



**VINEYARD TEAM**



# **Selecting and Managing Vineyard Cover Crops to Reduce Water Use**

**Fritz Westover, M.S.- Viticulturist**

**Craig Macmillan, Ph.D.- Technical Program Manager**

# Selecting and Managing Vineyard Cover Crops to Reduce Water Use

- **Plants remove water from the soil.**
- **Winter cover crops remove water from the soil, but during the time of year when there is rainfall.**
- **Therefore, cover crops remove some of the moisture in the soil which would otherwise be there in the spring when the vines break bud.**



# Questions:

- **Do cover crops deplete soil moisture enough to affect vine growth?**
- **Does the use of cover crops in a vineyard translate into greater demand for irrigation from ground water?**



# Two Experiments

- **Grass cover crop (Blando Brome) terminated at different times and in different ways**
- **Different species of cover crop allowed to grow until after bud break**
- **Experiment A- Three sites, Experiment B- Three sites**
- **Randomized Complete Block Designs**
- **All in the same area, 2014-2015, 2015-2016**

<b>Experiment 1 Cover Crop Comparison</b>	<b>Experiment 2 Cover Crop Termination</b>
Clean Cultivation	Clean Cultivation
Barley (UC 937)	No till, mow after seed set
Medic (Paraggio)	Mow at bud break
Triticale (Trios 888)	Mow & disk at bud break
Brome (Blando)	Mow 30 days after bud break
Peas (Dundale)	Chemical mow at bud break

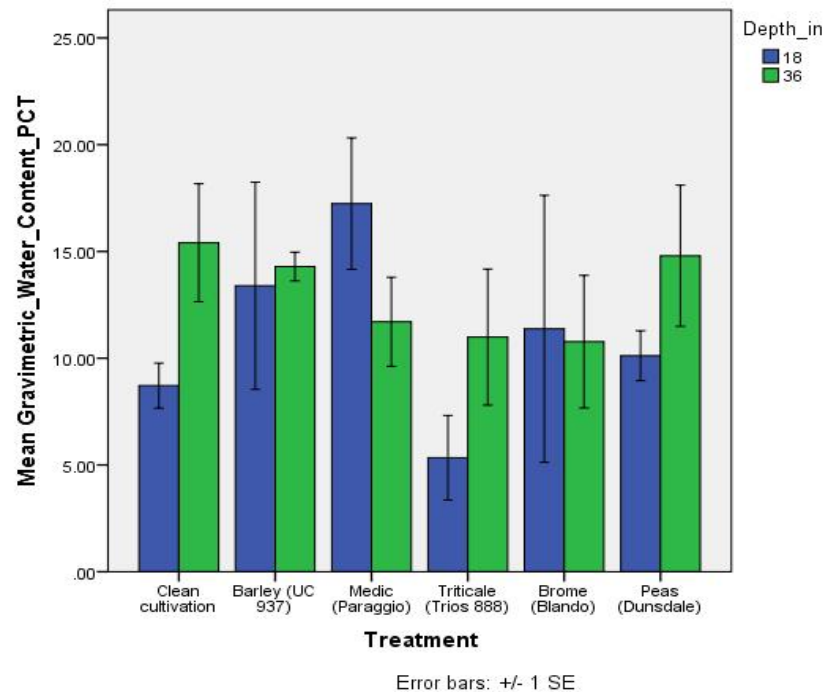
# Data and Analysis

- **Plant and soil samples collected in April 2015 and May 2016**
- **Plant biomass**
- **Gravimetric soil moisture**
- **Soil moisture sensors at one site for confirmation/comparison**



# Results- Year 1

- The timing and manner of terminating a cover crop were not different in terms of soil moisture.
- The species of cover crops planted were not different in terms of soil moisture.





# Effect on Vine Growth

- Pruning weights, Cane counts, Cane weights
- Cane counts consistent because of consistent pruning
- No difference in cane weights



# Why no difference?

- Low rainfall?
- Self-balancing system?
- Large degree of variation?

## Implications

- What do you think?





**VINEYARD TEAM**



# **Selecting and Managing Vineyard Cover Crops to Reduce Water Use**

**Fritz Westover, M.S.- Viticulturist**

**Craig Macmillan, Ph.D.- Technical Program  
Manager**