



Winter Cover Crops in Vineyards

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The most important single factor in determining the success or failure of a winter cover crop is the time of planting. Early planting permits maximum growth of the cover crop. Late plantings may result in poor stands and reduced production.

Cover cropping costs money, but there can be distinct benefits to water penetration problem soils or low-fertility sandy soils. Reduced dust, reduced soil compaction from less tillage, and fewer spider mite problems are additional values of grass culture.

A large variety of plants can be grown as cover crops during the winter months in the San Joaquin Valley. If the purpose of the cover crop is to improve the soil structure and lessen soil compaction, cereals such as rye, barley, or oats would be the best selection since they produce the greatest quantity of organic matter and their fibrous root system is more likely to grow into compacted soil. Of the cereals, rye grows the best during the colder winter months, and is not troubled as much by diseases.

If the purpose of the winter cover crop is to improve the fertility of the soil, then a leguminous plant should be selected. Legumes

are used as a green manure because of their ability to increase nitrogen by fixation in their root nodules. It is important that the legume seeds you select be inoculated with the proper bacterial inoculant before planting to assure adequate nitrogen fixation by the plants during the winter. Among the most widely grown winter legumes are purple vetch, bell beans, yellow sweet clover, burclover, field peas and horse beans.

The non-legumes (rye, barley, and oats) will usually respond to nitrogen so the fertilization of the cover crop should be integrated with the nitrogen fertilization program of the vineyard. This can be accomplished by dividing the annual use of commercial fertilizer and supplying one-half to the cover crop in the fall and the other half when the cover crop is turned under in the spring.

Cover crops should be worked in the soil by mid-March in preparation for frost protection. The soil should be firm, bare, and moist during the frost danger period.

The following chart gives the appropriate planting seed rates and dates of planting for various cover crops.

Cover Crop Planting Table

	Optimum Planting Date	Rate of Seeding/ Planted Acre (see note below)*	Method of Seeding	Remarks
Barley	October & November	80-100 lbs.	Broadcast & harrow or drill	Preirrigate if possible.
Rye	October & November	60-80 lbs.	Broadcast & harrow or drill	Preirrigate if possible.
Purple vetch	September & October	50-70 lbs.	Drill preferred or broadcast & harrow	Preirrigate if possible.
Bell beans (small-seeded horse bean)	October & November	100-150 lbs.	Drill in rows preferred	Preirrigate if possible.
Field peas	September & October	60-80 lbs.	Drill preferred or broadcast & harrow	Preirrigate if possible. Seed with 10-15 lbs of barley, oats or rye.
Melilotus Indica (also called bitter clover, sour clover, sweet clover)	September 15 - October 31	20-25 lbs.	Broadcast surface	Irrigate up after seeding. Firm seedbed. Scarcely cover seed.
Cahaba white vetch	October 10 November 5 Mid-late November	40 lbs. 60 lbs. 80-100 lbs.	Drill preferred	Preirrigation is best. If desired, about 5 lbs. of rye or stiff-strawed barley can replace an equal amt. of Cahaba seed.

*IMPORTANT NOTE: Seeding rates are for a solid planting of cover crop. Divide this amount approximately in half to adjust seeding rate for an acre of vineyard cover-cropped in every row. Every-other-row planting rates would be one-quarter of the above listed rates. (Source: Grape Notes, UC Cooperative Extension, Tulare County, September 1987).