



University of California
Agriculture and Natural Resources

MODOC RANCH ROUNDUP

Volume 16, Issue 4 - May 2024

Greetings from the Farm Advisor,

It is a flurry of activity in the office as our programs really come to life in the spring. I have been working in some policy related changes for livestock mortality composting, Irrigated Lands Regulatory Program changes, and grazing technology and management. Laurie is out and about serving community members through the high tunnel users group and connecting community organizations with grant opportunities and capacity building. Simar is completing his needs assessment (last call for feedback!) and getting out in the community with producers. Check out his upcoming irrigated forage workshop below.

We have been blessed with good spring moisture and now with warm weather on the horizon, the plants should really start taking off. With desirable plants also come weeds - we have seen and heard about a lot of hardy weeds this spring from thistles to mustard and everything in between. Addressing weed issues early is always worth the time and effort! The Modoc County Ag Department also has a free program for star thistle along with their general spraying by ATV, Truck and Helicopter. Contact them at 530-233-6401.

Besides weeds, we are seeing the reemergence of grasshoppers in Modoc. Monitoring for grasshoppers and having a treatment plan early can save your crop and also save on applications costs.

Upcoming events are scattered throughout this email. Don't miss the Modoc County Cattlemen's field day June 2nd starting at 10am at the Adin Community Center. Fall River/Big Valley Cattlemen are also contributing to the field day and lunch. The Junior Livestock Show is the third week in June with the community BBQ on Friday and Colt Challenge in Saturday.

I'm looking forward to some warmer weather and seeing you all at field days and events over the next couple months!

Laura Snell

EFFICIENT WATER MANAGEMENT FOR FORAGE CROPS

Date: Thursday, May 23rd, 2024

Time: 10:00 am – 2:00 pm

Location: Adin Community Center
605 CA-299, Adin, CA 96006

WORKSHOP AGENDA

10:00 – 10:30 am: On-site Registration

10:30 – 10:40 am: Welcome to participants. Brief overview of the Workshop

10:40 – 11:00 am: Financial Incentives for Resource Efficiency, Conservation, and Climate Risk Mitigation and Eligible Improvements & Practices (USDA-NRCS)

11:00 – 11:20 am: What it Takes to be Efficient Irrigators: from Principles to Practical Implementation (D. Zaccaria, UC Davis)

11:20 - 11:40 am: Efficient Water Management for Sprinkler and Surface Irrigated Forages (K. Bali, UC ANR)

11:40 – 12:00 pm: Questions & Answers

12 – 1 PM LUNCH [Big Valley Market]

PLEASE RSVP BY CALLING (530) 233-6400

01:00 – 01:20 pm: Water Use of Forage Crops (D. Zaccaria, UC Davis)

01:20 – 01:40 pm: Methods and Tools for Efficient Irrigation Scheduling in Forage Crops (D. Zaccaria, UC Davis)

01:40– 02:00 pm: Various Strategies for Deficit Irrigation of Forage Crops (K. Bali, UC ANR)

02:00 – 02:15 pm: Questions & Answers

Many Thanks to our Lunch Sponsors!!

McArthur Farm Supply
Copp's Irrigation

LUNCH SPONSOR

For questions and information, please contact:

Simarjeet Singh – Email: ssmsingh@ucanr.edu; Phone: 559-326-9713

Daniele Zaccaria – Email: dzaccaria@ucdavis.edu; Phone: 530-219-7502

Khaled Bali – Email: kmbali@ucanr.edu; Phone: 760-554-1146

Working Towards Irrigating Efficiently

-Simarjeet Singh, UCCE Modoc

Irrigation is the practice of applying amount of water to land to grow crops, landscape plants, and lawns. Efficient irrigation is necessary for agriculture production, as the right amount of water at the right time will result in maximum yield. Both over-irrigation and under-irrigation can lead to environmental and economic losses. Over-irrigation can increase pumping costs, soil erosion, and downstream contamination, whereas under-irrigation can reduce crop yields. Being an efficient irrigator demands the knowledge of fundamentals of irrigation so we will touch on some basics of irrigation in this article.

Irrigation efficiency is the measure of the beneficial use of water for crop growth or a ratio of the average depth of water that is beneficially used to the average depth of irrigation water applied. Beneficial use includes crop evapo-transpiration, and leaching for salinity control whereas surface runoff, wind drift, and deep percolation are water losses rather than beneficial use.

$$\text{Irrigation efficiency} = \frac{\text{water used by the crop for ET + other beneficial uses}}{\text{Total water applied onto the field}}$$

Application (what we apply) and losses (not beneficially used) are the two components of any efficiency, same goes for irrigation efficiency.

Distribution Uniformity (DU) refers to the consistency of water application across a given area. It indicates how evenly water infiltrates into the ground across a field during irrigation. Distribution uniformity is typically expressed as a percentage and is measured by comparing the average depth of infiltration in the driest area of the field (e.g. driest quarter of the field) to the average depth of infiltration in the whole field. DU is expressed as a percentage between 0 and 100 and typically derived from “catch-can” testing in the field. A higher percentage indicates better uniformity, meaning the water is distributed more evenly across the irrigated area.

Why does efficient irrigation matter?

- o Efficient irrigation reduces water and energy bills for crop production.
- o Grow more acreage with the same amount of water.
- o Healthy crops (reduced water stress, hypoxia, asphyxia, phytophthora, weeds, etc.)
- o Better control of water & nutrients available for the plants in the soil profile

Compliance with existing regulations (ILRP)

Irrigation Scheduling Measurements

Measuring the amount of water to apply, irrigation run times and flow rates are essential to be efficient irrigators. The formulas below will help you do that.

1. How much water applied (D) = $(Q \times T) / (449 \times A)$
2. How Long Should You Irrigate (T) = $(449 \times A \times D) / Q$

What Flow Rate is Needed (Q) = $(449 \times A \times D) / T$

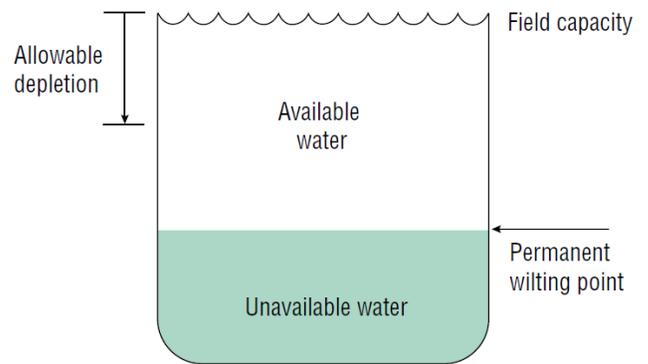
Where, D = average inches of water applied to the field; Q = flow rate (gallons per minute); T = hours required to irrigate the field; 449 = conversion factor; A = acres irrigated

Irrigation Scheduling

There are primarily two methods for scheduling irrigation- one relies on soil-based measurements, and the other involves weather monitoring. Commonly, these methods are referred to as soil moisture-based scheduling and Evapotranspiration-based scheduling. The best approach, however, is to use both and keep verifying both approaches by comparing them throughout the season.

Soil Moisture

Think of your soil as a storage reservoir for the plants to extract water from. You should maintain the storage reservoir at such levels that your plants don't stress without overfilling the reservoir. Different soil types determine the storage reservoir capacity, especially your soil pore spaces. The more soil pores, the more will be water-holding capacity of the soil providing a greater storage reservoir capacity. When you irrigate soil or rain occurs, water flows downwards in the soil profile through the large soil pores with the force of gravity. After this drainage process finishes in about 1-3 days, whatever water remains in your soil profile held as a film around the soil particles is what we consider a storage reservoir, and this stage is known as field capacity. A portion of this storage reservoir is available to plant roots as the other portion is held tightly by soil particles that plant roots would have to work very hard to extract that water. The available water for plants in the storage reservoir is called available water (*Figure 1*).



Available water differs for different soil types as discussed earlier. The total water storage can be calculated by multiplying the available water (inches/ft) by your crop rooting depth (ft). For example, if your soil type is Fine sand, loamy sand, you have 1 inch/ft of available water with a crop rooting depth of 4 feet, and your storage reservoir would have 4 inches of water available for your plants.

Allowable Depletion

Plants can extract a portion of available water easily, whereas, after that water uptake, it gets harder for plants to get the water as it is held tightly by soil particles. The amount of water used from the reservoir before the extraction becomes difficult for plants is known as allowable depletion. You are supposed to fill the storage reservoir once you hit the allowable depletion. You can use the available water column from the figure according to your soil type and multiply it by the crop rooting depth (feet) to get the available water in the soil profile. For alfalfa, allowable depletion is 50%. From the previous example, if you have 4 inches of available water in your reservoir, you should be filling back your reservoir once you deplete 2 inches of that available water.

SOIL TYPE	AVAILABLE WATER (IN./FT.)	ALLOWABLE DEPLETION (IN./FT.)
Coarse sand	0.5	0.25
Fine sand, loamy sand	1.0	0.50
Sandy loam	1.5	0.75
Fine sandy loam, loam, silt loam	2.0	1.00
Clay-loam, silty clay	2.2	1.10
Clay	2.3	1.15
Organic clay loams	4.0	2.00

Local Evapotranspiration

According to the California Irrigation Management Information System (CIMIS) weather station located near Alturas, evapotranspiration of the past week (April 29- May 5) was 0.97 inches. We got 0.30 inches of precipitation as well, so the evaporative demand of the soil should be $0.97 - 0.30 = 0.67$ inches. This number should be adjusted according to the crop growth i.e., crop coefficient (Kc) to get actual crop evapotranspiration. Refer to this [article](#) to learn more about evapotranspiration and how to access your local data.

MARK YOUR CALENDARS FOR UPCOMING FIELD DAYS

2024 UC Davis Small Grains and Alfalfa Field Day is scheduled for **May 9th**. Click on the [AGENDA](#) to see the schedule. [REGISTER](#) here for free.

Intermountain Research and Extension Center set a preliminary date of **August 8th** for the 2024 IREC Field Day. Stay tuned for the complete agenda in near future!



THIS OVERNIGHT CAMP IS AN OPPORTUNITY FOR YOUTH ACROSS THE WEST TO LEARN ABOUT MANAGING PUBLIC LANDS, RANGELANDS, WILD HORSES, AND BURROS, LOOKING DEEPER AT THE RELATIONSHIP BETWEEN HEALTHY LANDS AND HEALTHY HORSES!

June 28-29
2024

**REGISTRATION
IS OPEN!**

SCAN QR CODE FOR LINK

REGISTRATION CLOSES JUNE 14TH
25 SPOTS AVAILABLE

JOIN US AT
Mustang Camp!

LASSEN COUNTY
CALIFORNIA





MCCA FIELD DAY

**JUNE 2, 2024
10 AM - 2 PM
BIG VALLEY**

Save the Date!

10:00 Meet at Adin Community Center
605 CA-299, Adin, CA 96006

Big Valley tour locations, Speakers from Tehama Angus, Forest Health, Pellet Mill, and more

Lunch from Big Valley Market

FREE with Cattlemen's Association Membership!

You are invited! The first gathering of the **Intermountain High Tunnels Users Group** met on May 4 despite the rainy, dreary weather. It was still wonderful to trade ideas and inspiration! If you are interested in learning about or getting better at using high tunnel greenhouses or other season extension, why not join the group? Fill out a quick survey at <https://ucanr.edu/HoophouseInterest> to get on the mailing list, or just head to our **Facebook Group** and say hi.



High tunnel users learn from each other on May 4

DEVIL'S GARDEN
Colt Challenge

Save the Date!
 June 22, 2024
 12:00 @ the Alturas Livestock Complex

Questions? Check out our FAQ page at
<https://www.devilsgardenucce.org/post/colt-challenge-faq>

Photo from M Squared Photography

Come celebrate our 5 year anniversary with us! This year we will have first year horses and be inviting returning youth back to compete as well. If you are a youth with a horse from one of the prior Colt Challenge years and want to come back, register at <https://surveys.ucanr.edu/survey.cfm?surveynumber=42920>

- **Now's the time to prepare for the fair!** It's time to plan for your prize-winning contribution at the Modoc District Fair - it's just about 100 days away! If you would like advice or suggestions on crop planning, choosing a great variety, or cultivation practices, don't be shy about reaching out to the Farm Advisor's office at (530) 233-6400
- **In the loop:** If you are a farmer or rancher and you'd like to stay in touch with training and funding opportunities or connect with other producers in Modoc, Lassen, and Siskiyou counties, you might love to be on the mailing list for food producers in our region. **Contact Laurie Wayne** at the Extension office (530-233-6400) to get on our spam-free mailing list.



**MODOC AUCTION YARD
 MODOC COUNTY CATTLEMEN'S
 ASSOCIATION**

**DONATED
 BUTCHER COW
 SALE**

**JUNE 26TH, 2024
 NOON START
 CA-299, ALTURAS, CA 96101
 QUESTIONS: CALL REED 530-640-0148**

Lunch served by Modoc County
 Cattlewomen

Cooperative Extension

UCCE Modoc County
202 West 4th Street
Alturas, CA 96101
530-233-6400
Laura Snell
Livestock & Natural Resources Advisor
lksnell@ucanr.edu

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STAY IN TOUCH



Devil's Garden Research & Education - UCCE

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Don't miss out on day-to-day happenings and news in the Cooperative Extension Office -- follow our [Facebook](#) and [Instagram](#) feeds and stay up to date.

Our office number is (530) 233-6400. Give us a call Monday-Thursday and check in about anything in this newsletter or anything else!

SAVE THE DATES!

- May 20 Ag in the Classroom**
9am - 1pm Alturas Jr. Show Grounds
- May 23 Efficient Water Management for Forage Crops**
10am - 2pm Adin Community Center
- June 2 Modoc County Cattlemen's Spring Field Day**
10am - 2pm Adin Community Center
- June Master Food Preserver Events - TBA**
- June 17 - 21 Modoc Junior Livestock Show**
Alturas Livestock Complex
- June 22 Devil's Garden Colt Challenge**
Alturas Livestock Complex
- June 26 Modoc County Cattlemen's Butcher Cow Sale**
Modoc Auction Yard, Alturas
- June 28 - 29 Mustang Camp**
Lassen County Fairgrounds, Susanville
- July 10 - 11 Modoc Washoe Experimental Stewardship - TBA**
- August 22 - 25 Modoc District Fair**
Cedarville Fairgrounds