the fall as they are taken from the trellis. This reduces the vine bulk that must be covered. Some growers use soil. Others prefer to use a straw or shredded cornstalk mulch. Still others simply allow snow to cover the vines. When soil is used, there is never any problem with expense or availability of material, and the grower can be assured that the vines will be well protected. Tests have shown that the soil temperature at two inches rarely goes below 10° F. However, labor and timing can be problems. For example, cold tender and marginal vines are normally pruned in the fall after they have been defoliated by a hard frost. However, during a mild fall, pruning must be started before it can be certain that the vines have hardened off. In any case, this pruning must be completed and the entire vineyard covered before the soil freezes, otherwise covering with soil becomes impossible. Some years there is plenty of time, but in other years the ground freezes early. In the spring, the vines must be uncovered before the buds swell. Swelling buds can be very fragile and can break off when the soil is removed unless extreme care is used. Moreover, in a wet spring buried buds are seen to rot and fail to push, so uncovering should be done as early in the spring as possible.

The necessity for covering and uncovering vines with soil has led to experimentation with methods that ease the labor and speed up the operation compared to hand shoveling. In one such method, a trench or furrow is dug with a grape hoe or single-bottom plow about a foot out from the base of the vines. The vines are then cut down from the trellis, pruned, and placed in the trench. Covering with the loose soil is then relatively simple. One person can do all these operations. In a second method, the vines are cut from the trellis and pruned. Then, one person holds them down while a second person, operating a grape hoe, throws up a bank of soil on each side of the vines. This method works well except that the soil in the center of the row must be brought back to the sides before it can be done again the following year.

If a mulch is used to cover the vines, the rush to complete pruning and covering is not so great, although it must still be finished before severe cold weather arrives. Mulch materials are lighter than soil and is labor-saving in that way. Other advantages are that the mulch can be incorporated into the soil during the following summer and surface roots of the vines are not cut. Using a does have some disadvantages. Mulches make excellent cover for voles (mice), and some growers have reported extensive trunk damage from them. Rodent management in the fall helps control this problem. In addition, care must be taken to weigh down these mulch materials since they are

light enough to blow away and leave the vines unprotected. Finally, mulch materials can be expensive.

In Minnesota and western Wisconsin, snow cover often comes in late November or early December and remains through most of March. During such winters, additional covering of the vines is not necessary. Merely laying them on the ground and pinning them with wire staples about 10 inches long or holding them down with stones, boards, logs, or other heavy objects has proven satisfactory. During open winters, when there is little or no snow cover during January, injury will occur to tender vines that are just lying on the ground. Marginally hardy vines, however, have survived open winters with little damage. These vines should be raised and tied to the trellis as soon as the threat of severe cold is gone in the spring.

In one important observation, local growers have noticed that vines that were uncovered, but not tied immediately to the trellis, showed more cold damage than vines of the same cultivar in the same vineyard that had been tied up. Those left lying on the ground sprouted fewer and less vigorous shoots, had considerably more bud damage, and produced less fruit than the other vines. Thus, after uncovering, vines should be tied to the trellis as soon as possible.

Vineyard Best Management Practices – Care of Established Vineyards

Rate your vineyard establishment practices:

Management Area: Winter protection	Best Practices	Minor Adjustments Needed	Concern Exists: Examine Practice	Needs Improvements: Prioritize Changes Here
Tender cultivars	Vines are taken off the trellis, laid down and covered with soil or a mulch each winter.	Vines are taken off the trellis and laid down each winter.		No winter protection provided.
Marginally adapted cultivars	Vines are taken off the trellis, laid down and covered with soil, mulch, or not covered each winter.	No winter protection provided.		
Cold hardy cultivars	Vines exhibited moderate vigor, with shoots lignifying early during the first growing season. No protection required.	Vines exhibited high vigor, with shoots slow to lignify during the first growing season. Vines are taken off the trellis and provided winter protection.	Vines exhibited high vigor, with shoots slow to lignify in the fall during the first growing season. No winter protection provided.	