Imperial County Agricultural Briefs

University of California
Agriculture and Natural Resources

Features from your Advisors

February 2019 (Volume 22 Issue 2)

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TOP ADMINISTRATORS VISIT IMPERIAL COUNTY

Two top administrators with the University of California, Division of Agriculture and Natural Resources met with staff, stakeholders and County officials during a two-day visit to Imperial County recently. Dr. Wendy Powers, associate vice president and Dr. Mark Lagrimini, vice provost of RECS and UCCE, talked with staff from both UC Cooperative Extension and the Desert Research & Extension Center on a number of important issues. Powers spoke about budget cuts and a delay in hiring advisors. She said there is a need to collaborate with both public and private sector entities to increase funding for research and the hiring of new advisors. They were also briefed about UCCE and DREC projects, accomplishments and barriers by the directors, county advisors and CES representatives.

Following that meeting, Powers and Lagrimini were given a tour of the campus and research fields, the Farm Smart gardens, water plant, feedlot, organic field, various research plots, water reservoir, laboratory and the olive field.

Powers and Lagrimini then met with the county BOS, Ag commissioner, and UCCE and DREC directors and briefly discussed about position partnerships. They also met with farmers, ranchers, educators, county officials, and other county dignitaries and stakeholders over lunch. Lagrimini gave a short presentation on "UCCE & the REC Systems: "Looking Forward." He talked about the intense interest in growing industrial hemp and told the crowd that county director Oli Bachie could be the first person in the low desert to conduct research on it.

Supervisor Ray Castillo discussed the ongoing partnership the County already has with UC Cooperative Extension. Castillo said, "It is important to note that the State Legislature and the University of California recognized the important role the Imperial Valley would play in the agricultural economy of California back in 1912, when this facility was established. They must have thought that the unique climate, soil and water resources of this region might be worthy of some future study-and it turns out they were onto something." He added, "two advisors at the University of California Cooperative Extension-Imperial County have applied for and received research grant funding totaling almost $400,000 to date and we will continue to explore new ways to strengthen our partnership in the future."

After lunch, Irrigation and Water Management advisor, Ali Montazar led neighborhood and growers' field tours. They visited Jack Vessey Farms, Scott Howington's organic farms, and Ronnie Leimgruber's vegetable and alfalfa farms. Leimgruber is a climate smart farm awardee. They also went to see some drainage canals and the Alamo River.

Powers and Lagrimini were able to talk with the growers about the benefits of research and their challenges in irrigation and climate smart farming. The growers provided detailed information on organic farming and harvest issues as well. They also remarked that UCCE and local growers work closely together to enhance productivity.

Livestock advisor Brooke Latack led the second day's tour. Powers and Lagrimini toured a feedlot, El Toro's hay press, saw sheep grazing on local fields and a solar field in Calexico. They drove by the border, several canals and adjacent farms. They also saw the Hydro turbine at drop 4, the All-American canal along with Imperial Irrigation District infrastructures.

At the end of the tour, they met back at DREC for an informal lunch and the opportunity for staff to voice their concerns and suggestions.

PRODUCTION OF ORGANIC BABY SPINACH USING DRIP IRRIGATION IN THE LOW DESERT

Ali Montazar, Irrigation & Water Mgmt Advisor, UCCE Imperial and Riverside Counties
Michael Cahn, Irrigation & Water Resources Advisor, UCCE Monterey County
Alexander Putman, Assistant Cooperative Extension Specialist, UC Riverside

Introduction

Most conventional and organic spinach fields are irrigated by solid-set or hand-move sprinklers. However, overhead irrigation could contribute to the speed and severity of downy mildew epidemics within a field when other conditions such as temperature are favorable. Downy mildew on spinach is a widespread and very destructive disease in California. It is the most important disease in spinach production, in which crop losses can be significant in all areas where spinach is produced including Imperial and Salinas Valleys. In the low desert region, spinach downy mildew typically occurs between mid-December and the end of February. Downy mildew of spinach is caused by the obligate oomycete pathogen, *Peronospora effusa*. Although fungicides are available for the control of Downy mildew in conventional production systems, products with similar efficacy are not available for organic production. Therefore, additional strategies are needed to reduce disease pressure, including irrigation managements.

It is postulated that new irrigation management techniques and practices in spinach production may have a significant economic impact to the leafy greens industry through the control of downy mildew. In addition to reducing losses from plant pathogens, new irrigation practices could reduce risks to food safety (risks caused by overhead application of irrigation water). For example, adapting drip irrigation for high density spinach plantings could be a possible solution to reduce losses from downy mildew, improve crop productivity and quality, and improve crop water and fertilizer use efficiency.

Currently, no one uses drip irrigation for spinach production, and there is a lack of information on the viability of drip irrigation technology and water-nutrient management practices to produce spinach. This project aims to evaluate the viability of drip irrigation for spinach production and assess its impact on the management of spinach downy mildew.

Field Experiments

In the first crop season of the project, we investigated the viability of drip irrigation in organic spinach production in the Imperial Valley. Field experiments were conducted at the UC Desert Research and Extension Center (UC DREC, Figure 1). Land preparation started in late- September and untreated Viroflay spinach seeds were planted at a rate of 33 lbs. per acre on October 31st. Five irrigation system treatments, consisting of two drip depths (driplines on the soil surface and driplines at the 1.5-inch depth), two dripline spacings (three driplines on an 80-inch bed and four driplines on an 80-inch bed), and a sprinkler irrigation (80-inch bed) were tested. The emitter spacing on the dripline was 8-inch with nominal flow rate of 0.13 gph at 8 psi. There were three 80-inch beds for each drip replication; and each sprinkler replication had five beds to use two sprinkler laterals for irrigation (providing a better water distribution uniformity). Each bed was 200 feet long. The experiment was arranged in a randomized complete block design with four replications. All treatments were germinated by sprinklers.

Figure 1. A picture of the experimental field on December 3rd, 2018

We used True 6-6-2 (a homogeneous pelleted fertilizer from True Organic Products) at a rate of 80 lbs. of N per acre as pre-plant fertilizer, and True 4-1-3 (a liquid fertilizer from True Organic Products) as complementary fertilizer through injection into irrigation system. For the drip system, True 4-1-3 was applied three times after germination (by crop harvest) at a rate of 40, 30, and 40 lbs. of N per acre. This liquid fertilizer was applied at a rate of 50, 38, and 45 lbs. of N per acre for sprinkler irrigation system. Following crop ET and using soil moisture data, we irrigated spinach trials above crop water requirements to make sure there is no water stress during the entire crop season (our data shows in some point the trials were over irrigated by 20% of crop water requirements in early and mid- crop season).

Figure 2. Planting spinach seeds at the experimental field (special thanks to Vessey Farm for supporting this research with planting spinach seeds and sharing thoughts.)

Figure 2. Aerial picture taken by drone from the experimental field

Preliminary Results

Overall, results from utilizing drip irrigation for organic spinach were promising. Accordingly, we established another trial planted on January 24, 2019. It is worth to expand the treatment and conduct the trials at two different planting times (Fall and Winter) in order to have a better evaluation of plant growth, downy mildew disease, and irrigation and nutrient management conditions under drip irrigation. The preliminary observations show that drip irrigation has the potential for producing organic spinach. Figure 3 shows crop growth status in drip and sprinkler trials in two different dates.

Figure 3. Crop growth at the drip and sprinkler treatments in date of 11/18/2018 (three top pictures) and 12/9/2018 (three bottom pictures)

We observed an average of 6% less yield for the surface drip treatment compared to sub-surface drip at the 1.5-inch depth. The four driplines irrigation resulted in an average of 12% higher yield compared to the three driplines. The sprinkler treatment resulted in an average of 13% higher yields compared to the four driplines at the 1.5-inch depth drip treatment. However, we believe that this yield gap can be reduced through optimal drip

irrigation system design and better irrigation and nutrient management. Downy mildew was not observed during sequential disease scouting starting on Dec. 4. We plan to conduct a more comprehensive study and analysis and publish an updated article following our data of the second crop season (March 2019).

In late-November, we observed some differences among the trials in several of the beds. Figure 4 shows chlorosis (yellowing of leaf tissues) on the drip treatment that has three driplines of 1.5-inch depth between driplines. While we still need to do a thorough investigation on this issue, a possible reason for the chlorosis may be that N from the fertigation did not move enough between the driplines, resulting in N deficiency. We also noticed that the surface drip treatment is not a practical practice, because of the driplines that were blown away due to wind, particularly when the crop canopy is not fully developed. Furthermore, the surface drip might be problematic for growers since the drip line would need to be removed before harvest and would pose a food safety risk.

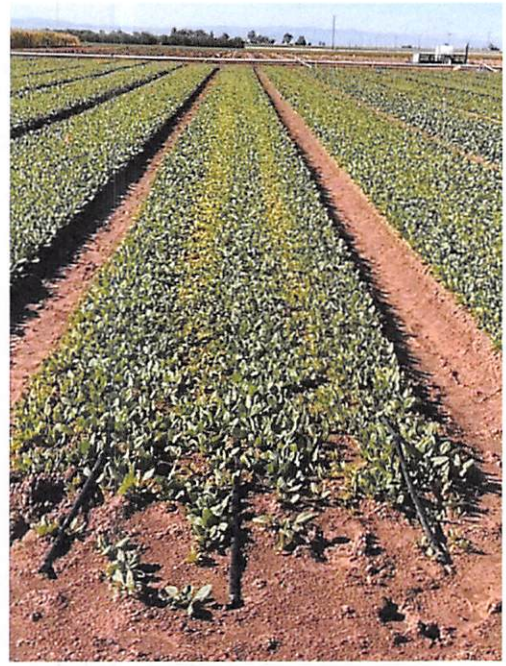

Figure 4. Leaves yellowing issue (one of the beds with three surface driplines, 12/9/2018)

Future Experiments

The project is planned to be conducted over a three-year time frame to fully understand the impact of drip irrigation technology and water and nitrogen management practices on organic spinach production in the Imperial (Year 1 and 2) and in Salinas Valley (Year 3) valley. During the second year of the project, we aim to investigate the viability of drip irrigation in organic spinach production in the Imperial Valley. We will eliminate the surface drip irrigation treatments for its inefficiency but will add two nitrogen levels to the drip-treatment trials. We will also evaluate drip irrigation for the whole crop season (germination and remainder of crop season). The preliminary results of our second crop season experiment (trial established in January 2019) demonstrated that we can germinate baby spinach by using the drip system only, which is as good as the sprinkler system for spinach germination.

SUGAR BEET ALTERNATIVE INSECT PEST MANAGEMENT PESTICIDES ARE BEING TESTED AT THE DESERT RESEARCH AND EXTENSION CENTER

Oli Bachie, Agronomy Advisor, UCCE Imperial, Riverside & San Diego Counties & Director UCCE Imperial County
Michael D. Rethwisch, Crop Production & Entomology Advisor, UCCE Riverside County – Palo Verde Office

In 2017 Sugar beets were grown on 24,929 acres of land with a total value of $53,599,000 (Imperial County Crop report). Sugar beet yield averaged about 45 tons of beets per acre, the highest recorded yield being 88 tons with sugar content of 15%. Sugar beet planting in the Imperial Valley begins the first week of September and the latest planting is completed by the third week of October. Insect pests infest sugar beets in the Imperial Valley regardless of planting dates, but the intensity of pest activity is greater in fields with earlier planting dates. Common insect pests of sugar beets during early seedling emergence are flea beetles, crickets and cut worms, army worm, leaf hoppers, aphids, and spider mites. Whiteflies occur post-emergence and periodically during the growing season (*UC IPM Pest Management Guidelines)*. With 9 to 10 months of growth time in the Imperial Valley, there is significant time for pest complications at every stage of growth. If a sugar beet field is damaged at stand establishment, the damage may weaken the plants which later produce economically insufficient yields. When a severe sugar beet infestation occurs, insects may cause significant economic losses.

In the spring, insect pests such as leaf hoppers and armyworms can severely reduce leaf canopies. Some insect damage from armyworms late in season can damage roots, providing pathways for root rot infections. Infestation also brings the potential risk of plant disease transmitted from pests such as aphids, whiteflies and leaf hoppers that are vectors for lettuce infectious yellow virus and the beet curly top. Damaged plants of low yield and quality receive a lower grade from sugar companies for their weight and sugar content. To avoid reduced revenue, growers and PCAs scout their sugar beet fields for insect pest infestations and usually spray with chlorpyrifos if infestation reaches field threshold levels. However, the use of chlorpyrifos is under consideration and is expected to be banned sometime soon for a suspected carcinogenicity or toxicity to the nervous or endocrine systems to humans and animals.

In the event of a chlorpyrifos ban, growers in Imperial County may not have alternative insecticide chemistry with proven efficacy for sugar beet insect control. Many growers and the county agricultural commissioner's

office have expressed the need to test alternative sugar beet insecticide chemistry for major sugar beet insect pest management. Accordingly, the UC Cooperative Extension Imperial County is undertaking an alternative to chlorpyrifos tests and provide a list of potential alternative seed treatment, chemical insect pest management options and combinations for the Imperial Valley. The project focuses on managing major insect pests of sugar beet, such as flea beetle and armyworm during stand establishment, and leaf hoppers and armyworm in spring. The main objectives of the project are to evaluate insect pest occurrences on sugar beet, test different treatment chemistry on sugar beet insect pests, and evaluate the crop yield and quality of the beets following the various treatments. Using standard industry practices, the sugar beets of the Beta 5460 variety are planted and will be observed for insect infestation.

The initial trial began at the UC Desert Research and Extension Center in early November 2018. A more extensive set of trials will be conducted at the same research facility during the 2019-2020 growing season, starting in early September, to include the period when insect damage on emerging sugar beet seedlings is greatest. Subsequently, field-scale demonstrations of alternative materials identified in DREC trials will be carried out in growers' fields. Testing and identifying potentially safe and effective sugar beet insecticide chemistry under the actual production conditions of the Imperial Valley, will reduce health risks of growers and pesticide applicators, and provide alternative efficacious chemistry. Our findings will provide information about the effectiveness of new pest management materials and approaches for growers, who will need to reduce dependence on chlorpyrifos.

Expected Outcomes and Extension of Results:

Efficacious insecticides or insect control methods with superior control efficacy will be identified. The finding will provide direction of what insect control methods to use in the event chlorpyrifos, a widely used sugar beet pest management chemistry is banned. The findings will be available to the Imperial Valley Farm Bureau (FB) during FB update, Agricultural Commissioner, growers, PCAs, CCAs, Spreckels sugar company and other interested groups of the Imperial Valley farm industry through our field demonstration, the annual Fall Desert Crops workshop, conferences and newsletter articles (AgBriefs), the Imperial Valley Press and other available media. Results will also be presented at the California Beet Growers Association's annual sugar beet research review held at DREC each winter. We would like to encourage interested sugar beet growers to give us a call at (442-265-7700) or send emails at obachie@ucanr.edu for future (2019 /2020) on-farm collaborations.

For further information, please refer to; *Growers and interested individuals may consult the "UC IPM Pest Management Guidelines: Sugarbeet.* UC ANR Publication 3469 https://cropwatch.unl.edu/sugarbeets/sugarbeet_insectmanagement"

HEALTHY SOILS GRANT OPPORTUNITY WORKSHOP

February 7, 2019
El Centro, CA

Cosponsored by
UCCE-Imperial County and UCANR
Imperial County Farm Bureau
Imperial Valley Water (IVH2O)

Why: Apply for CDFA Funding – Healthy Soils Program. Receive up to $75,000 in grant funding to improve soil health and reduce greenhouse gas emissions on your farms through the Healthy Soils grant funding program.

When: **Thursday, February 7, 2019**
11:15 AM - 11:45 AM Workshop in English
3:15 PM – 3:45 PM Workshop in Spanish

Where: **Imperial County Farm Bureau, 1000 Broadway, El Centro, CA 92243**

Presenters: Oli Bachie, UCCE Imperial County Director
Jairo Diaz, Center Director, UC Desert Research and Extension Center

Registration: To register send name, telephone and email address to obachie@ucanr.edu

Questions: Contact Oli Bachie, 442-265-7701, email: obachie@ucanr.edu

Grant info.: Applications are due **March 8, 2019** online at **https://www.cdfa.ca.gov/oefi/healthysoils/**
The HSP Incentives Program provides financial assistance for implementation of conservation management practices that improve soil health, sequester carbon and reduce greenhouse gas (GHG) emissions. The HSP Demonstration Projects showcase California farmers and rancher's implementation of HSP practices. Eligible on-farm management practices include but are not limited to: cover cropping, no-till, reduced-till, mulching, compost application, and conservation plantings.

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

Free One-On-One Technical Assistance to Apply for Grant Funds
Need help in developing and /or submitting your project proposal? Schedule your free one-on-one Technical Assistance session, contact your local UC Cooperative Extension Office for additional information at 442-265-7700

AMMP GRANT OPPORTUNITY WORKSHOP

February 7, 2019
El Centro, CA

Cosponsored by
Imperial County Farm Bureau
UCCE-Imperial County and UCANR
Imperial Valley Water (IVH2O)

Why: Apply for CDFA Funding – Alternative Manure Management Program (AMMP). Receive up to $750,000 in grant funding to reduce greenhouse gas emissions on your dairies and feedlots through the AMMP grant funding program.

When: **Thursday, February 7, 2019**
4:00 PM – 4:30 PM

Where: **Imperial County Farm Bureau, 1000 Broadway, El Centro, CA 92243**

Presenters: Brea Mohamed, Imperial County Farm Bureau
Brooke Latack, Livestock Advisor, UCCE

Registration: To register send name, telephone and email address to brea@icfb.net

Questions: Contact Brea Mohamed, 760-352-3831, email: brea@icfb.net

Grant info.: Applications are due **April 3, 2019** online at **https://www.cdfa.ca.gov/oefi/AMMP/**
AAMP provides financial assistance for the implementation of non-digester manure management practices in California, which will result in reduced greenhouse gas emissions. Eligible practices for funding through AMMP include: pasture-based based management; alternative manure treatment and storage; and solid separation or conversion from flush to scrape in conjunction with some form of drying or composting of collected manure.

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

Free One-On-One Technical Assistance to Apply for Grant Funds
Need help in developing and /or submitting your project proposal? Schedule your free one-on-one Technical Assistance session, contact your local UC Cooperative Extension Office for additional information at 442-265-7700

ARIZONA WESTERN COLLEGE | Yuma | PRESENTS:

2019 LATINO FARMER SYMPOSIUM

for Hispanic farmers, including new and beginning farmers, aspiring farmers, and young farmer entrepreneurs

Wednesday, February 20, 2019
2:00 pm - 5:00 pm
Yuma, AZ
3C - Schoening Conference Center/South Wing
2020 S Ave 8 E, Yuma, AZ 85365

Register for free

https://www.eventbrite.com/e/2019-latino-farmer-symposium-tickets-54878434876

FIRST-EVER 2019 LATINO FARMER SYMPOSIUM YUMA, ARIZONA

LEARN, SHARE, AND NETWORK

Overview:

- FIELD DEMOS & TRADE SHOW(8:30AM-1:30 PM)
- REGISTRATION (1:30-2:00 PM)
- SYMPOSIUM (2:00 PM - 5:00 PM)
- RECEPTION AND TRADE SHOW (5:30-8:30 PM)

*REFRESHMENTS & SNACKS WILL BE SERVED

ATTENDANCE & PARKING IS FREE

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About the Symposium:

- **The first-ever 2019 Latino Farmer Symposium** in collaborative partnership with Arizona Western College (Agriculture Science Department), University of Arizona-Yuma (College of Agriculture and Life Sciences), and Southwest Ag Summit is geared toward 100 Hispanic farmers, including new and beginning farmers, aspiring farmers, and young farmer entrepreneurs.
- This outreach initiative will **bring together** the Latino farming community, the agriculture industry, agricultural extension, advocates for management of natural resources and agricultural production, conservation, and sustainability, for agricultural education workshops
- **Networking and learning** with technical experts about the most pressing issues, challenges, and opportunities for farmers and available resources, services, and programs
- The symposium will **promote awareness and appreciation** for the natural resource conservation practices, initiatives, and far-reaching abilities of underserved **Hispanic farming communities in the state of Arizona and its neighboring part of California**

For more info contact: thodges@email.arizona.edu
928-271-9560

Yuma

ARIZONA WESTERN COLLEGE

PROGRAM

WEDNESDAY, FEBRUARY 20, 2019

3C-SCHOENING CONFERENCE CENTER/SOUTH WING

8:30- 1:30 PM	FIELD DEMONSTRATION AND TRADE SHOW
1:30 -2:00 PM	REGISTRATION & SYMPOSIUM NETWORKING
2:00- 2:15 PM	OPENING REMARKS Dr. Jeffrey C. Silvertooth (Associate Dean and Director, Economic Development & Extension and Professor - Soil, Water and Environmental Science, The School of Plant Sciences, University of Arizona)
2:15- 2:45 PM	SESSION 1-FINANCE AND ASSISTANCE PROGRAMS FOR BEGINNING, SOCIALLY DISADVANTAGED, AND LIMITED RESOURCE FARMERS Dr. Russell Tronstad (Distinguished Outreach Professor and Specialist, Agricultural and Resource Economics, University of Arizona)
2:45-3:00 PM	BREAK AND SYMPOSIUM NETWORKING
3:00-4:00 PM	SESSION 2
3:00-3:20 PM	ADOPTION OF PRECISION AGRICULTURE TECHNOLOGY IN SEMI-ARID FARMING SYSTEMS Dr. Pedro Andrade (Associate Specialist, Agricultural-Biosystems Engineering, University of Arizona)
3:20 - 3:40 PM	FOOD SAFETY Dr. Margarethe Cooper (Assistant Professor of Practice Victor P. Smith Endowed Chair in Food Safety Education, School of Animal & Comparative Biomedical Sciences, University of Arizona)
3:40- 4:00 PM	INNOVATION Dr. Matthew Mars (Asst. Professor and Director of Graduate Studies, Agricultural Education, University of Arizona)
4:00 - 4:15 PM	BREAK AND SYMPOSIUM NETWORKING
4:15 - 4:55PM	SESSION 4
4:15 - 4:35 PM	IRRIGATION AND NUTRIENT MANAGEMENT IN VEGETABLE CROPS Dr. Jairo Diaz (Director, UC Desert Research & Extension Center)
4:35- 4:55 PM	AGRONOMY AND SUSTAINABLE AGRICULTURE: CROPPING SYSTEMS FOR ENVIRONMENTAL AND ECOLOGICAL COMPATIBILITY Dr. Oli Bachie (Director, UC Cooperative Extension - Imperial County)
4:55 - 5:10 PM	CLOSING REMARKS & SYMPOSIUM EVALUATIONS
5:10 - 5:30 PM	BREAK AND SYMPOSIUM NETWORKING
5:30 - 8:30 PM	RECEPTION AND TRADE SHOW

Dr. Jeffrey Silvertooth -Associate Dean and Director, Economic Development & Extension and Professor - Soil, Water and Environmental Science, The School of Plant Sciences
Dr. Silvertooth interests are directed towards the development of crop production management strategies (primarily irrigated cotton, cantaloupes, and chilies (green, red, and jalapenos) that optimize the soil-plant system agronomically and economically, with full consideration of the short- and long-term impact of inputs environmentally.

Dr. Russell Tronstad- Distinguished Outreach Professor and Specialist, Agricultural and Resource Economics, University of Arizona
Dr. Tronstad's research interests include agricultural marketing, risk management, international trade, and operations research methods. Fruit and vegetable commodities, range livestock, and field crops are a part of his research and extension activities. Much of his work focuses on decision tools and aids that jointly consider production, marketing, and risk factors. He is a past co-editor of the Journal of Agricultural and Resource Economics

Dr. Pedro Andrade- Associate Specialist, Agricultural-Biosystems Engineering, University of Arizona
Dr. Andrade interests include drivers of yield variability, site-specific sensor-based management, ground-based high throughput phenotyping

Dr. Margarethe Cooper -Assistant Professor of Practice
Victor P. Smith Endowed Chair in Food Safety Education, School of Animal & Comparative Biomedical Sciences, University of Arizona
Dr. Cooper interests

Dr. Matthew Mars (Asst. Professor and Director of Graduate Studies, Agricultural Education, University of Arizona)
His research agenda generally aims to identify new insights on and develop a deeper understanding of the educational and organizational factors and dynamics that foster agricultural and community development. His research is notably interdisciplinary with collaborations that intersect communication, ecology, and marketing.

Dr. Jairo Diaz -Director, UC Desert Research & Extension Center

Dr. Oli Bachie -Director, UC Cooperative Extension - Imperial County
Dr. Bachie provides research-based technical and educational assistance in agronomy and sustainable agriculture to agricultural producers, growers, farm operators, pest control advisors (PCAs) and other agricultural clientele in Imperial Valley, San Diego and Riverside counties. He develops and encourages adoption of research based cropping systems to improve crop productivity and yield with due consideration for environmental and ecological compatibility.

THANK YOU TO OUR SPONSORS

The Southwest Ag Summit is the desert Southwest's premier agriculture industry show. The Summit is centered in the middle of some of the most diverse and productive agricultural land in the world and is surrounded by over .6 million acres of irrigated land all within 120 miles of Yuma, Arizona. The target audience includes those in Arizona, New Mexico, Southern California, and Northern Mexico.

Arizona Western College is a public community college located in Yuma, Arizona, United States. Arizona Western College offers educational, career, and life-long learning opportunities through innovative partnerships which enhance the lives of people in Yuma and La Paz counties. Over 11,653 students attend AWC, where they are offered 98 academic programs leading to the granting of an occupational certificate or the A.A., A.Bus., A.S., A.G.S., or A.A.S. degrees.

UA Yuma is a University of Arizona campus serving La Paz and all of Yuma County. We offer 16 majors to meet the needs of our local community, and also those of working students of all ages.
By expanding your knowledge and skill-set to achieve a career that directly impacts your community, you'd be joining the ranks of other UA Yuma alumni who are successfully nourishing in their chosen career.

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Hello,

In this February 2019 edition, a study comparing the effect of differing calf weights at first implant on growth performance and carcass characteristics is examined.

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
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EFFECT OF DELAYED IMPLANTS ON CALF-FED HOLSTEIN STEERS[1]

Brooke Latack
Livestock Advisor

Introduction

Hormonal implants in Holstein steers are perhaps the most important tool for enhancing ADG, gain efficiency, HCW, and ribeye area. Delaying the first implant of calf-feed steers until after the initial four months following arrival at the feedlot did not negatively affect overall growth performance.[2] However, the optimal weight at time of first implant has not been fully assessed. This study evaluates the effects of body weight at initial implant on overall growth performance and carcass characteristics of calf-fed Holstein steers.

Methods

Ninety-six calf-fed Holstein steers (264 ± 3 kg BW) that had not been previously implanted were received at the UC Desert Extension and Research Center from a cooperating local feedlot. Calves were sorted into four treatment groups (4 pens per treatment).The treatment groups were no implant (control), first implanted at 267 kg BW, first implanted at 321 kg BW, or first implanted at 321 kg BW. All cattle were re-implanted at d-112 of trial. Both implants were Revelor-S (Merck & Co. Inc.). All calves were fed the same diet throughout the study ad libitum (Table 1). Hip height and weight were taken at 28 day intervals.

Results and Implications

Implanted cattle had a 5.9% greater DMI, 16.7% greater ADG, and 9.4% greater gain efficiency compared to non-implanted cattle over the trial period (Table 2). Compared with implanted steers, the study reveals the marked decline in ADG and gain efficiency of non-implanted calves after reaching BW of approximately 425 kg. Increasing the live weight of calves at first implanting from 267 to 321 kg decreased overall DMI and ADG, but did not affect gain efficiency. Growth performance was optimal for calves receiving their first implant at 291 kg.

When comparing carcass characteristics, implanted cattle had 8.8% greater carcass weight, 9.2% greater LMA, and 14% less KPH fat compared to non-implanted calves. Marbling scores for implanted cattle were less than that of non-implanted cattle. Weight at first implanting did not affect carcass characteristics.

Whereas implanting calf-fed Holstein steers has a marked positive effect, timing of first implant may be delayed until calves achieve a shrunk body weight (live weight x 0.96) of 265 to 290 kg without negatively impacting growth performance, carcass weight, and ribeye area.

Table 1. Experimental diet composition

Ingredient Composition, % DM	Receiving diet (1-112 d)
Alfalfa hay	7.64
Sudangrass Hay	3.86
Steam flaked corn	77.30
Yellow grease	3.10
Cane molasses	4.72
Limestone	1.30
Urea	0.98
TM Salt	0.36
Magnesium oxide	0.14
Dicalcium phosphate	0.54
Laidlomycin	0.10

Table 2. Growth performance treatment effects

Item	No Implant (Control)	Implanted at 267 kg	Implanted at 267 kg	Implanted at 267 kg
Number of Animals	24	24	24	24
Weight, kg				
Initial	263.8	266.8	264.3	263.3
Final	548.7	604.9	601.1	589.4
ADG, kg	1.28	1.51	1.51	1.46
DMI, kg/d	7.75	8.41	8.19	8.02
ADG/DMI	0.165	0.180	0.184	0.182

Table 3. Carcass characteristics treatment effects

Item	No Implant (Control)	Implanted at 267 kg	Implanted at 267 kg	Implanted at 267 kg
Carcass Weight	342.4	375.2	376.3	366.3
Dressing (%)	62.41	62.03	62.61	62.15
LMA (cm^2)	73.68	81.22	80.57	80.67
Fat thickness (cm)	1.23	1.09	1.09	1.19
KPH fat (%)	2.35	2.17	1.93	2.10
Yield grade (%)	50.0	50.5	50.4	50.4
Marbling score	5.47	5.16	4.81	5.03

References

1 Torrentera, N., Barreras, A., Gonzalez, A., Plascencia, Salinas, J., and Zinn, R.A. Delay implant strategy in calf-fed Holstein steers: growth performance and carcass characteristics. 2017. Journal of Applied Animal Research. 45:1, 454-459.

2 Beckett, J.L., Algeo, I. Effects of delayed implant protocols on performance, carcass characteristics and meat tenderness in Holstein steers. 2002. Journal of Animal Science. 80(Suppl. 1):49 (Abstract).

IMPERIAL VALLEY CIMIS REPORT AND UC WATER MANAGEMENT RESOURCES

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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 February 1st to April 30th 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	February		March		April	
	1-15	16-28	1-15	16-31	1-15	16-30
Calipatria	0.12	0.13	0.16	0.19	0.22	0.25
El Centro (Seeley)	0.13	0.15	0.19	0.22	0.24	0.28
Holtville (Meloland)	0.12	0.14	0.17	0.21	0.23	0.27

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/.