

Keep Soil in the Vineyard – Preventing Erosion

Dr. Patty Skinkis, Viticulture Extension Specialist, OSU

The past week has me thinking about the importance of cover crops, sod vineyard rows and basic soil erosion control in the vineyard. Within just a few days, most areas of the state were pounded with over 5 inches of rain. The sheer volume of water in this short time period can lead to huge losses of sediments in hillside vineyards. The rule of thumb is to keep the soil in the vineyard and out of waterways.

The Oregon Department of Agriculture is particularly concerned about people following the rules for sediment control. According to Mike Powers, of ODA, several citations have been made for vineyards in the Willamette Valley this past year for violations of sediment control. They are concerned particularly with newly established vineyards implementing proper control methods. The ODA does not regulate how one must control runoff and erosion, but they do expect that bare soil does not remain on hillsides. Here are some examples of non-compliance:

- Lack of vegetative cover
- Gully formation
- Sediment accumulation
- No vegetative buffer strips
- Bare waterways

Why is controlling erosion so important? From a crop production standpoint, soil losses result in decreased productivity of nearly every agricultural crop. With soil erosion, top soil depth decreases thereby decreasing water availability and infiltration leading to further runoff. In addition to soil losses, this water runoff takes excess soluble fertilizers such as nitrates and phosphates and pesticide residues with it into local water sources and groundwater causing pollution.

Controlling soil erosion is not difficult or costly. The best management method is to establish vegetation between vine rows. Permanent covers are often used on steep hillsides and allow for a smooth working surface for tractor and worker traffic. Annual cover crops are examples of sediment control during the rainy winter months when cultivation is used during the season. Precipitation and running drainage water are highly erosive to bare soil. Established vegetation significantly reduces the force of this water movement, preventing soil particles from being dislodged and spread to other areas through force or movement with the water.

Vegetative cover used between rows in the vineyard, on hillsides and near the winery is important not only for preventing soil erosion but also to maintain and improve soil structure. Plant roots provide soil stability and porosity to the soil in addition to slowing down surface flow and contact of precipitation with the soil surface. Areas that have highly compacted soils often experience 60-70 percent of precipitation as runoff. Vegetation management can prevent soil compaction. However, growing plants on highly compacted soil is not the key to reversing the compaction.

If your vineyard floor is currently bare, it is too late to establish a good cover crop yet this season. However, you can decrease soil erosion by applying mulch or straw to the vineyard floor. Most annual cover crops should be seeded by mid-October so that germination can occur to get vegetative cover by the winter period. Cultivating

seed with a cover of a compost mulch or straw helps to prevent erosion prior to germination and helps establish the stand. Several years of research on applications of composts and mulches in the North Coast of California has shown that composted mulch seed beds established at a greater density than those established with straw cover at 95 and 60 % cover, respectively. However, straw had a lower erosion rate than the compost mulches. Seed stands that were not covered had good germination and establishment at 75% cover but significant signs of soil erosion. Providing cover prior to germination and establishing an adequate vegetative cover is vital to preventing soil losses while increasing soil structure.

Vineyard vegetation is also important for particle (dust) control, particularly for the more arid regions of southern Oregon and eastern Oregon/Washington where mite populations can explode with dry dusty conditions. Establishment of these cover crops is a bit more challenging with limited moisture availability but is best seeded during fall.

It is important to remember erosion control in areas surrounding the vineyard, near access roads, driveways and the winery/tasting room. Any place where bare soil exists should be managed to prevent sediment losses. Please see additional resources below to determine methods that can be used to decrease soil erosion in your vineyard.

Additional Resources

Compost and Mulch Demonstration Project, Mendocino County: Use of Compost and Mulches in North Coast Vineyards. Sacramento: California Integrated Waste Management Board, 2003. <http://www.ciwmb.ca.gov/Publications/default.asp?cat=2>

Erosion Prevention and Sediment Control. Yamhill County Soil Water Conservation District. Oregon Department of Agriculture Water Quality Library. 2002. http://www.oregon.gov/ODA/SWCD/wq_library_erosion.shtml

Protecting Your Land from Erosion. East Multnomah County Soil Water Conservation District. Oregon Department of Agriculture Water Quality Library. 1999. http://www.oregon.gov/ODA/SWCD/wq_library_erosion.shtml

Upcoming OSU Viticulture Extension Workshops and Educational Programs for 2008

January 18 Vineyard Economics Workshop – TEAM

Clark Seavert, Ag Economist and Patty Skinkis, Viticulturist, will present this workshop on the economic assessment of establishing and managing a vineyard through the use of an interactive computer software program, A Grower's Total Economic Assessment Module (TEAM). This will help you determine your inputs and visualize your enterprise budget. Registration is necessary as participation is limited! Registration information can be found online at <http://wine.oregonstate.edu> or by contacting Lee Ann Julson 541-737-5480.

January 25 Vineyard Pruning Workshop

Learn practical skills in vineyard pruning during this workshop presented by Patty Skinkis and Steve Castagnoli. A seminar will be presented on concepts of pruning and vine balance, a demonstration of pruning techniques and visits to two local vineyards. Participants must register in advance by contacting Suzanne Burd at Email: sburd@cgcc.cc.or.us or Phone: 541-506-6123.

Upcoming Workshops and Educational Programs for 2008

January – March Continuing Education Viticulture Seminars

Do you want to learn more about vine physiology and vine function to help you understand your vineyard operations better? Weekly seminars are being offered by Patty Skinkis, Viticulture Extension Specialist, as part of the Hort 454: Viticulture I course offered in Oregon State University's Viticulture and Enology Program. Industry members can register for individual seminars to learn about various topics of vine physiology as related to environmental stimuli. Some of the topics to be covered include: fruit set, berry development and ripening, vine balance, and more. Seminars are offered from January 15 – March 6, Tuesdays and Thursdays 8:00 – 9:30 AM, main campus, Corvallis. A list of seminar topics and dates will be available after December 15 on <http://wine.oregonstate.edu>. Please contact Lee Ann Julson for registration 541-737-5480 or LeeAnn.Julson@oregonstate.edu.

February 10-12 Oregon Wine Industry Symposium

The annual conference and trade show for the Oregon Wine Industry is designed to provide information in both viticulture and enology for all members of the industry both new and experienced. For information and registration, please see the following link <http://explorer.oregonwine.org/symposium.php>

March 5 Botrytis and Powdery Mildew Conference

Oregon State University Viticulture Extension presents a one-day conference focusing on powdery mildew and botrytis, two main disease pressures in Oregon. Experts Dr. Wayne Wilcox from Cornell University and Dr. Gary Grove of Washington State University will be presenting new information and findings from their research programs focusing on botrytis and powdery mildew, respectively. Industry panels will also present current practices and trends observed and lead to lively discussion. Spanish translation will be available. Registration information will be coming soon and will be posted at <http://wine.oregonstate.edu>. Mark your calendars NOW and plan to attend March 5, 9 am – 4 pm, OSU Corvallis campus.



Viticulture Extension

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