Imperial County Agricultural Briefs

UC Cooperative Extension | University of California Agriculture and Natural Resources

Features from your Advisors

December 2019 (Volume 22 Issue 11)

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Presented by the University of California Cooperative Extension Imperial County

DATE:

Thursday, December 12, 2019

TIME:

7:00am - 12:30pm

Registration @ 6:30 am

LOCATION:

Farm Credit Services Southwest Ag Center Room

485 Business Park Way, Imperial, CA 92251

No Cost to Attend

Pre-Register with: Andrea at aiestrada@ucanr.edu

UC ANR Cooperative Extension Imperial County

1050 E. Holton Road, Holtville, CA 92250 | 442-265-7700 | ceimperial.ucanr.edu

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COOPERATIVE EXTENSION
IMPERIAL COUNTY
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HOLTVILLE, CA 92250-9615
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http://ceimperial.ucanr.edu

30th Annual Fall Desert Crops Workshop

When: Thursday, December 12, 2019 (7:30 AM to 12:20 PM)
Where: Farm Credit West, Ag Center Room
485 Business Park Way, Imperial, CA 92251

Registration: 7:00 AM to 7:30 AM

To pre-register for workshop please send an email in advance to aiestrada@ucanr.edu with full name of attendee(s).

7:00	**Registration**
7:30	**Opening Remarks:** Ryan Kelley, Chair of Imperial County Board of Supervisors
7:40	**Drip Irrigation for Organic Spinach Production and Downy Mildew Management** – Ali Montazar, Irrigation and Water Management Advisor, UCCE Imperial County, Holtville, CA
8:00	**Assessing and Managing Salinity** - Michael Cahn, Irrigation and Water Resources Advisor, UCCE Monterey County, Salinas, CA
8:20	**Water Treatment Implementation for Growers** - Channah Rock, Professor & Water Quality Specialist, The University of Arizona, Maricopa, AZ
8:40	**Residual Soil Nitrates and the Impact of Rotations on N Fertilizer Rates for Healthy Vegetable Production** - Richard Smith, Vegetable Crop Production Advisor, UCCE Monterey County, Salinas, CA
9:00	**The Benefits of Grazing Sheep on Productivity and Soil Health of Alfalfa** - Brooke Latack, Livestock Advisor, UCCE Imperial County, Holtville, CA
9:20	**Management of Soilborne Diseases and Downy Mildews of Vegetables in Winter Crops** - Alex Putman, Assistant Specialist in Cooperative Extension and Assistant Plant Pathologist, University of California Riverside, Riverside, CA
9:40	**Irrigation Advanced Technology and Water Conservation Experience in the Imperial Valley**: Ronald Leimgruber, Leimgruber Farms; and Kevin Johnson, Southwest Territory Manager - Valley Irrigation
9:50	----------**Break**----------
10:00	**Laws and Regulation in Industrial Hemp** - Carlos Ortiz, Imperial County Agricultural Commissioner, El Centro, CA
10:20	**Alternative to Chlorpyrifos Pest Management Options for Low Desert Sugar beet** – Oli Bachie, Agronomy Advisor and Director, UCCE Imperial County, Holtville, CA
10:40	**Root-knot nematode management: what's current and what's coming** - Antoon Ploeg, Cooperative Extension Specialist & Nematologist, University of California Riverside, Riverside, CA
11:00	**Alfalfa Winter Pest Management and Root Rot Management in Alfalfa** - Ayman Mostafa, Area Programmatic Agent and Regional Specialist. University of Arizona Cooperative Extension, Phoenix, AZ
11:20	**Winter Insect Control in Alfalfa** – Michael Rethwisch, Crop Production and Entomology Advisor, UCCE Riverside (Palo Verde Valley Office), Blythe, CA
11:40	**Update on Vegetable Crop Diseases/Pest Problems in the Coachella Valley** - Jose Aguiar, Vegetable Crops and Small Farms Advisor, UCCE Riverside, Indio, CA
12:00	**Industry Update:** Keili Callender (Syngenta), Chris Denning *(GOWAN)*
12:20	---------- **Lunch** (Please stay for lunch – Courtesy of Our Sponsors) Leimgruber Farms, Valley Irrigation, Syngenta, Gowan

For additional information on the workshop, please contact organizers Ali Montazar, amontazar@ucanr.edu or Oli Bachie, obachie@ucanr.edu or call us at (442) 265-7700.

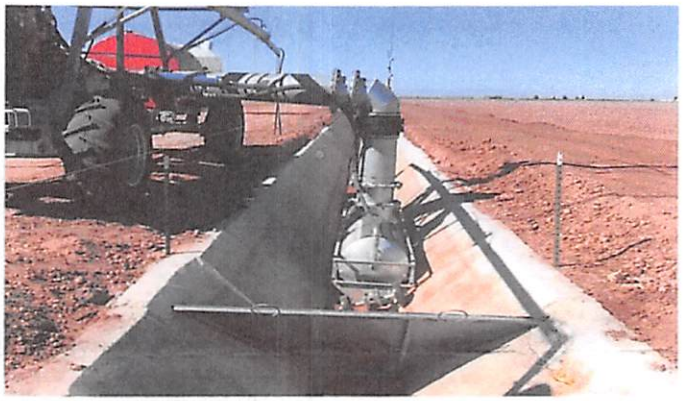
Please feel free to contact us if you need special accommodations.

CE Unit Approval: CA DPR (ID #M-1289-19 - 3.5 hrs.), AZ Dept. of AG (ID #19947 – 3.0 hrs.) & CCA (#CA 57073 - 4 hrs.)

Following the 30th Annual Fall Desert Crops Workshop is:

Valley 8000 Center-Feed Linear Irrigation System Field Demonstration

Hosted by Ronald C. Leimgruber Farms, Valley Irrigation/Valmont Industries, and Southwest Irrigation (Rick Grimes)



Thursday, December 12, 2019
Time: 1:30pm-2:30pm
Field Location: ASH LAT. 6, GATE 42A
Cross Roads- Heber Rd and Anderholt Rd.

Ceasar's Tacos will provide Lunch

Representatives from Valley Irrigation/Valmont Industries to answer any questions you may have.

Call 760-455-2686 (Ronnie) or 760-963-4728 (Rick) with any questions.

SHEEP GRAZING ON IV FARMS: A SHORT SURVEY

Brooke Latack, Livestock Advisor, UCCE Imperial, Riverside, and San Bernardino Counties
Oli Bachie, Agronomy Advisor, UCCE Imperial, Riverside & San Diego Counties & Director UCCE Imperial County

Purpose:

1. This survey aims to quantify acres of winter sheep grazing in the Imperial County.
2. It also aims to increase the understanding of management practices in alfalfa field grazing. Data collected from the survey will help us document forage production portions used for direct grazing, and shape future livestock research to solve any issues experienced within the system.

All survey responses will be recorded without revealing / identifying information (name, location, etc.).

Surveys can be completed by clicking on the following link
(https://ucanr.co1.qualtrics.com/jfe/form/SV_9RBL34GXEN7iyW1**)**
or filling out the survey below and returning via options listed in question 4.

Survey questions:

1. How many acres of alfalfa do you currently grow? _____acres
2. Do you use sheep to graze your alfalfa? □ Yes □ No
   If yes,
   → how many of the alfalfa acres do you allow sheep to graze? _____ acres
   → what stocking density do you allow to graze your alfalfa fields? _____head/acre
   → how long do the sheep stay in one grazing area before being moved to another parcel? ____ days
   → Are there other issues / concerns related to grazing sheep on alfalfa? If yes, please list below.

   _____
   _____
   _____
   _____
   ____
3. Would you be interested in workshops or field days related to animal grazing on forage fields?
   □ Yes □ No
4. Please, complete the survey return using one of the following options:
   a. Email: bclatack@ucanr.edu
   b. Call: Brooke Latack (442) 265-7712
   c. Take a photo of completed survey and text to 269-313-2579
   d. Mail: Brooke Latack, 1050 E Holton Rd, Holtville CA 92250

If you are interested in discussing sheep grazing issue (s) further, please contact Brooke Latack (UCCE Livestock advisor - Imperial County) at 442-265-7712 or bclatack@ucanr.edu.

We appreciate you taking the time to complete and send back the survey.

LIVESTOCK RESEARCH BRIEF

UC CE University of California
Agriculture and Natural Resources | Cooperative Extension

1050 E. Holton Rd.
Holtville, CA, 92250
(442) 265-7700

Hello,

This month examines a study looking at the effect of calcium supplementation levels on the productivity of calf-fed Holstein steers during the receiving feeding period.

If you have any comments, questions, recommendations, or know someone who would like to be included on the mailing list, please feel free to contact me.

Best wishes,

Brooke Latack
Livestock Advisor
UC Cooperative Extension – Imperial, Riverside, and San Bernardino counties
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Effect of calcium supplementation levels on the productivity of calf-fed Holstein steers during the receiving feeding period

Brooke Latack
Livestock Advisor

Introduction

The dietary calcium requirements of calf-fed Holstein steers have not been evaluated at length. Even with yearling cattle, effects of calcium supplementation on growth performance have varied widely. Current requirements for calf-fed Holstein steers throughout the entire feedlot feeding period is 0.57% of diet (DM basis). During the initial growing phase, though, the Ca requirement is closer to 0.90% (DM basis) due to the rapid growth potential of the steers. This study aimed to evaluate the influence of dietary calcium levels on growth performance during the initial 112 d on feed.

Methods

96 calf-fed Holstein steers (127 ±8 kg) housed at UC DREC were sorted into 16 pens (5 animals per pen) for a 112d feeding period. Steers were fed a steam-flaked corn-based diet (Table 1) supplemented with limestone to provide 0.60%, 0.70%, 0.80%, or 0.90% calcium (DM basis). Supplementation provided 100%, 115%, 131%, or 146% of calcium requirements respectively.

Results and Implications

Treatment effects are shown in Table 2. Dietary calcium levels did not affect DMI, ADG, gain efficiency in the first 84 d. There was an observed decrease in energy utilization efficiency, which could be due to a deficiency in metabolizable amino acids, which has been noted in several studies involving calf-fed Holsteins during the early feeding phase. Throughout the first 84 d of the study, cattle were fed 92% of required metabolizable protein and 79% of required methionine. This deficiency could have masked the effects of additional calcium in the diet.

During the final 28 d feeding period, increasing supplemental Ca reduced DMI, ultimately enhancing gain efficiency and efficiency of energy utilization by 8%. During this period cattle were provided 110% of required metabolizable protein and 94% of required methionine, so protein and amino acid deficiencies were not a concern.

While there were improvements to production during the final 28 d of the 112d feeding period, the improvements were not enough to influence overall 112 d growth performance. Ultimately, it appears calcium requirements are second to amino acid and protein deficiencies experienced when fed a steam-flaked corn-based diet. When all other requirements are met, there was an optimized response at approximately 0.90% dietary Ca.

Table 1.
Ingredient composition of experiment diet

Ingredient Composition	Dietary Ca (%, DM)			
Item	0.60	0.70	0.80	0.90
Sudangrass	12.00	12.00	12.00	12.00
Tallow	2.50	2.50	2.50	2.50
Molasses	4.00	4.00	4.00	4.00
Distillers grain	20.00	20.00	20.00	20.00
Steam flaked corn	58.65	58.35	58.06	57.95
Urea	0.95	0.95	0.95	0.95
Limestone	1.17	1.47	1.79	2.06
Dicalcium phosphate	0.25	0.25	0.25	0.25
Magnesium oxide	0.06	0.06	0.06	0.06
Rumensin 90	0.0165	0.0165	0.0165	0.0165

Table 2.
Growth performance treatment effects

	Supplemental methionine (%, DM)			
Item	0	0.70	0.80	0.90
Weight, kg				
Initial	129	126	126	126
Final	279	273	276	276
ADG, kg				
1-84 d	1.32	1.29	1.30	1.30
84-112 d	1.38	1.39	1.45	1.45
1-112 d	1.34	1.31	1.34	1.34
DMI, kg/d				
1-84 d	5.31	5.15	5.24	5.24
84-112 d	6.42	6.30	6.10	6.10
1-112 d	1.34	1.31	1.34	1.34
ADG/DMI				
1-84 d	0.25	0.25	0.25	0.25
84-112 d	0.22	0.22	0.24	0.24
1-112 d	0.24	0.24	0.25	0.25
Dietary NE, Mcal/kg				
Maintenance	1.94	1.94	1.96	1.96
Gain	1.29	1.15	1.13	1.13

References

Buenabad, L., Latack, B.C., and Zinn, R. A. Effect of Supplemental Calcium Levels on Feedlot Growth Performance and Dietary Net Energy Utilization during the Receiving Feeding Period of Calf-Fed Holstein Steers. 2020. Open Journal of Animal Sciences, 10, 1-9.

POTENTIAL HERBICIDE RESISTANT MEXICAN SPRANGLETOP IN THE IMPERIAL VALLEY

Oli Bachie, Agronomy Advisor, UCCE Imperial, Riverside & San Diego Counties & Director UCCE Imperial County
Jessie Liu, Staff Research Associate, UCCE Imperial County

Alfalfa is widely grown in Imperial County as a significant forage and seed crop, taking up increasingly large acreage. According to the 2018 Imperial County Agricultural Crop and Livestock Report, alfalfa is the second ranking commodity next to cattle in Imperial County. In 2018, alfalfa was grown on 155,171 acres for hay at a $218,455,000 gross value with additional alfalfa acreage planted for seed production. While light weed infestation in alfalfa production is hard to avoid, the presence of weeds before alfalfa stand establishment could cause stand loss or in more severe cases, yield loss in some fields.

In September 2019, a local PCA observed some weeds showing signs of new growth despite the use of chemical herbicide application(s) in an alfalfa field. The PCA then brought the issue to the attention of UCCE. We visited the affected field and observed what looks like a potential herbicide resistance. We suggested that a controlled and recommended application rate of the herbicide (suspected of resistance), *Clethodim 2E,* be carefully applied in a previously untreated field and monitor weed reaction to the applied herbicide. In the meantime, we took pictures and collected samples of the weed for further diagnosis and confirmation of the species. The weed was identified as Leptochloa *fusca* ssp. uninervia or Mexican Sprangletop by Ellen Dean, Plant Diversity Curator at UC Davis. Mexican Sprangletop is a grass weed that is native to California. This weed is active in the months of April to early December with its seeds capable of overwintering during cold seasons. The alfalfa field with the Mexican Sprangletop infestation was planted in April 2018 and regularly supervised and maintained. After identifying a buildup of the Mexican Sprangletop weed, the field was treated with clethodim. Following a recommended *Clethodim 2E* herbicide treatment, we monitored the herbicide sprayed field for three consecutive weeks after the initial herbicide application. The Mexican Sprangletop remained alive and intact in both fields (the one initially applied and the newly treated field), although it showed some mild signs of phytotoxicity (Figure 2). In the meantime, other susceptible weeds

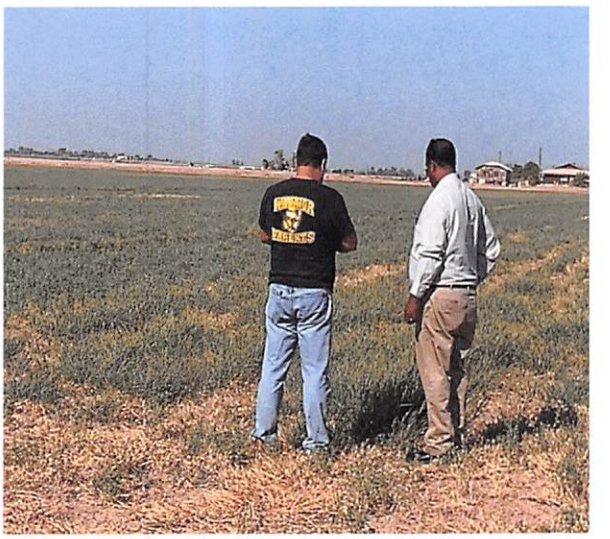

Figure 1: Examining weeds at alfalfa field applied with herbicide, Clethodim

nearby, such as watergrass, died completely from Clethodim applications, showing signs of Clethodim efficacy. Mexican Sprangletop, on the left (Figure 2), clearly shows new plant growth from dead Sprangletop plants one week after herbicide treatment. We also observed that the Mexican Sprangletop did not die off three weeks after herbicide application (Figure 2, right). In general, although there are some reactions of the Mexican Sprangletop to Clethodim, the plant was able to recover from herbicide applications, unlike the watergrass that showed complete susceptibility and total death from the same herbicide application with a same dose.

Figure 2: Appearances of the Mexican Sprangletop 1 week (Left), 2 Week (middle), and 3 weeks (right) after herbicide treatment

Barry Tickes, a weed specialist with the University of Arizona, confirms that once Mexican Sprangletop becomes established, it is very difficult to control selectively in alfalfa. While the presence of the weed in the later growth stages of alfalfa does not seem to affect yield, it may be a problem in the future if there are no targeted methods to control a weed that has resistance and survives the pre-emergent herbicide control methods. This issue may open up a dialogue for more research in searching for alternative methods of herbicide control or other integrated approaches to Mexican Sprangletop and similar weed species.

If you observe similar Mexican Sprangletop or other weeds resistance to herbicides, please inform the UCCE cooperative extension by sending email to obachie@ucanr.edu or calling our office at (442)265-7700.

UPDATED ALFALFA CROP WATER USE INFORMATION: AN ESTIMATION FOR SPRING AND SUMMER HARVEST CYCLES IN CALIFORNIA LOW DESERT

Ali Montazar, Irrigation & Water Mgmt Advisor, UCCE Imperial & Riverside County

Introduction. In the Imperial and Palo Verde Valleys, alfalfa accounts for about 28% of the crops grown and is the dominant water user due to its high acreage and long growing season. Therefore, an accurate estimate of alfalfa water use is essential for proper management of irrigation water, and to maximize the net benefits of alfalfa hay production in the low desert of California. Proper crop coefficient values (K_c) along with accurate potential ET (or ET_o which is well-watered grass crop water use) values can provide a robust cost-effective tool and accurate alfalfa crop water use (ET_c) estimates.

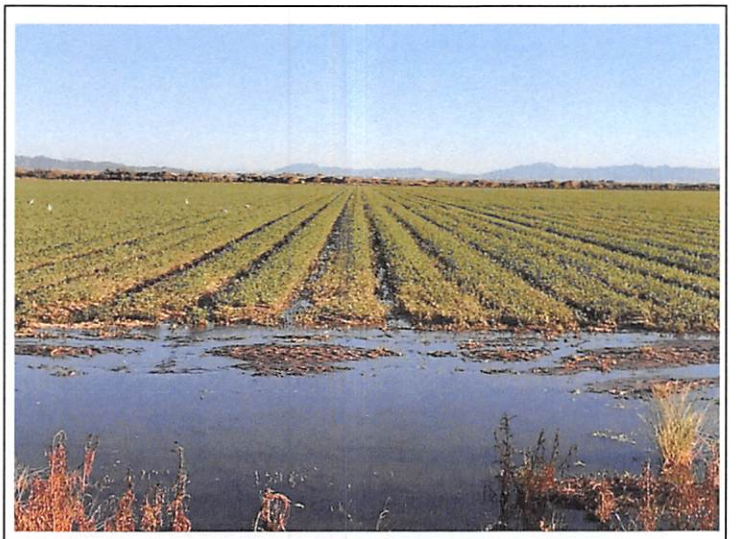

Fig. 1. Alfalfa field after irrigation (field A in the Palo Verde Valley under furrow irrigation).

Field measurements. The experiments were carried out in five commercial fields (Field A through Field E) in the Palo Verde and Imperial Valleys in a wide range of soil types (sandy loam, loam, and clay) and farming practices from March 2019 through October 2019. The experimental fields consist of three fields in check flood irrigation and two fields in furrow irrigation. All fields were first-year hay planted in October 2018. The results of measurements after the first annual harvest (about mid-March 2019) through the seventh annual harvest (about mid-October 2019) are included for each field.

Fig. 2. Fully automated surface renewal and eddy covariance ET station at the field C (Palo Verde).

The actual crop water use (actual crop ET or ET_a) was measured using the residual of energy balance method with a combination of surface renewal and eddy

covariance equipment (Fig. 2). The reference ET was derived from Spatial CIMIS (https://cimis.water.ca.gov). Spatial CIMIS combines remotely sensed satellite data with traditional CIMIS station data to produce more accurate maps of ET_o on a 2-km grid, which provides a better estimate of ET_o for the individual fields. The equation of $K_a=ET_a/ET_o$ was used to determine the actual crop coefficient (K_a) values of alfalfa.

Alfalfa crop water use. Variable daily alfalfa crop ET amounts were observed over the study period in each of the experimental fields (Fig. 3). These amounts could be affected by harvest schedule, day of year/month, irrigation and other management practices, and soil types. The daily alfalfa water use varied widely in each field over time, for instance in the field A, from an average of 0.08-inch after cutting in March to an average of 0.41-inch at full canopy crop in mid-July. An average daily alfalfa ET of 0.22-inch was observed in the experimental sites from March through October. Alfalfa consumes more water during June and July, while an average daily water consumption value of 0.29- inch was observed during the two-harvest cycles during this period.

The cumulative alfalfa crop ET over the study period (an average of 212 days) was determined to be 48.1, 47.3, 45.5, 46.7, and 44.8 inches at the fields A, B, C, D, and E, respectively (Table 1). Consequently, alfalfa crop water use is estimated at about 46.5 inches (3.9 ac-ft/ac) for this specific period (this is a preliminary estimation and will be verified using two more years experiment and will be extended to the entire year).

Table 1. Cumulative alfalfa actual ET over six harvest cycles (mid-March through mid-October)

Experimental Fields	A	B	C	D	E
Cumulative alfalfa ET (inch)	48.1	47.3	45.5	46.7	44.8

Excess irrigation can be considered beneficial water use for salinity management in the desert region, as the 3-inch annual rainfall of the region is insufficient to leach out soil salinity. In other words, 3.9 ac-ft/ac is just an estimation of alfalfa crop water use for this period. The amount of additional irrigation water to effectively drain salt from the crop root zone depends on the soil circumstances and level of salinity. The irrigation water that needs to be applied in an individual field depends on crop water requirements and the efficiency of the irrigation system. If we assume an average water distribution uniformity of 75% for a particular flood irrigated field, the approximate irrigation water needs per acre of this field (for this period) would be 5.2 ac-feet. Part of this excess irrigation water may be necessary for salinity management.

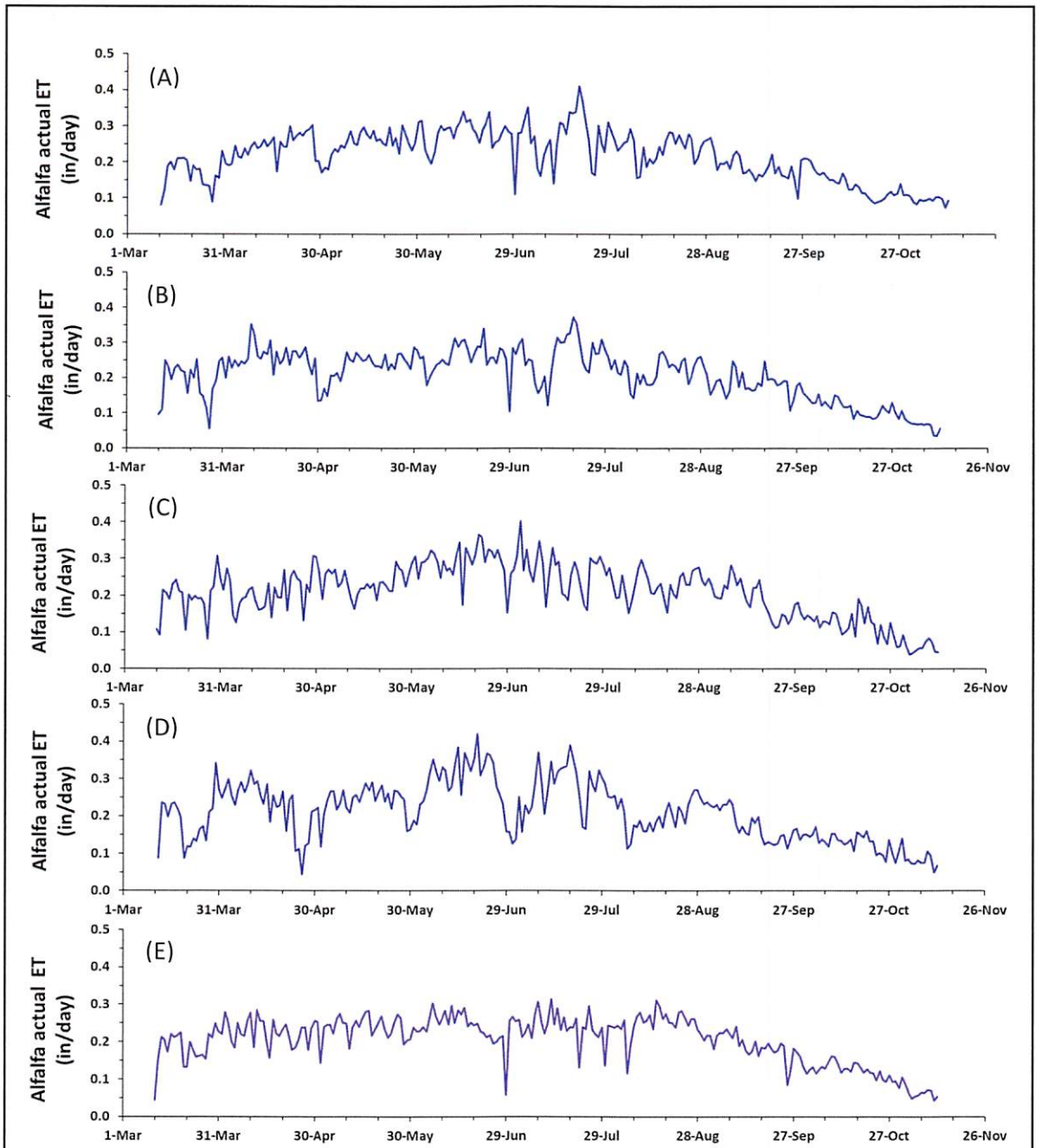

Figure 3. Trends of alfalfa actual ET over the six-harvesting cycle.

Alfalfa crop coefficient. Because of frequent harvesting events, alfalfa crop coefficient (K_a) value oscillates over the harvest cycles (Fig. 4). The crop coefficient value depends on the alfalfa stage of growth which is smallest in the initial stage just after each harvest and reaches to a maximum when the crop height was at mid stage and a full canopy coverage attained prior to the following harvest. Over each harvest period, alfalfa K_a ranges from about 0.5 after hay is cut, to 1.2 at full canopy. The crop values reflect local cultivation conditions in terms of climate, soil, and water and crop management. Alfalfa has also seasonality values for K_a, which

means lower values at the early and late season and higher values in mid-season. In this study, the highest alfalfa crop coefficient values were obtained for the April harvest cycle, followed by uniform average value for May, June, and July harvest cycles. The average value of K_a declined over the September and October harvest cycles.

My findings from five commercial field experiments indicated that the average crop coefficient values from the six-harvest cycles varied between 0.81 (lowest value at the field E) to 0.9 (highest value at the field A). A different hay quantity and quality is expected among these fields, knowing that crop yield production could be impacted by crop coefficient values and total crop water uses.

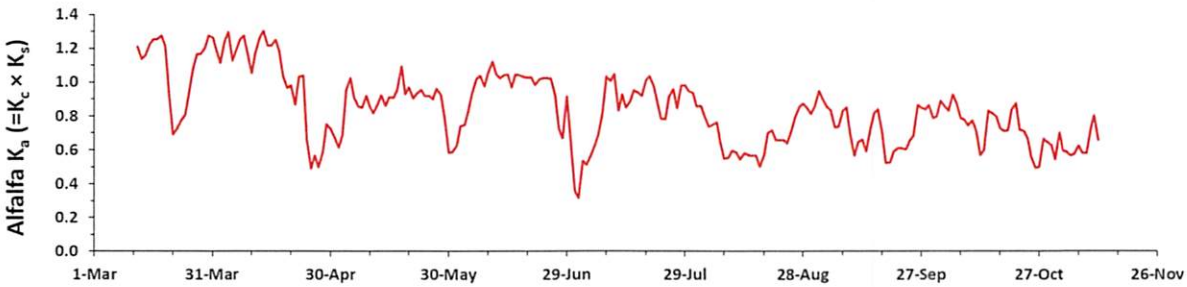

Figure 4. Trend of alfalfa K_a value over the six-harvesting cycle (Field A).

Additional Note: I have an ongoing large-scale irrigation management project on alfalfa. These projects involved work at several commercial fields and research plots at UC Desert Research and Extension Center (DREC), with various irrigation practices, soil and water related issues, and sensor-based irrigation managements. The findings from this project and any relevant information that may be developed from it will be published periodically. In the meantime, if anyone has any question or concern about soil and water related issues of alfalfa production in the desert region, please feel free to contact me at (442) 265-7707 or email me at amontazar@ucanr.edu.

IMPERIAL VALLEY REGIONAL OCCUPATIONAL PROGRAM (IVROP) – YOUTH AGRICULTURE SUMMIT

Kristian Salgado, Community Education Specialist 2 – Climate Smart Agriculture

On November 8, 2019 the University of California Cooperative Extension (UCCE) Imperial County participated in the 2019 Youth Agriculture Summit outreach and tabling event organized by the IVROP. The event took place at Holtville High School, Holtville, California. Attendees of the event were Future Farmers of America (FFA) students from seven school districts across the county who converged for one day educational activities. Following the morning session field tours, the students had a chance to mingle and visit informational booths represented by various organizations like the Farm Bureau, FarmSmart, local farm industries, and educational institutions, the UCCE-Imperial county.

At one of the booths, Jessie Liu, Staff Research Associate (SRA) for the Agronomy Program, represented UCCE-Imperial County and shared with the students the role and responsibilities of the local Cooperative Extension. She stated that "UCCE Imperial County supports local agriculture by conducting various applied agricultural research studies that help identify and solve issues for farmers, including pest management, crop and livestock production, irrigation and water management issues, among many others that have impacts on local crop production. The participating students who visited the UCCE booth were very interested in learning more about Entomology (various insect species collections) displayed at the both (see picture).

Figure 3: Jessie Liu, SRA taking to students (left) and display insect pest collections (right)

This is one of the successful events that UCCE Imperial County has participated in that supports public events and communicates the duties of the University. It was clear from the students' expressions that most of them have begun thinking about a career in agriculture as a potential career option where they can, through research, support future farmers and ranchers of Imperial County and beyond. UCCE Imperial County, not only works on farm issues, but also is known for its well-established 4-H Youth Development and the CalFresh Programs.

SECOND ROUND: STATE WATER EFFICIENCY AND ENHANCEMENT PROGRAM (SWEEP) WORKSHOP

Kristian Salgado, Community Education Specialist 2 – Climate Smart Agriculture

On Wednesday, November 6 Imperial Valley Water (IVH20) and the University of California Cooperative Extension Imperial (UCCE) hosted a State Water Efficiency and Enhancement Program (SWEEP) workshop at the Farm Bureau located at 100 Broadway, El Centro, CA 92243. With a total of 18 attendees the workshop was an opportunity for potential applicants to get a detailed rundown of the SWEEP application process and ask questions. The SWEEP online application is often perceived as lengthy and includes multiple attachments that can take some time to complete. By hosting workshops during the solicitation period IVH20 and UCCE Imperial's goal as technical assistants is to remove some of those barriers and make it easier for farmers to successfully apply for these funds.

Figure 4: Kristian Salgado, Community Education Specialist, providing an overview of the SWEEP grant application.

During this SWEEP solicitation, CDFA will be dispersing approximately $7 million to California agricultural operations investing in irrigation systems that reduce greenhouse gas (GHG) emissions and save water. Agricultural operations can apply for a maximum grant award of $100,000 for a variety of projects that increase water savings by utilizing technologies, such as weather, soil, or plant-based sensors for irrigation scheduling, and conversion to micro/drip irrigation systems. In addition to water saving practices which may reduce GHG emissions, farmers can also apply for projects such as fuel conversions, improving energy efficiency, switching to low pressure irrigation systems, and variable frequency drives.

Figure 2: Ali Montazar, *UCCE Irrigation and Water Management Advisor, providing technical information needed to successful apply for the SWEEP grant.*

Agricultural operations in Imperial County interested in applying, or willing to learn more about the 2019 SWEEP gran,t can contact UCCE Irrigation and Water Management Advisor, Dr. Ali Montazar at amontazar@ucanr.edu or Community Education Specialist, Kristian Salgado at kmsalgado@ucanr.edu. For more information about the grant visit https://www.cdfa.ca.gov/oefi/sweep/

IMPERIAL VALLEY CIMIS REPORT AND UC WATER MANAGEMENT RESOURCES

Ali Montazar, Irrigation & Water Mgmt Advisor, UCCE Imperial & Riverside County

The reference evapotranspiration (ET_o) is derived from a well-watered grass field and may be obtained from the nearest CIMIS (California Irrigation Management Information System) station. CIMIS is a program unit in the Water Use and Efficiency Branch, California Department of Water Resources that manages a network of over 145 automated weather stations in California. The network was designed to assist irrigators in managing their water resources more efficiently. CIMIS ET data are a good guideline for planning irrigations as bottom line, while crop ET may be estimated by multiplying ET_o by a crop coefficient (K_c) which is specific for each crop.

There are three CIMIS stations in Imperial County include Calipatria (CIMIS #41), Seeley (CIMIS #68), and Meloland (CIMIS #87). Data from the CIMIS network are available at: http://www.cim is.water.ca.gov. Estimates of the average daily ET_o for the period of November 1 to January 31 for the Imperial Valley stations are presented in Table 1. These values were calculated using the long-term data of each station.

Table 1. Estimates of average daily potential evapotranspiration (ET_o) in inch per day

Station	December		January		February	
	1-15	16-31	1-15	16-31	1-15	16-28
Calipatria	0.09	0.09	0.09	0.10	0.12	0.13
El Centro (Seeley)	0.10	0.09	0.10	0.11	0.13	0.15
Holtville (Meloland)	0.09	0.08	0.09	0.10	0.12	0.14

For more information about ET and crop coefficients, feel free to contact the UC Imperial County Cooperative Extension office (442-265-7700). You can also find the latest research-based advice and California water & drought management information/resources through link below:
http://ciwr.ucanr.edu/.