



*Imperial County*

*Agricultural Briefs*



**University of California**  
Agriculture and Natural Resources

**Features from your Advisors**

*May 2019 (Volume 22 Issue 5)*

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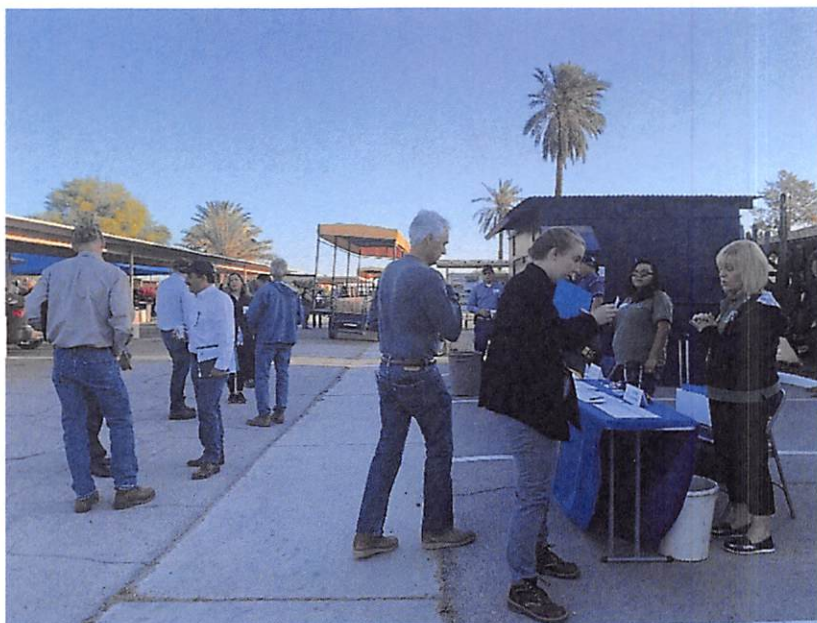
## **2019 UCCE AGRONOMIC CROPS AND IRRIGATION WATER MANAGEMENT FIELD DAY/WORKSHOP**

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

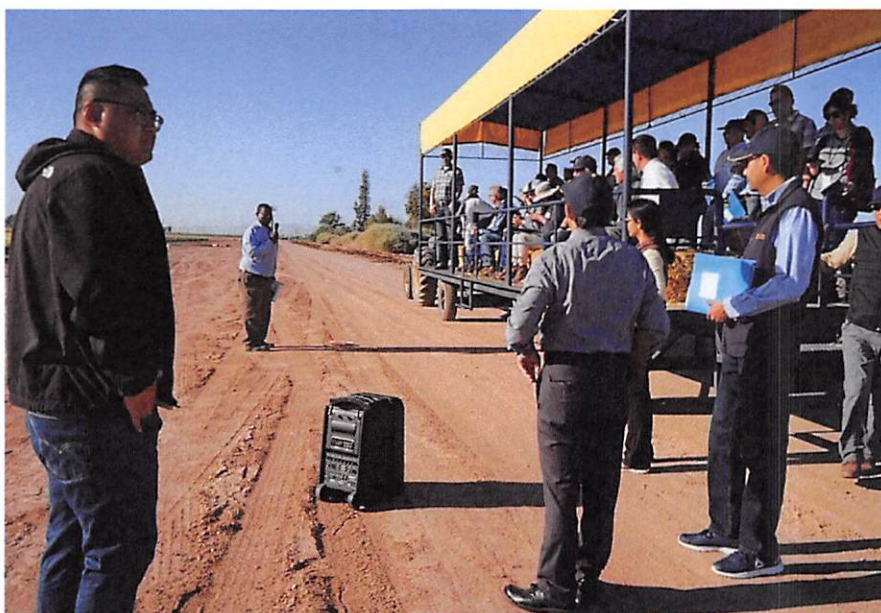
The University of California Cooperative Extension - Imperial County held its annual “agronomic crops and irrigation water management field day and workshop” at UC Desert Research and Extension Center on April 11. At this combined event (demonstration field and indoor workshop), 18 researchers from UC Davis, UC Riverside, UC Kearney Agricultural Research and Extension Center, UCCE Imperial and Riverside Counties, UC DREC, Imperial County Agricultural Commissioner, and water industry and private sectors came together to bring innovative ideas and solutions and disseminate the outcomes of their recent studies in the desert region. Tom Brundy, president of the Imperial County Farm Bureau delivered the opening remarks. The event was co-organized by UCCE Imperial county advisors; Ali Montazar and Oli Bachie. We thank all presenters, growers, DREC and all other participants for making this event successful.







UCCE staff assist attendees on registration desk



Oli Bachie, UCCE Imperial County Director and Agronomy Advisor, talks about Quinoa for the low desert during the field demonstration session.



Jairo Diaz, Director of Desert Research and Extension Center, explains an irrigation management experiment on fresh-market bulb onion during the field demonstration session.



Ali Montazar, UCCE Imperial Irrigation and Water Management Advisor, speaks about alfalfa irrigation and water management experiments in the low desert during the field demonstration





Steve Kaffka, UCD Extension Agronomist and Director of California Biomass Collaborative, speaks on sugar- beet powdery mildew in the Imperial Valley during the field



Oswaldo Chicaiza, UCD Staff Research Associate, gives a talk on new durum wheat varieties for Imperial Valley during the field demonstration session.



Elizabeth Crutchfield, UCR Postdoctoral Scholar, talks about the effect of biochar on structure and water relations of a heavy clay during the field demonstration session.



Tom Brundy, president of the Imperial County Farm Bureau, gave the opening remarks at the indoor workshop.

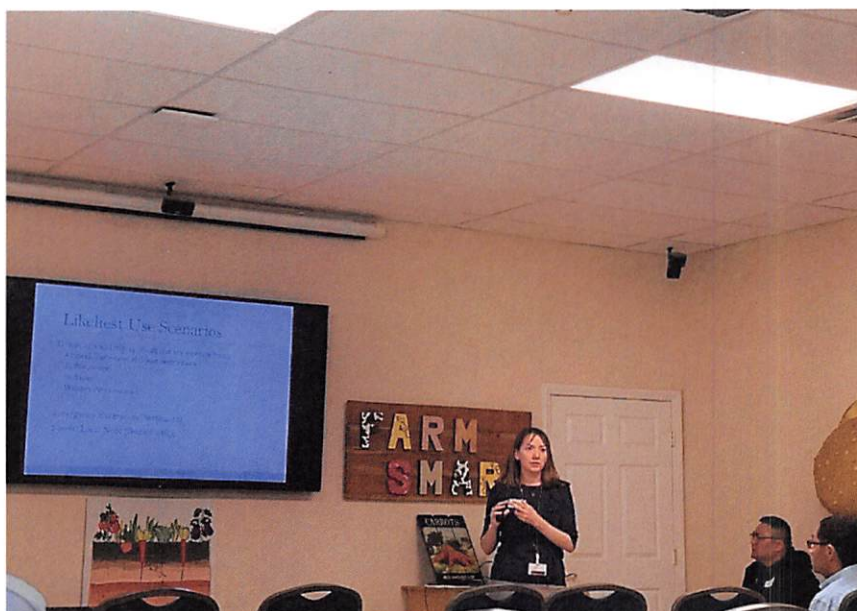




Richard Snyder, UCD Biometeorologist, talks on the advances in estimates of crop Evapotranspiration (ET) in California during the indoor workshop session.



Khaled Bali, UC KARE Irrigation Water Management Specialist, delivers a talk on surface irrigation automation updates during the indoor workshop session.



Rachel Garewal, Deputy of Imperial County Agricultural Commissioner gives an update on laws and regulations pertaining to chlorpyrifos during the indoor workshop session.



Michael Rethwisch, UCCE Crop Production and Entomology Farm Advisor, gives an update on pests of low desert agronomic crops during the indoor workshop session.





Kristian Salgado, UCCE Community Education Specialist, gives an overview on CDFA Climate Smart Agriculture Incentives Programs during the indoor workshop session.



Reinier van der Lee, CEO Vinduino, talks about the importance of volumetric feedback for automated irrigation systems during the industry update session.



Fred Ahnert, of Toro Company, delivers a talk on Toro flow control tape & Aqua flow design software during the industry update session



Michael Gursky, SION CA LLC, talks on zero PH safe acid during the industry update session.



## LYGUS BUG CONTROL IN ALFALFA SEED

*Michael D. Rethwisch, Crop Production & Entomology Advisor, UCCE Riverside County –  
Palo Verde Office*

Lygus bugs are a major pest of alfalfa seed production in California, and can be difficult to control due to their ability to break down various plant metabolites from the wide array of host plants on which they feed. This ability also assists them to detoxify and develop resistance to various insecticides. Lygus bugs are present and feed on alfalfa all year round, but are not considered to be economic pests of alfalfa hay production. As such, there is no economic and/or treatment thresholds for lygus control in alfalfa hay exist. Thresholds have been established for alfalfa seed production, and California thresholds for lygus bugs in alfalfa seed are:

<b>Alfalfa Growth Stage</b>	<b>Lygus bug threshold (number/sweep)</b>
Bud / Pre-Bee	2-6
Bloom / Early seed set	8-10
Seed maturity	10-15

While lygus bugs are fairly prevalent in alfalfa seed fields during April and May, their numbers usually decline fairly rapidly in early June, often as temperatures reach highs above 100°F. Big-eyed bugs, a predator of lygus bugs, are also more prevalent during the summer months than in the spring, accounting for the reasons in lygus bug decline in early summer. The accompanying figure shows lygus bug populations from untreated plots in low desert alfalfa seed insecticide trials conducted by University of California Cooperative Extension personnel. As can be seen from the Figure 1 (next page), Lygus bug numbers were usually less than 8/sweep (bloom/early seed set threshold) by June 8.

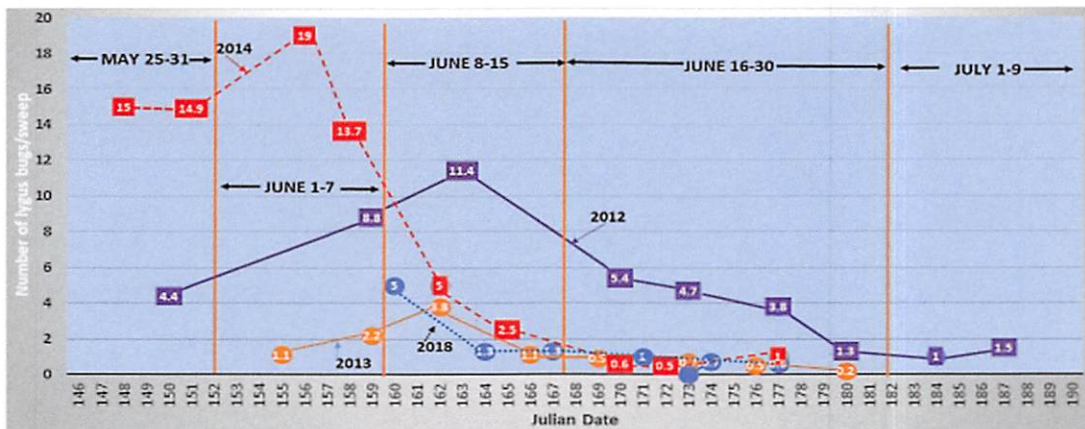


Figure 1: Western Lygus bug populations (#/sweep) in the Low Desert Alfalfa Seed Production Insecticide Trials (2012-2018)

In 2018, the California Alfalfa Seed Production Research Board sponsored a project that evaluated several new and potential insecticides. This project utilized five insecticides (Beleaf® 50 SG, Cormoran™, Rimon® 0.83 EC, Sivanto™ Prime and Transform® WG) applied individually at top of label rates, and with the exception of Cormoran™, in combination with each other at reduced rates in early June.

The trial project documented the efficacy of the treatments on western lygus bugs (*Lygus hesperus*), related predators, and several other abundant insects in alfalfa seed. Of these listed products, only Beleaf® 50 SG and Rimon® 0.83 EC are currently registered for usage on alfalfa seed with special local need (24c) registrations for California. Further information on these and other insecticides that are currently registered for lygus bug control in California alfalfa seed is noted in the table 1, shown at the end of the article page.

All treatments containing Transform® WG resulted in significantly fewer lygus bug nymphs at three days post treatment, with top of label rate resulting in fewest total lygus bugs. The Rimon® 0.83 EC + Transform® WG combination treatment had the fewest total lygus bugs at 7, 10 and 14 days post treatment. Rimon® 0.83 was the only treatment that did not have any significantly lygus nymphs than the untreated alfalfa at 14 days post treatment. Differences were not readily evident after this date. Comparative lygus bug numbers associated with each treatment at 3, 7 and 10 days post treatment are depicted in Figures 2, next page. The full 34 page report, including statistical tables and data on beneficial insects is available at

<http://ceriverside.ucanr.edu/files/303001.pdf>



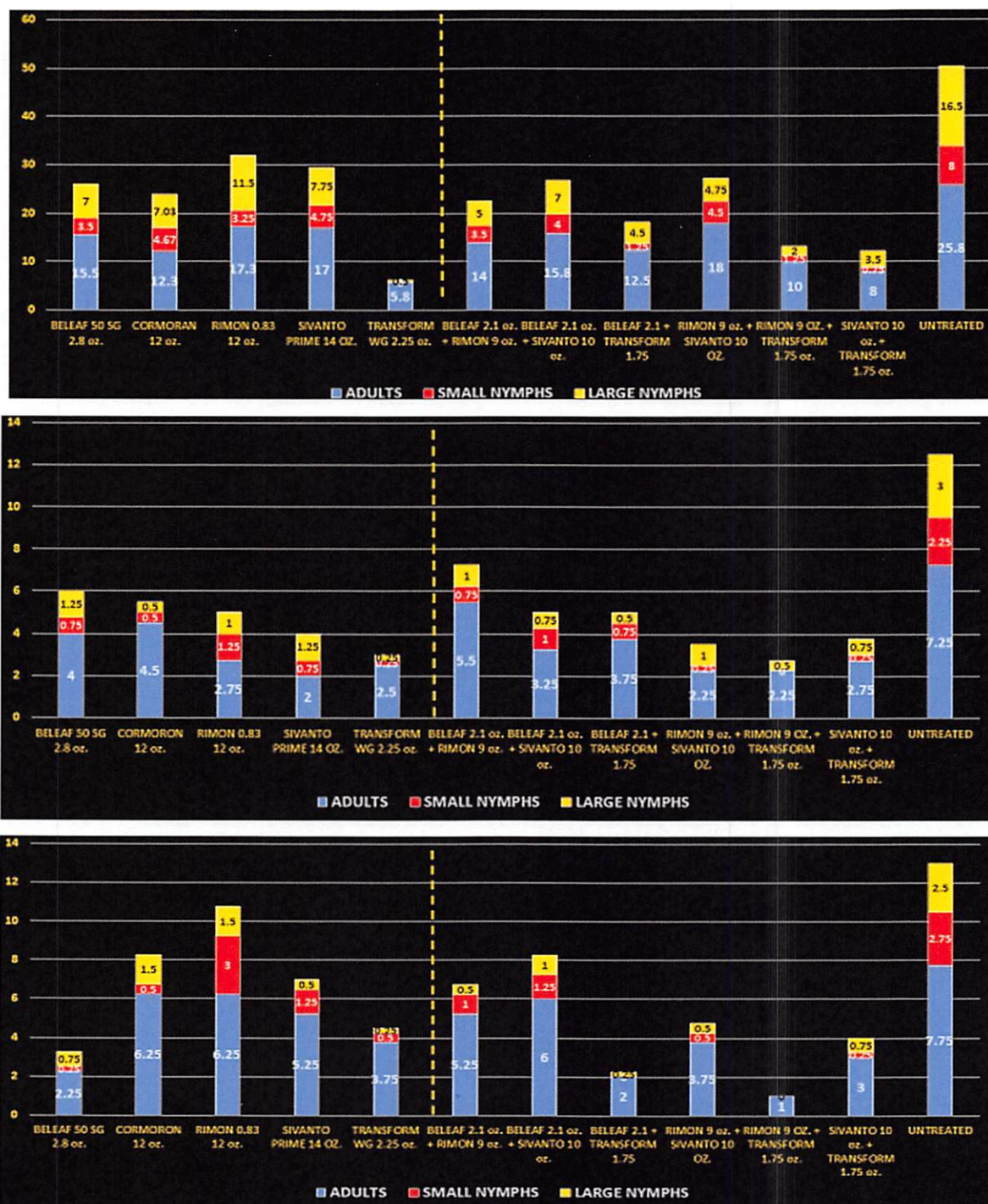


Figure 2: Total Western Lygus bugs per 10 sweeps on June 8 (3 DAT) (Top), on June 12 (7 DAT) (middle) and on June 15 (10 DAT) (bottom), respectively after application on June 5, 2018 in Blythe, CA

**Table 1: Insecticides registered for Lygus Bug Control in California Alfalfa Seed**

<b>Insecticide</b>		<b>Limitations on Usage</b>
Beleaf 50 SG	<p>Special Local Need Registration</p> <p>User must have state specific Section 24(c) at time of application</p>	<p>Apply before populations begin to build and before damage is evident.</p> <p>Do not make more than 2 applications in a crop year. Allow minimum of 7 days between applications. Minimum of 20 gpa via ground application, 10 gpa by air.</p> <p>Hay may not be harvested within 62 days of last application.</p> <p>30 days needed after last application before planting rotational crops.</p>
Carzol SP	<p>96 hour Re-Entry Interval</p> <p>21 day PHI</p>	<p>Apply only to pure stands of alfalfa to be harvested for seed when lygus bugs reach damaging numbers.</p> <p>Do not treat while bees are visiting the treatment area, and do not allow to drift onto adjacent crops.</p> <p>Do not use treated crops for livestock feed. Treated fields must be clear after harvest by burning or disking into the soil. Do not apply more than 1.0 lbs/acre in one crop season.</p> <p><u>Rotational Crop intervals:</u>  30 days for leafy vegetables  120 days for root crops  12 months for small grains/all other crops not listed above.</p>
Dimethoate 400, 4E	<p>48 hr REI</p> <p>10 day PHI</p>	<p>Highly toxic to bees exposed to direct treatment or residues on blooming crops and weeds. Do not apply if bees are visiting the areas to be treated when crop or weeds are in bloom.</p> <p>. Apply in minimum of 5 gpa by ground, 1 gpa by air in California.</p> <p>. Maximum of 0.5 lbs./active ingredient per acre per crop cycle.</p>
Rimon 0.83 EC	<p>Special Local Need Registration</p> <p>User must have state specific Section 24(c) label at time of application in possession</p>	<p>Use pre-bloom/early bloom prior to placing pollinators in or adjacent to field to be treated.</p> <p>Can also be used late bloom/post-bloom when pollinators have been removed from the treated field.</p>



## 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 May 1<sup>st</sup> to July 31<sup>th</sup> 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	May		June		July	
	1-15	16-31	1-15	16-30	1-15	16-31
Calipatria	0.27	0.29	0.31	0.32	0.32	0.31
El Centro (Seeley)	0.29	0.31	0.34	0.36	0.33	0.31
Holtville (Meloland)	0.29	0.31	0.33	0.34	0.32	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/>.



# California Good Ag Neighbors

The Produce Safety - Livestock Interface Workshop

Perhaps no issue in agriculture is as complex as that of the safety of fresh produce grown in the vicinity of livestock and wildlife. Animal operations and fresh produce growers in California are among the most highly regulated in the country but confusion often exists about what each community does to help keep our food safe.

Join us for one of two workshops where food safety scientists, regulators, produce growers and livestock farmers can share what we already know about the produce safety-livestock interface and how we can leverage existing efforts to make food even safer.

Sponsored by the **California Department of Food and Agriculture** and the **University of California – Davis**, using cooperative funding from the **Food & Drug Administration**, this workshop promises to be enlightening and useful as we explore collaborative methods advancing food safety.

## June 11, 2019

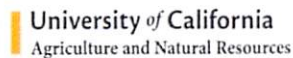
9am to 4pm  
**Desert Research & Extension Center**  
1004 East Holton Rd  
Holtville, CA 92250

## June 13, 2019

9am to 4pm  
**Robert J Cabral Agricultural Center**  
2101 E. Earhart Ave  
Stockton, CA 95206

 **Register at [www.wifss.ucdavis.edu/good-ag-neighbors](http://www.wifss.ucdavis.edu/good-ag-neighbors)**

This event brought to you by:



### Questions?

Dr. Mike Payne  
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# LIVESTOCK RESEARCH BRIEF

UC  
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May 14, 2019

Hello,

In this May 2019 edition, a study addressing the effect of additional vitamin E supplementation on growth performance in calf-fed Holstein steers is reviewed.

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**

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# EFFECT OF SUPPLEMENTAL VITAMIN E ON GROWTH PERFORMANCE OF FEEDLOT HOLSTEIN STEERS

Brooke Latack  
Livestock Advisor

## Introduction

Vitamin E is a fat-soluble vitamin important in maintaining immune function, animal health, control of nerves and muscles, and even color stability of processed meat. Though effects have not been consistent, supplemental vitamin E may also enhance feed conversion and growth performance. Supplemental Vitamin E requirements are influenced by Vitamin E status of the animal, stress, and Vitamin E concentration of the basal diet. This study aimed to evaluate the affect of Vitamin E supplementation of calf-fed Holstein steers during both the early feedlot growing and late finishing phases.

## Methods

54 Holstein steers housed at the UC DREC feedlot were sorted into light ( $141.2 \pm 4.9$  kg) and heavy ( $454.2 \pm 7.0$  kg) groups to simulate early growing and late finishing feedlot phases, respectively. Steers were split into 12 pens (3 steers/pen) and fed a steam-flaked corn-based diet supplemented with 0, 250, or 500 IU/d of vitamin E for 56 days (Table 1).

Average air temperature: 91.94° F

Average relative humidity: 48%

Average THI: 82.3

## Results and Implications

For either the early growing or late finishing phases, Vitamin E supplementation did not affect growth performance (Table 2). Other studies have shown enhanced growth performance responses to Vitamin E supplementation when calf morbidity was high. But response to supplementation is less appreciable among otherwise healthy calves. Plasma tocopherol increased linearly with vitamin E supplementation while non-supplemented steers experienced a decrease in plasma tocopherol from day 1 to day 56.

Ultimately, this study demonstrated that additional Vitamin E supplementation is not likely to improve growth performance of health calf-fed Holstein steers fed a conventional steam flaked corn based growing-finishing diet.



**Table 1.**  
Experimental  
diet  
composition

Ingredient Composition, % DM	
Item	
Steam-flaked corn	67.31
DDGs	10.00
Sudan grass hay	12.00
Molasses cane	4.00
Yellow grease	3.00
Urea	1.26
Limestone	1.63
Magnesium oxide	0.15
Trace mineral salt	0.30
Dicalcium phosphate	0.33
Rumensin (g/T)	150

**Table 2.**  
Growth  
performance  
treatment  
effects

Item	Weight group		Vit E supplementation, IU/head/d		
	Light	Heavy	0	250	500
No. of pens	12	6	6	6	6
Live BW, kg					
Day 1	141.3	454.2	299.2	295.6	298.5
Day 56	210.7	546.4	381.9	376.6	377.2
ADG, kg/d	1.24	1.64	1.48	1.45	1.40
DMI, kg/d	4.59	10.05	7.37	7.37	7.21
ADG/DMI	0.271	0.164	0.219	0.217	0.217
Plasma tocopherol, µG/mL					
Day 1	1.62	1.47	1.60	1.50	1.54
Day 56	2.13	2.35	1.21	2.40	3.11

#### References

1 Cano, A.B., Montano, M., Salinas, J., Salinas-Chavira, J., and Zinn, R.A. Evaluation of supplementation vitamin E on 56-day feedlot growth performance and plasma tocopherol concentrations in calf-fed Holstein steers. 2017. *Journal of Applied Animal Research*. 45:1, 90-92.

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University of California, Davis, Agriculture and Natural Resources, One Shields Avenue, Davis, CA 95616, (530) 752-1397.*