Imperial County Agricultural Briefs

University of California
Agriculture and Natural Resources

Features from your Advisors

March 2020 (Volume 23 Issue 3)

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SUBSURFACE DRIP IRRIGATION IN THE DESERT: WHAT WE LEARNED SO FAR

Ali Montazar, Irrigation & Water Mgmt Advisor, UCCE Imperial and Riverside Counties

Introduction. One on-farm water conservation strategy to enhance land and water productivity in the desert region is improvement in water system delivery technologies such as utilizing subsurface drip and overhead linear move irrigation systems. Drip irrigation has revolutionized crop production systems in western states of the US by increasing yields and water productivity in many crops. In this article, I briefly present some results from my conducted and ongoing studies in the desert region to assess the viability of subsurface drip irrigation (SDI) in alfalfa, spinach, and sugar beets. Yield quality and quantity, water used, water productivity, and plant disease management as assessment indicators are compared between SDI and most common irrigation practices in different crop commodity.

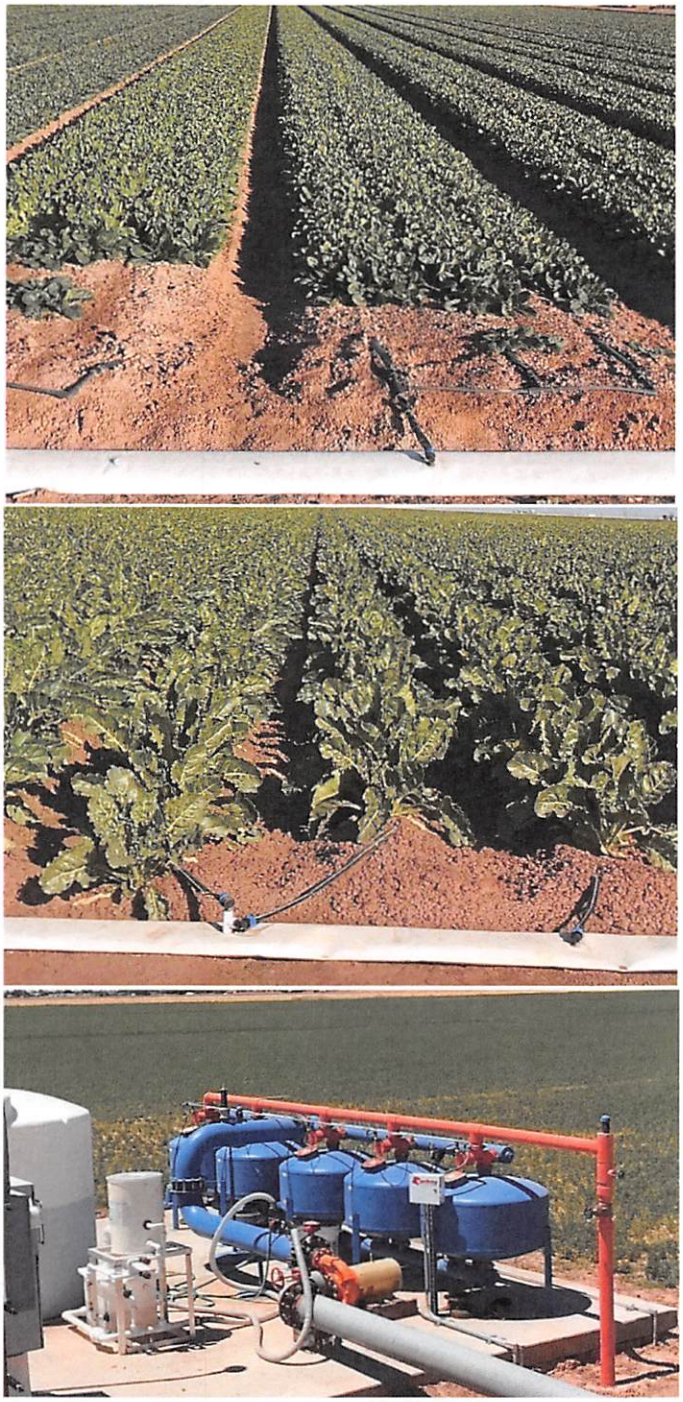


Fig. 1. Experimental spinach field (Winterhaven), sugar beet field (Westmorland), and alfalfa hay field (Palo Verde) under subsurface drip irrigation.

Methods and Materials. This study, using a combination of several experiments, were conducted in alfalfa, spinach, and sugar beets in UC Desert Research and Extension Center (DREC) located in Holtville, California and in commercial fields in the desert region over a three-year period (2017 through 2019).

Alfalfa crop. A survey was conducted to collect information from 10 grower fields where SDI has been already adopted for alfalfa crop. In addition to the information gathered from the surveyed farms, experiments were carried out at five commercial alfalfa fields (three fields under SDI and two fields under check flood irrigation) in the Imperial and Palo Verde Valleys, and a research trial established in October 2018 at DREC.

Spinach crop. The field experiments were carried out over two crop seasons (2018 and 2019) at the organic field of DREC. Five irrigation system treatments consisted of two drip depths (driplines on the soil surface and driplines at the 1.5-in depth), two dripline spacings (three driplines on an 80-in bed and four driplines on an 80-in bed), and sprinkler irrigation (80-in bed). True 6-6-2 organic fertilizer and True 4-3-1 organic liquid fertilizer were applied as pre-plant and supplementary fertilizer injected into the irrigation system, respectively. In addition, a survey and experiment were conducted in conventional bunched spinach grower fields in Winterhaven.

Sugar beet crop. The field experiments were conducted at four commercial sugar beet fields (two fields under SDI and two under furrow irrigation) in the Imperial Valley over two growing seasons (2017-2018 and 2018-2019). The dominant soil types were clay loam at all the experimental fields.

Results.

Yield and water productivity improvement at alfalfa. It is quite likely that yields may improve utilizing SDI versus conventional flood irrigation. Growers reported an average of 25% (2.9ton ac^{-1}) increase in alfalfa hay yields over their check-flood fields (Fig. 2). At the UC DREC's research trial, we observed 14.6ton ac^{-1} in the growing season of 2018-2019. Water productivity (WP) was determined using dry matter yields and actual crop water use values over cutting cycles of this period (Table 1). An average WP of 2.22 ton $(ac\text{-}ft.)^{-1}$ and 2.7 ton $(ac\text{-}ft.)^{-1}$ was obtained for the alfalfa field under drip and check flood irrigation, respectively. Consequently, using SDI enhanced approximately 21.6% the WP of alfalfa fields compared with flood irrigation.

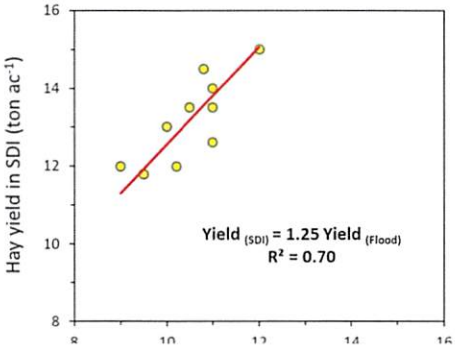


Fig. 2. Yields reported by growers in SDI vs. check flood fields.

Table 1. Water productivity values of the alfalfa experimental fields over a 365-day period.

	Flood-1	Flood-2	SDI-1	SDI-2	SDI-3	SDI-4
Water productivity (ton $(ac\text{-}ft.)^{-1}$)	2.28	2.16	2.52	2.76	2.64	2.88

Challenges of using SDI at alfalfa. Salinity may be a key limitation for SDI systems in the desert region but can generally be managed with an integrated irrigation system. Buildup of soil saline conditions could occur between driplines and above driplines (no leaching occurs above the buried drip lines resulting in an accumulation of salt near the soil surface). The soil salinity measurements conducted at five different locations of fields SDI-2, SDI-3, SDI-4, and Flood-1in late October 2019, (12 months after planting and about 8 months after switching to buried drip) showed that the soil electrical conductivity (EC_e) of SDI fields were averagely 2.5 times higher than the EC_e value of flood irrigated field (the top 12-in depth). The average EC_e of soil was 3.3 dS m^{-1} at the SDI fields. If we don't leach the salt built up at these SDI fields, we could observe yield loss due to soil salinity issue happening sometimes in the middle of second year hay. Integrating sprinkler or flood irrigation in this fields (late fall 2019 or early 2020) is highly recommended to make sure that the growing season will be started with a non-salt affected soil.

Maintenance and gopher strikes are among the major challenges that for some areas could hamper the use of SDI in alfalfa. Some growers have 'walked away' from large investments due to rodent infestations. Extensive rodent infestation and lack of timely maintenance may bring the system to the point that abandonment should be considered if serious rodent issues exists. Gopher fence, setting traps, burrow fumigation, and continual monitoring and removal need to be implemented as effective solutions. In the desert region, integrating SDI and flood irrigation at the early season may have other benefits such as leaching salt and refilling soil profile. There are growers in the desert who use semi-solid set sprinkler system for this task. Growers utilize regular scouting to monitor gopher damage and leaks. Normally, a continuous monitoring by irrigation crew needs to be conducted after each irrigation event.

Fig. 3. A gopher trapped in an alfalfa SDI field in Holtville. Picture was provided by the grower.

Spinach downy mildew management though SDI. The mean downy mildew incidence in plots irrigated with sprinklers following emergence was approximately 4 to 5 times higher than treatments irrigated with drip following emergence. The likely mechanism causing this effect is a reduction under drip irrigation of leaf wetness, which is critical for infection and sporulation by the downy mildew pathogen. At a period of 12-day, the results revealed that sprinkler irrigated crop canopies remained wet for 24.3 % longer during this period than the crop canopy irrigated with drip treatment.

Yield evaluation for spinach in drip. A 5% lower germination rate was observed for the organic baby spinach treatment germinated by drip compared with the spinach treatment germinated by sprinkler. We might need to apply 5% more seeds for a better germination rate in buried drip system. At these trials, a 7-9% lower fresh

yield was observed in the drip treatments than sprinkler treatment. The yield difference may have likely been caused by suboptimal irrigation and nutrient management conditions of the drip treatments. Since drip irrigation was tested for the first time for organic baby spinach in this study, subsequent trials need to plan for irrigation and nutrient improvements. These practices had to be adjusted in real time as the study progressed. Since the findings showed that the leaf density of drip irrigation treatments was behind compared to sprinkler treatment, scheduling different harvest time for the drip treatments may compensate some of the yield reductions against the sprinkler treatment.

I am currently working with a progressive grower in Winterhaven who adopted SDI in conventional bunched spinach (bunched spinach is normally planted in a lower density with two weeks longer growing season than baby spinach) from several years ago. This grower reported several benefits of buried drip in spinach including the same germination rate and yield production as solid-set sprinkler, controlling downy mildew, no need for water treatment for food safety risks, and less fertilizer and energy costs than sprinkler. While we observed promises of using SDI in bunched conventional spinach, we still have struggles to optimize nitrogen management at baby organic spinach under subsurface drip irrigation.

Sugar beets yield improvement using drip. While a significant yield increase of 21% was observed for the sugar beet field utilized SDI in the 2017-2018 season, no significant yield increase was observed in the 2018-2019 season (Fig. 4). It should be noted that yield was nearly at highest potential level for sugar beet in the region in the 2018-2019 season for both fields. No significant impact was found on yield quality indicators, sugar content and sugar purity, as a result of using SDI (Table 2). In both seasons, the grower was able to conserve water at the drip fields (averagely 1.5 ac-ft./ac less applied water than the furrow irrigated fields).

A higher above ground biomass at the SDI fields was observed that could be due to a better N uptake rate, resulting in a higher seasonal crop water use. Less N leaching and higher efficiency of crop nitrogen use is one of the most important advantages of SDI in sugar beets, and accordingly lower nitrogen fertilizer application rate is recommended in sugar beet fields under drip. A significant root rot reduction (2-3 times less than furrow irrigation) was observed at the SDI fields that could be considered as another advantage of using drip at sugar beets (Table 2).

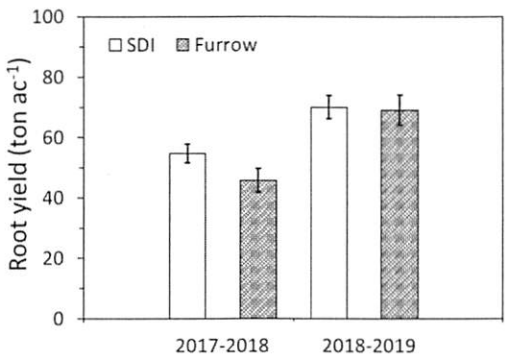


Fig. 4. Sugar beet yields comparison between buried drip and furrow irrigated fields over two crop seasons.

Table 2. Sugar beet yield quality at the experiemental fields.

Experimental field	Crop season	Sugar content (%)	Sugar purity (%)	Root rot (%)
Drip	2017-2018	16.24±0.31	86.46±0.57	0.31±0.15
Furrow	2017-2018	16.72±0.27	87.63±0.44	1.14±0.70
Drip	2018-2019	15.82±0.13	87.81±0.87	0.39±0.23
Furrow	2018-2019	14.93±0.24	88.21±0.22	0.86±0.41

Conclusions.

1. SDI clearly has the potential to improve alfalfa yields, conserve water, and improve water productivity in the low desert region. Salinity may be a key limitation for SDI systems, while it can be managed through an integrated (supplemented by flood or sprinkler) irrigation system and more frequent irrigation scheduling of SDI. At least two limitations of SDI in alfalfa production include cost of installation and management of rodent damage. However, the advantages of SDI may offset these limitations.

2. SDI did not result in increased yields of spinach compared with sprinkler irrigation, but clearly reduced the incidence of downy mildew, which causes significant yield losses. Further work is needed to comprehensively evaluate the viability of utilizing drip, specifically optimal system design, the impacts of nitrogen management practices in various soil types, and strategies to improve germination rate.

3. SDI demonstrated the potential to enhance sugar beet yield and total extractable sugar, conserve water, and enhance the efficiency of water and nitrogen use at sugar beets. Even though these results suggested economic and environmental promises of SDI for sugar beet production, further work is needed to better understand the impacts of crop management practices, strategies on the feasibility of SDI to maintain sugar beet productivity, economics and environmental sustainability.

VEGETABLE DISEASE UPDATE: DISEASE ACTIVITY CONTINUES

Alex Putman, Assistant Cooperative Extension Specialist, UC Riverside

- Onion downy mildew was reported in a commercial field in Imperial County in late February
- Spinach downy mildew remains active.
- Lettuce dieback has been observed or reported numerous times. A new virus has recently been associated with this disease. Contact me if you have dieback symptoms.
- Got bacterial diseases of onion, or have had in the past? Please contact me. See flyer below.
- **RAIN IS POSSIBLE IN THE FORECAST**. This weather event elevates disease risk.

Notable Recent Disease Activity

Onion – downy mildew: was reported in a commercial dehydrated onion field in Imperial County in the third week of February. This report comes about a week after the weather event on February 10 that brought cool temperatures, humidity, and some rain to the Imperial Valley. In general, temperatures and leaf wetness have been favorable for downy mildew since mid-January, which is when we set up our weather stations in our downy mildew research plots in Brawley and Holtville. The following temperatures are favorable and refer to values measured within the plant canopy. For production of new spores from an existing infection, a daytime high under 80°F is optimal. For a new infection, temperatures less than 70°F in the few hours after sunrise are optimal. However, disease can occur with temperatures above these values. For leaf wetness, there have only been a few days in February that did not have extended periods of continuous leaf wetness.

In contrast, relative humidity values in our plots have generally not reached the 94-95% threshold (measured within the plant canopy) for production of new spores. However, it is possible the threshold could be crossed in commercial fields with more dense canopies. In our trials, the temperature in the canopy is about 2-4°F cooler during the night and 1-2°F warmer during the day when compared to the temperature measured on a weather station 6 feet above the ground. Relative humidity values are often 10 to 20 percentage points higher in the canopy compared to the station.

In summary, given the presence of active disease in the area and the favorability or near favorability of environmental conditions for downy mildew, growers and PCAs should be vigilant for small pockets of active disease that could explode due to the weather event next week.

Spinach – downy mildew: has been active in the low desert in Imperial and Riverside Counties. In a spinach trial at the UC ANR Desert Research and Extension Center in Holtville, the disease became quite severe in the

past couple of weeks. However, this trial is not being treated and was planted with cultivar Viroflay, which is not resistant to any race of the downy mildew pathogen.

Lettuce – dieback (viral): numerous cases of suspected lettuce dieback have been observed or reported this winter in Southern California and in Arizona. Symptoms of lettuce dieback include stunting, yellowing of oldest leaves, and spots of necrosis on the older leaves that can coalesce into larger areas of dead tissue. Lettuce dieback has been known to be caused by one of two viruses: *tomato bushy stunt virus* or *Moroccan pepper virus*. These viruses have no known insect or other vector, and the disease is typically associated with areas of poor drainage, areas that have been flooded, and the movement of water. Romaine cultivars are most susceptible, in addition to some leaf types, whereas most commercial head lettuce cultivars are resistant due to the *Tvr1* resistance gene. However, in the past few years many samples with symptoms characteristic of lettuce dieback were found to not contain *tomato bushy stunt virus* or *Moroccan pepper virus*. Instead, a potentially new virus was found to be associated with these disease samples. Concerningly, there are questions about the effectiveness of the *Tvr1* resistance gene in head type cultivars against this new virus.

Please contact me (aiputman@ucr.edu) if you have suspected lettuce dieback symptoms. I can collect and send samples to Bill Wintermantel, a researcher with USDA-ARS in Salinas who discovered this potential new virus. Any samples would be very helpful in identifying, characterizing, and understanding this disease and the new virus that potentially causes it.

Weather Discussion – RAIN IN THE FORECAST

February was not too eventful in the low desert of California except for a couple events that brought either cold temperatures on February 3-5 or cool temperatures and rain on February 10. The forecast indicates warm temperatures for the week ending Friday March 6 and then turning slightly milder and breezy over the weekend. Then, there is a significant chance of rain over the course of several days beginning Monday night (March 9). This weather system will likely bring cool temperatures, cloudy skies, and elevated humidity, and in turn, elevated disease risk. Preventative applications made ahead of this event would likely be beneficial.

We Are Looking for Disease Reports and Samples

We would like to hear from you which vegetable diseases you are seeing to guide our extension efforts. Also, we are looking for samples of lettuce Fusarium wilt, lettuce Sclerotinia drop, onion downy mildew, lettuce downy mildew, or onion Stemphylium leaf blight. Contact me at 951-827-4212 or aiputman@ucr.edu.

Got bacterial diseases of onion?
Help us "**STOP THE ROT**"

WHO We Are: A team of researchers from across the country, working on tools to combat bacterial diseases of onions

WHAT We Are Looking For: Samples of onion plants affected by any of the bacteria known or suspected to cause diseases in onions

HOW You Can Help: If you are a grower and you have a suspected bacterial disease in your onion crop, contact us to survey your field and/or sample the bulbs in storage

California contacts:

Brenna Aegerter, UCCE San Joaquin (209-953-6114, bjaegerter@ucanr.edu)
Jaspreet Sidhu, UCCE Kern (661-868-6222, jaksidhu@ucanr.edu)
Alex Putman, UC Riverside (951-827-4212, aiputman@ucr.edu)
Rob Wilson, UCCE Tulelake (530-667-2719, rgwilson@ucanr.edu)

Nature's NINJA

Nature's Ninja graphic courtesy of the National Onion Association

Project Director:
Lindsey du Toit, Washington State Univ.
Regional lead for California:
Brenna Aegerter, Univ. of Calif. Coop. Ext.

USDA United States Department of Agriculture National Institute of Food and Agriculture

'Stop the Rot' Onion Bacterial Project 2019-51181-30013

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 dry and liquid supplements on the productivity of calf-fed Holstein steers.

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
1050 E Holton Rd
Holtville, CA 92250
442-265-7712
bclatack@ucanr.edu
http://ceimperial.ucanr.edu/Livestock/

Effect of dry and liquid mixing supplements on productivity of calf-fed Holsteins in the feedlot

Brooke Latack
Livestock Advisor

Introduction

Supplements for feedlot diets are typically brought in from different industries and combined during feed mixing. These may be in dry or liquid form. Compared to dry form, liquid supplements may decrease dust while mixing feed and decrease sorting by animals at the feed bunk. Comparison values for the liquid vs dry supplements have not been previously reported for batch mixing. The objective of this study was to compare the effect of liquid and dry supplements on cattle performance and carcass characteristics.

Methods

160 calf-fed Holstein steers (473 kg) housed at UC DREC for a 112 d feeding period. Steers were fed a steam-flaked corn-based diet with different supplementation methods (Table 1). Treatments were:

1. All dry supplements
2. All liquid supplements in cane molasses
3. All liquid supplements in cane molasses minus monensin
4. All liquid supplements with ultraferm replacing 41% (DM basis) of cane molasses solids

Results and Implications

Treatment effects are shown in Table 2. All supplementation methods had similar ADG, DMI, feed efficiency, and estimated dietary NE. Supplementation with ultraferm tended to decrease carcass fat thickness.

Overall, the results demonstrate that supplementation through liquid can be as effective as dry supplementation during batch mixing. Ionophores stored in liquid can be as effective as dry supplementation up to at least 112 d. Ultimately, the choice of supplementation method with is a function of the feed mill capabilities.

Table 1.
Ingredient composition of experiment diet

Ingredient Composition Item (%DM)	All dry supp	All liquid supp	All liquid supp minus mon	Liquid supp plus ultraferm
Sudan hay	10	10	10	10
Tallow	2.2	2.2	2.2	2.2
Distillers grains	18	18	18	18
Steam flaked corn	61.8	61.8	61.8	61.8
Cane molasses	5.68	5.45	5.46	3.55
Ultraferm	0	0	0	2.49
Urea	0.5	0.41	0.41	0
Ammonium polyphosphate	0	0.14	0.14	0.14
Ammonium hydroxide	0	0.035	0.035	0.042
Clay	0	0.16	0.16	0.17
Cobalt sulfate	0.002	0.002	0.001	0.001
Copper sulfate	0.003	0.004	0.004	0.004
Ethylenediamine dihydriodide	0	0.0001	0.0001	0.0001
Iron sulfate	0.011	0.021	0.021	0.022
Limestone	1.5	1.35	1.35	1.31
Dolomite	0	0.067	0.066	0.033
Manganese sulfate	0.003	0.003	0.0034	0.037
Potassium iodide	0.0002	0	0	0
Rumensin	0.018	0.018	0.018	0.018
Salt	0.28	0.32	0.32	0.19
Zinc oxide	0.003	0	0	0
Zinc sulfate	0	0.0077	0.0077	0.0077

Table 2.
Growth performance treatment effects

Item	All dry supp	All liquid supp	All liquid supp minus mon	All liquid supp plus ultraferm
Weight, kg				
Initial	473.4	472.2	474.5	473.0
Final	622.4	620.5	623.4	620.4
ADG, kg	1.33	1.32	1.33	1.32
DMI, kg/d	9.65	9.54	9.8	9.37
ADG/DMI	0.138	0.139	0.135	0.140
Dietary NE, Mcal/kg				
Maintenance	2.29	2.30	2.26	2.33
Gain	1.60	1.61	1.57	1.64

References

Salinas-Chavira, J., Montano, M.F., Navarrete, J.D., Raymundo, C., Torrentera, N.G., and Zinn, R. A. Influence of mixing supplements (dry or liquid) with monensin or soluble protein on the feeding value of finishing diets for feedlot cattle. 2018. Journal of Applied Animal Research, 46:1, 734-739.

UC CE | UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources | Cooperative Extension

UCCE Youth, Family, and Community Program

UC Cooperative Extension Seminar on Health and Stress in Agriculture Workers

Nutrition and Health in The Farm Worker Population

Susana Matias, PhD

Nutritional Sciences and Toxicology

University of California Berkeley

Dr. Matias will present findings from a population-based study with Latino farm workers in Fresno County and an intervention trial in Salinas and Oxnard. These findings elucidate the health risks faced by this population, as well as promising strategies to reach and support this medically underserved workforce.

Farm-Related Stress, Coping Skills, and Community Networks

Annie Keeney, PhD

Lecturer and Field Faculty

School of Social Work; San Diego State University

Dr. Keeney will present findings from a past study examining stress and coping strategies among Colorado Latino Dairy Workers and her current study on Imperial farm worker stress and community supports.

Discussion & Reflection

Yu Meng, PhD

Youth Family and Community Advisor

University of California, Cooperative Extension

Dr. Meng will faciliate a disscusion and reflection session after the presentations on opportunities in collaborating and addressing farm worker's health and stress.

SIGN UP TODAY!

Date
03-09-2020

Time
2-4 pm

Contact
Yu Meng

Youth, Family and Community Advisor

Sponsor
UCCE Imperial

Location
1050 E Holton Rd,

Holtville, CA, 92250

RSVP BY:
Email ucmeng@ucanr.edu

HEALTHY SOILS GRANT OPPORTUNITY WORKSHOPS

Cosponsored by
UCCE-Imperial County, UCANR, and
Imperial County Farm Bureau

The Healthy Soils Grant Funding Program provides financial assistance for the implementation of conservation management practices that improve soil health, sequester carbon and reduce greenhouse gas (GHG) emissions. Applications will be open for four months on a rolling bases online at https://www.cdfa.ca.gov/oefi/healthysoils/, and applicants are eligible to receive up to $100,000 in grant funding.

Imperial County Farm Bureau, UCCE-Imperial County, and UCANR will be hosting a series of workshops to provide information and assistance to growers who are interested in applying. Potential applicants are encouraged to attend at least one workshop.

Tuesday, February 25, 2020, 12:00 pm – 2:00 pm
UC Cooperative Extension
1050 East Holton Road, Holtville, CA 92250
(This workshop will include a brief field tour of UCCE's farm that is focusing on the best fertilization/irrigation practices.)

Wednesday, March 11, 2020, 12:00 pm – 2:00 pm
Imperial Valley Conservation Research Center
4151 US Hwy 86, Brawley, CA 92227

Wednesday, April 22, 2020, 12:00 pm – 2:00 pm
Imperial County Farm Bureau
1000 Broadway, El Centro, CA 92243

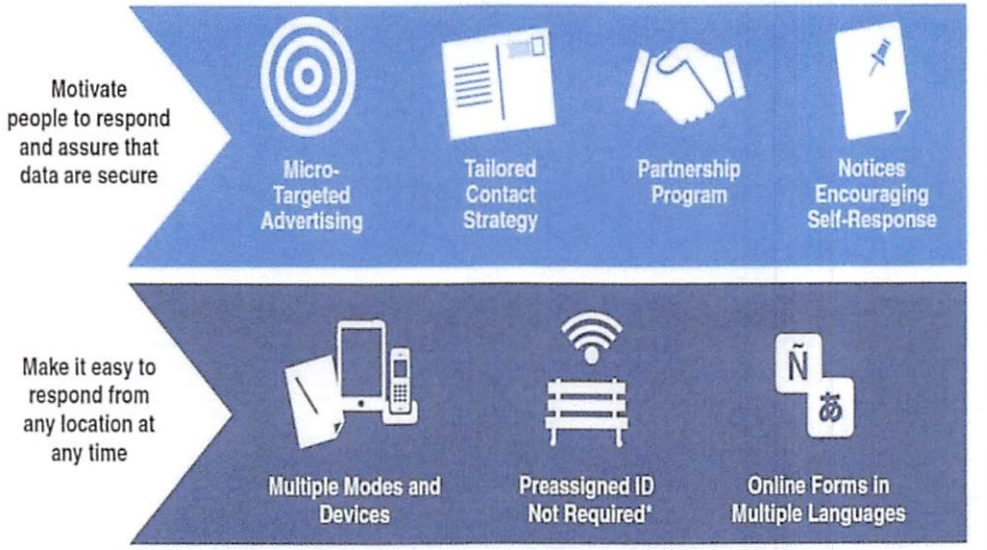
To register, send name, telephone and email address to rachel@icfb.net

For questions about the program please contact:
Brea Mohamed, 760-352-3831, email: brea@icfb.net or
Oli Bachie, 442-265-7700, email: obachie@ucanr.edu

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

2020 Will be easier than ever

Internet – Phone – Paper Form



March 12th-20th the first date to internet self response

- **March 12-20**: An invitation to respond online to the 2020 Census. (Some households will also receive paper questionnaires.)
- **March 16-24:** A reminder letter.

If you haven't responded yet:

- **March 26-April 3**: A reminder postcard
- **April 8-16**: A reminder letter and paper questionnaire
- **April 20-27**: A final reminder postcard before we follow up in person

APPENDIX A:

50 WAYS CENSUS DATA ARE USED

- Decision making at all levels of government.
- Drawing federal, state, and local legislative districts.
- Attracting new businesses to state and local areas.
- Distributing over $675 billion annually in federal funds and even more in state funds.
- Forecasting future transportation needs for all segments of the population.
- Planning for hospitals, nursing homes, clinics, and the location of other health services.
- Forecasting future housing needs for all segments of the population.
- Directing funds for services for people in poverty.
- Designing public safety strategies.
- Development of rural areas.
- Analyzing local trends.
- Estimating the number of people displaced by natural disasters.
- Developing assistance programs for American Indians and Alaska Natives.
- Creating maps to speed emergency services to households in need of assistance.
- Delivering goods and services to local markets.
- Designing facilities for people with disabilities, the elderly, or children.
- Planning future government services.
- Planning investments and evaluating financial risk.
- Publishing economic and statistical reports about the United States and its people.
- Facilitating scientific research.
- Developing "intelligent" maps for government and business.
- Providing proof of age, relationship, or residence certificates provided by the Census Bureau.
- Distributing medical research.
- Reapportioning seats in the House of Representatives.
- Planning and researching for media as background for news stories.
- Drawing school district boundaries.
- Planning budgets for government at all levels.
- Spotting trends in the economic well-being of the nation.
- Planning for public transportation services.
- Planning health and educational services for people with disabilities.
- Establishing fair market rents and enforcing fair lending practices.
- Directing services to children and adults with limited English proficiency.
- Planning urban land use.
- Planning outreach strategies.
- Understanding labor supply.
- Assessing the potential for spread of communicable diseases.
- Making business decisions.
- Understanding consumer needs.
- Planning for faith-based organizations.
- Locating factory sites and distribution centers.
- Distributing catalogs and developing direct mail pieces.
- Setting a standard for creating both public and private sector surveys.
- Evaluating programs in different geographic areas.
- Providing genealogical research.
- Planning for school projects.
- Developing adult education programs.
- Researching historical subject areas.
- Determining areas eligible for housing assistance and rehabilitation loans.

Save the Date...

Agronomic Crops & Irrigation Water Management Field Day

Presented by
University of California
Cooperative Extension
Imperial County

*** Trial Updates * Industry Updates * Irrigation Mgmt. & Practices ***

Schedule:

6:30am - 7:00am Registration
7:00am - 8:50am Field Demonstrations
9:00am - 12:00pm Indoor Workshop
12:00pm - 12:20pm Industry Updates

* Light refreshments & lunch provided

NO COST TO ATTEND!!!

More Information to follow regarding the event; topics, agenda, CEU's, etc.

TUESDAY, APRIL 14, 2020

University of California Desert Research Extension Center
(1004 E. Holton Road, Holtville, CA 92250)

For more information regarding event you can contact Ali Montazar, amontazar@ucanr.edu or the office at (442) 265-7700

PRE-REGISTER
to Andrea
aiestrada@ucanr.edu

Soil and Water Management Training Workshop in the Coachella Valley

When: Wednesday April 22, 2020 (12:00 PM to 16:00 PM)
Where: College of the Desert, Desert Mecca/Thermal Campus
61-120 Buchanan St., Thermal, CA

Registration: 11:30 AM to 12:30 PM
To pre-register for the workshop please send an email in advance to yfranco@cvrcd.com with full name of attendee(s).

Agenda

Time	Presentation Title/ Speaker
12:00 - 12:30	Lunch
12:30 - 12:35	Welcome and Introduction - *Ali Montazar, Irrigation and Water Management Advisor, UCCE Imperial County, Holtville, CA*
12:35 - 12:45	Coachella Valley RCD Programs - *Yvonne Franco, District Manager of Coachella Valley Resource Conservation District, Indio, CA*
12:45 - 13:25	Effective Irrigation Water Management: Tools and Strategies - *Ali Montazar, Irrigation and Water Management Advisor, UCCE Imperial County, Holtville, CA*
13:25 - 14:05	Assessing and Managing Salinity - *Michael Cahn, Irrigation and Water Resources Advisor, UCCE Monterey County, Salinas, CA*
Break (14:05– 14:20)	
14:20 - 14:35	NRCS programs and Grants - *Allen Curry, NRCS District Conservationist, Indio, CA*
14:35 - 15:15	Crop Nutrient Management: Tools and Approaches - *Daniel Geisseler, UCCE Specialist in Nutrient Management, UC Davis, Davis, CA*
15:15 – 15:55	Irrigation System Efficiency/Uniformity: Evaluation and Recommendations - *Michael Cahn, Irrigation and Water Resources Advisor, UCCE Monterey County, Salinas, CA*
15:55 - 16:00	Wrap up/evaluation

Program Sponsors: University of California Cooperative Extension – Imperial County, Coachella Valley Resource Conservation District, Coachella Valley Water District

For additional information on the workshop, please contact Ali Montazar, amontazar@ucanr.edu, or Yvonne Franco, yfranco@cvrcd.com, or call us at (442) 265-7707

Continuing Education Unit Approval: CCA (3 hrs.)

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

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IMPERIAL VALLEY CIMIS REPORT AND UC WATER MANAGEMENT RESOURCES

Ali Montazar, Irrigation and Water Management Advisor, UCCE Imperial and Riverside Counties

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.cimis.water.ca.gov/. Estimates of the average daily ET_o for the period of March 1st to May 31st 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	March		April		May	
	1-15	16-31	1-15	16-30	1-15	16-31
Calipatria	0.16	0.19	0.22	0.25	0.27	0.29
El Centro (Seeley)	0.19	0.22	0.24	0.28	0.29	0.31
Holtville (Meloland)	0.17	0.21	0.23	0.27	0.29	0.31

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/.