

# COVER CROPPING IN VINEYARDS

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# ADVANTAGES & DISADVANTAGES OF COVER CROPPING IN VINEYARDS

## POTENTIAL ADVANTAGES

- Erosion Control
- Vigor Control
- Attract beneficials
- Add organic matter and aid in nutrient cycling
- Legumes can add nitrogen to the soil
- Dust reduction (mites)
- Improves soil structure and water infiltration
- Weed suppression
- Possible nematode suppression- brassicas, cahaba white vetch
- Traction

# ADVANTAGES & DISADVANTAGES OF COVER CROPPING IN VINEYARDS

## POTENTIAL DISADVANTAGES

- Competition for water and nutrients (can be an advantage)
- Pests-gophers, voles
- Increased frost risk -- impedes air movement and reduces the amount of solar radiation on the soil
- Cost, labor and time for proper management

# COVER CROPPING IN VINEYARDS

## CONSIDERATIONS IN DECIDING WHAT TYPE OF SYSTEM

- Soil erosion
- Relative vigor of vineyard
- Water availability
- Frost hazard
- Pest management objectives
- Aesthetics
- Cost of seed, planting, and maintenance

# TYPES OF COVER CROPPING SYSTEMS

## ANNUAL SYSTEMS WITH CULTIVATION

- Seeded and tilled each year
- Since they are tilled, they limit competition with vines for water and nutrients
- Important to get on before winter rains
- Careful to not disc too frequently- lose soil structure and organic matter
- Some annual systems are used in alternate rows with a permanent system in every other row
- Best in new vineyards when vine establishment is a focus- unless very steep, rocky or terraced sites where tillage is not recommended

# TYPES OF COVER CROPPING SYSTEMS

## ANNUAL SYSTEMS - TYPES

- Most simple is grass such as barley (more biomass) or oats (does well in heavy, wet soils)- basic erosion control (\$0.35/lb @ 100lbs/ac = \$35/ac)
- Very popular is the Organic Soil Builder's Mix- Grasses prevent erosion & Legumes add Nitrogen and aid in low vigor sites
  - 30% Triticale (wheat X rye); 20% Cayuse Oats; 20% Magnus Peas (better winter growth than other pea cultivars); 20% Bell Beans (frost an issue); 10% Purple Vetch (\$0.50/lb @ 100 lbs/ac = \$50/ac)
- Other options: berseem clover, ryegrass (heavy user of water and N-very competitive)

# TYPES OF COVER CROPPING SYSTEMS

## ANNUAL SYSTEMS- MAINTENANCE

- Tractor passes-
  - Fall disc and/or spader pass for seedbed prep; multiple passes might be necessary (\$80-100/ac/pass)
  - Seed drill in fall- can be rented or cost approximately \$8000 (\$80-100/ac/pass)
  - Spring mowing (\$50-60/ac/pass)
  - Spring Discing (\$80-100/ac/pass)
    - Maybe second discing pass required for weeds
    - Timing of discing after mowing depends on desired release of N

# TYPES OF COVER CROPPING SYSTEMS

## NO-TILL SYSTEMS

- Seeded once, and last for three to five years
- More competitive, better in fertile soils
- Better erosion control- year round control
- Improves soil structure and water infiltration
- Less disruption to soil habitat when compared to tilled systems
- Some systems are used in alternate rows with an annual system in every other row
- Timing of mowing critical, especially with annual, self-reseeding species
- Higher cost of seed, lower maintenance costs if proper establishment

# TYPES OF COVER CROPPING SYSTEMS

## NO-TILL SYSTEMS - TYPES

- No-till Annual- re-seed themselves annually
  - Can be more difficult to maintain than perennials- timing of mowing and fall weather critical
  - Zorro Fescue (fast-growing, early maturing); Blando Brome (low growing, mowable, matures early, establishes and reseeds well); Rose, Crimson, and Subterranean clovers (difficult to establish and maintain); Bur Medic and mixes of the above

# TYPES OF COVER CROPPING SYSTEMS

## NO-TILL SYSTEMS - TYPES

- No-till Perennials- do not grow during summer months and resume growth with the fall rains
  - Can be more competitive than annuals- good for weed suppression and high vigor sites, can be problematic in low vigor sites
  - Molate Fescue (low growing, drought tolerant, native selection), Idaho Fescue (drought tolerant); Pine Bluegrass (low growing); Perennial Rye Grass (short-lived, low-growing, needs water); Strawberry (invasive/aggressive) and White Clovers
- Common Mixes:
  - Big 3- Blue Wildrye, Meadow Barley, California brome
  - Lil 3- Molate Red Fescue, Idaho Fescue, Pine Bluegrass

# TYPES OF COVER CROPPING SYSTEMS

## PERENNIAL SYSTEMS- MAINTENANCE

- Tractor passes-
  - Fall disc and/or spader pass for seedbed prep (\$80-100/ac/pass)
  - Seed drill in fall (\$80-100/ac/pass)
  - Spring mowing (maybe 2 or 3 passes at \$50-60/ac)

# MERRYVALE VINEYARDS CONVERSION TO PERMANENT NO-TILL PERENNIAL COVER CROPS

## REASONS

- High vigor soils- wanted to reduce vigor
- Less soil disruption and soil loss
- Wanted to improve soil infiltration and traction in Haire clay loam for spring sulfur applications
- Wildflowers for attracting beneficials

## MIX

- 60% molate fescue, 15% idaho fescue, 15% pine bluegrass ('Lil 3' all low growing, drought tolerant)  
10% alyssum (low growing, drought tolerant, continuous flowering)
- 25lbs/ac at \$200/ac

# MERRYVALE VINEYARDS CONVERSION TO PERMANENT NO-TILL PERENNIAL COVER CROPS



# MERRYVALE VINEYARDS CONVERSION TO PERMANENT NO-TILL PERENNIAL COVER CROPS



# MERRYVALE VINEYARDS PARTICIPATION IN FISH FRIENDLY FARMING'S NAPA GREEN CERTIFIED LAND

- Voluntary program
- Local, state, and national agencies perform inspection and certify plan
- 27,000 acres enrolled and 13,000 acres certified
- Gain an intimate understanding of your property with the help of trained specialists
- Develop a plan for the application of Beneficial Management Practices
- Not only vineyards, but roads, creeks, streams, and the river
- Partner program Napa Green Winery