

Cover Crops in Orchards & Vineyards Planning Considerations

By Rich Casale, CPESC #3-Fellow/CSWA Qualified Professional

Note: Everything is site specific when it comes to establishing plant cover and especially cover crops and critical area plantings. Success is dependent on such site factors as soil type, irrigation water availability (in some cases), exposure (slope aspect), sunlight, inherit soil fertility, site/seed bed preparation, and degree of ongoing care and maintenance.

1. First determine your Goal:

- a. Soil erosion control
- b. Build soil organic matter and nitrogen levels
- c. Runoff and sediment control
- d. Increase infiltration of rainfall.
- e. Reduce weed or pest issues
- f. Improve aesthetics
- g all or some of the above.

2. Select Grass/legume Type: Annual non-reseeding; Annual reseeding; Perennial Planting; Native or Non-native; irrigated or non-irrigated; Grass and/or Legume. *Note: Consult with experts.*

3. Determine Method of Seeding: Drill, Broadcast by hand, Hydro seed

4. Prepare Seedbed

5. Time of seeding, Seeding timing is extremely important. Irrigated plantings can begin as early as mid-September with non-irrigated plantings taking place just prior to the first significant rainfall between Oct 15-Nov 15. If seeding takes place in late November or December then cold tolerant cereal grains such as barley, oats, wheat or cereal rye will be the likely choice for quick plant cover for erosion control.

6. Management and Maintenance. Mulching, Fertilization, irrigation, mowing, weed control, runoff control, etc

If your goal is erosion control and you want to increase vigor in your vines then a cover crop with both annual grasses and legumes will best serve your needs. Such as a pea, vetch and/or clover mix with barley and/or oats. If your objective is just erosion control then a mix with deep rooted and slightly longer lasting grasses with fewer legumes will serve such as a mix with Blando brome, Zorro fescue, rose and/or crimson clover

Another choice used by many growers includes: Zorro annual fescue; Creeping red fescue (perennial) and rose or crimson clover. This is a low growing grass/legume/annual/perennial mix that becomes permanent and is relatively drought tolerant once established. On most vineyards there is little need to mow this mix.

Lastly, several growers elect to encourage volunteer mustards and/or plant them as their sole cover crop. They are Brassicas and a natural fumigant helping to clean-up fields with nematodes. They also help control unwanted weeds and have a deep tap root that can help break up hard pans. If you plan on Mustard then you need to keep as a monoculture and make sure the seeds are planted 1-2" in depth for full success. *Note: Mustards do not have an extensive fibrous root systems and therefore are not a good erosion control plant for sloping vineyards with loamy or coarser textured soils where erosion control may be a main goal,*

Seed Viability and Pro and Cons of Seeding before or after the first rains

The grass seed will stay viable throughout the first season and then decline if held for another season before planting. You should make sure that you purchase viable seed to begin with and that is 97-99.5 % pure live

seed if at possible. There should be a seed tag on each bag that will give you this information. Saying that, once the seed begins to germinate following the first rains the seedbed needs to stay moist until the plant completes its initial establishment otherwise it will die. This can happen if you seed, then there is a good rain that starts the germination process, then we get into long dry spell before the next rain. In these cases it may be necessary to irrigate if irrigation water is available to save the planting. Other things that can help insure seeding success even if the rain is far and few between is to drill the seed into soil instead of broadcasting it on the surface.

Additionally a light application of straw mulch (1-2inches) can help retain soil moisture for longer periods and between longer rainfall intervals. If you seed too early without irrigation then you run the danger of feeding wildlife and birds. If you seed early and have irrigation water available then you can establish your erosion control grass before the first rains but you need to keep the planting moist until established. It's a good idea to have materials on hand and watch the weather forecast for first significant rainfall and seed just prior. Sometimes you can wait until after the first significant rainfall if the forecast indicates sunny weather for the following week and it's still relatively early in the season.

Insuring weed seed is not in straw mulch used for erosion control in the orchard/vineyard

Rice straw has very little to no weed seed but I don't know that anyone can guarantee that any straw is completely weed free. Rice straw is usually a little cheaper and more available in northern CA. It is harder to broadcast by hand because it sticks together and feathery. If you use cereal grain straw such as barley or wheat the barley and wheat usually has some seed heads which can germinate but generally doesn't become a weed issue because they are generally considered short lived and non-reseeding. Some suppliers may sell "weed free" straw but anything can happen in staging areas or in transportation. I think the benefits of straw mulching outweigh any disadvantages. If you do encounter weeds following seeding and/or mulching then it is important to address these weed issues when their populations are small.

Seeding Vineyard/Orchard Access Roads

Seeding roads is considered a critical area planting and the seed choice will depend on whether or not the road will have regular use during the winter months. It will also depend on whether or not you would like the grass cover throughout the year. Some choices are:

- 1) A permanent perennial grass such as tall fescue or perennial ryegrass that have deep extensive root systems and regenerate each year if not kept irrigated from their root systems. If access roads require use year-round then these grasses will need to be periodically mowed. Other plant choices may not be able to cope with chronic vehicle traffic such as clovers and other legumes and/or may need mowing.
- 2) An annual reseeding grass such as annual ryegrass or Blando brome. These grasses can take a little punishment from occasional vehicle traffic once established. Other annual grasses such as Zorro annual fescue cannot.
- 3) An annual non-reseeding grass such as a cereal grain like barley, oats, wheat or cereal rye. All of the cereal grains can get quite tall especially on better soil types. They grow the fastest and are cold tolerant so if you seed late (end of Nov-Dec) then a cereal grain is the way to go for quick cover. These annuals would need to be reseeded each year. They typically do not come back a second year and when they do their population is sparse. Not a bad choice for roads taken off line for the winter. They are also way less expensive.
- 4) A native perennial grass such as wild rye, CA brome and perhaps oat grass. Native will be a lot more expensive and require extra care during the first establishment year.