

University of California Cooperative Extension - Siskiyou County

2020 Summer Newsletter

Announcements

[Siskiyou County 4-H](#)

Enrollment for 2020-2021 program year is now open! Returning members should re-enroll by November 30, 2020 and new members must enroll by

November 30, 2020.

Youth Members: \$58.00

Adult Volunteers: \$24.00

Contact the 4-H office for any additional information

(530) 842-2711

Hot topics

Soil Moisture Sensors

Proper water management has become a key factor for long lasting agriculture. Efficient irrigation practices depend on knowing exactly how much water the crop uses and replace this water in the soil profile as best as you can. While in uniform fields, with the same soil types, we can generally rely on evapotranspiration data for irrigation scheduling, any grower knows that, more often than not, fields can vary significantly within a few acres or even less. In addition, evapotranspiration data estimates how much water the crop uses plus water evaporated from the soil but it does not account for the soil moisture reservoir in the crop rootzone. This information is important in order to know if you are putting on too much or too little water to meet the crop needs in each irrigation cycle.

Many of us know that getting soil moisture information is not easy. While in the past we relied on hand augers to check soil moisture, nowadays' technology provides more accessible and accurate ways to monitor the moisture levels in the crop rootzone. Soil moisture sensors provide information on what is going on in the soil regarding water infiltration during irrigation and plant uptake of water between irrigations. This information is useful to help on maintaining soil moisture levels optimal for crop production; thus, improving water use efficiency (i.e. crop production per unit of water).

There are different types of soil moisture sensors on the market. Some can measure soil water tension (e.g. Tensiometers and Watermark). But, what is tension? Tension is a measure of the force that plant roots have to apply in order to uptake water from the soil pores. As soils dry, soil moisture tension increases. Others sensors can measure the soil volumetric water content (e.g. Teros and EC5), which is the ratio of water to soil volume.

The soil moisture sensors measurements reliability depends heavily on installation. You want to make sure the sensors are placed in undisturbed soil at the desirable depth and there is enough contact between the sensors probes and the soil. Once the sensors are



**Soil water tension sensors
Watermark (top) and
Tensiometer (bottom)**



**Volumetric water content sensors
EC5 (top) Teros (bottom)**

correctly intalled you can check the soil moisture status periodically to ensure efficienct irrigation practices avoiding overwatering your crop.

Let us know if you have questions about these great devices that can save you water and money.

Research Updates

Scott Valley Alfalfa Variety Trial

The Scott Valley alfalfa variety trial, planted on 9/5/2019, was harvested 3 times this season. The second cut data, however, was discarded because the crop was too lodged for the Carter plot harvester to cut without getting plugged. For this reason the following table shows the sum of yields of the first (6/17/2020) and third (9/5/2020) cuttings. The varieties' yields in this season were not statistically significant at 0.05 confidence level.

Varieties	FD	2020 Yield (2 cuttings)
		Dry t/a
6585 Q	5	6.0
Nexgrow 6516	5	5.9
Hybriforce 3400	4	5.9
AFX Hybriforce 4400	4	5.7
LG EXTERRA	5	5.6
AFX 579	5	5.5
Ameristand 518 NT	5	5.5
AFX 360 Highest	3	5.5
SW4107	4	5.5
LG 4R300	4	5.5
SW5210	5	5.5
DG 4210 Dynagro	4	5.4
SW3407	3	5.4
AFX Magnum 8	4	5.4
Ameristand 415 NT RR	4	5.3
LG Camas	4	5.3
SW 4412Y	4	5.3
DG 5315	5	5.3
AFX 460	4	5.2
LG 5R300	5	5.1
Ameristand 545 NT RR	5	5.1
WL 377 HQ	5	5.0
6422Q	4	5.0
Ameristand 427TQ	4	4.8
MEAN		5.40
CV		8.10
TUKEY		NS

Social media

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Young plant of Canada thistle.
Photo by Jack Kelly Clark



Canada thistle male flowers.
Photo by Joseph M. DiTomaso



Rust infected leaf.
Photo by Joel Price

Canada thistle Biological Control

In our Needs Assessment Survey, about twenty percent of the respondents reported problems with Canada thistle (*Cirsium arvense*), which inhabits agricultural land and other disturbed areas. This noxious weed is a perennial broadleaf plant that has an extensive root system, and once established, it becomes very difficult to control.

As a component of weed management strategies, biological control has been used successfully in many situations, including suppressing Canada thistle. For this reason, we selected two locations in Scott Valley to conduct a trial that will tentatively bring to our area the plant pathogen *Puccinia punctiformis* - a host-specific rust fungus with the ability to infect healthy Canada thistle plants.

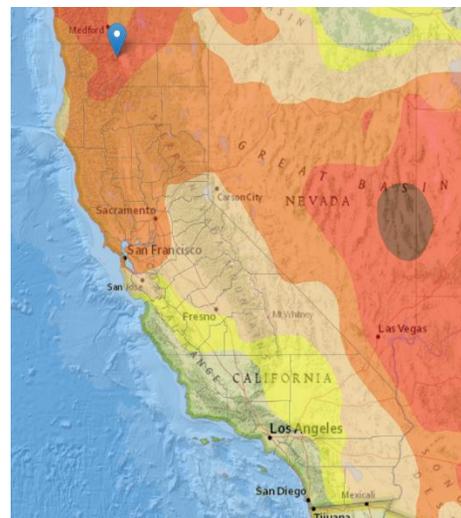
After this fall inoculation, rust establishment will be checked in the spring of 2021 when Canada thistle shoots start to emerge. The infected plants are typically taller and lighter green colored with yellowish pustules (i.e. a small raised spot or rounded swelling as shown in the bottom photo on the left) on the underside of the leaf. Later on, the leaves become rusty colored powdery spores and the infected plants will die and the spores will be transported by wind to infect the neighboring plants. Fingers crossed!

Drought

Unfortunately we are still facing dry weather here in Siskiyou County, which has now (September 15, 2020) two drought intensities: D2 (severe drought), and D3 (extreme drought). The County is responsible for the majority of the D3 areas in the state of California as shown in the image (right) from the U.S. Drought Portal (<https://www.drought.gov/drought/>).

The graph on the back of this page shows the drought data from 2000 to 2020 in California. The longest drought (D1-D4) lasted 376 weeks, beginning in December, 2011 and ending on March, 2019. The week of July 29, 2014 was the most intense period of drought where over 58% of California land was affected by D4 level.

While the drought is unpredictable, we can be better prepared for it by using soil moisture sensors, switching to more efficient irrigation methods, planting drought tolerant crops, etc.



“The future belongs to those who prepare for it...”

Current Resident or

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