

**University of California**

Agriculture and Natural Resources ■ Cooperative Extension Colusa County

## Nitrogen and Water Management

### Top-dress N: do you need it?

Top-dressing N is expensive. This year with rice prices being low and having a late planting date, careful consideration needs to be given if a top-dress N application is appropriate. Applying a top-dress when it is not needed can reduce yields, delay harvest (especially a problem in a late planted year), lead to lodging and reduced quality, and be a waste of money. However, if the crop needs the nitrogen, a top-dress will increase yields. So how do you know if a field needs a top-dress? We are working on some remote sensing tools; however, in the mean time we suggest using the Leaf Color Chart. This should be done just before panicle initiation (PI) so that a top-dress can be applied close to time of PI if it is needed.

### Make sure to keep water high between PI and heading

Our research from multi-location variety trials conducted across the Sacramento Valley has shown that when nighttime temperatures go below 57° F during booting (between PI and heading) yield reductions begin to occur. Of all the possible temperature effects that could reduce yield, cold during booting was the biggest contributor to lowering yields. This year, with a later than usual planting date, the chances of cold nighttime temperatures during booting will be increased. While low nighttime temperatures are a bigger problem in the southern parts of the Sacramento Valley, they can be a problem in the northern part as well. Fortunately, you can do something about it. Raising floodwater height to about 8-10 inches between PI and heading helps to protect the emerging panicle from cold temperatures.

Article by Bruce Linquist, UCCE Rice Extension Specialist.

## How to Select a Follow-up Herbicides

By the time this newsletter reaches most rice growers, the first herbicide applications will have already gone out. For most of us, it is impossible to achieve broad-spectrum weed control with only one herbicide application, so we will need a follow-up application (or two). So how do you go about selecting a follow-up herbicide? There are several things to consider:

- 1) **Weeds not targeted by the first application:** Not all herbicides effectively target all weed species. So it is important to

make sure that the second application targets those weed species that were missed by the first application. For example, some of our herbicides control one species from the same plant family but not the other (i.e. thiobencarb controls smallflower umbrella sedge but not ricefield bulrush, even though both are sedges). Refer to the *product label* or the *UC Herbicide Susceptibility Chart* (available at the UC Rice On-line website) for all of the weed species controlled by each herbicide.

- 2) **Weeds visible in the field:** Some weeds that should have been controlled with the first application may not be controlled effectively. This could be due to herbicide resistance, timing (too early or too late), or an applicator error (skips, clogged nozzles, etc.) Go out and walk the field to see the weed species that are there before deciding on your follow-up herbicide.
- 3) **Timing:** Not all herbicides are effective if weeds are not at the correct growth stages. Going too early may mean that the targeted weeds have not yet emerged. Going too late means that the targeted weeds will be too large to be controlled. Applications that are improperly timed are may even select for herbicide resistance. To ensure that timing is correct, it is important to monitor the rice growth stage. Especially in warmer years, timing herbicide applications by days after seeding will usually result in late applications. Refer to the product label to

make sure that you know the recommended timing.

- 4) **Mode of Action:** It is important to rotate modes of action within seasons and also BETWEEN seasons, to prevent selecting for herbicide resistance. This means we should not use the same clean-up herbicide repeatedly year after year. In the past, using the same clean-up herbicide while rotating modes of action only for the first herbicide application has led to the selection for resistance to multiple modes of action. Smallflower umbrella sedge is the most widespread example. Refer to the UC Herbicide Susceptibility Chart to ensure that you know the herbicide mode of action.

Article by Whitney Brim-DeForest, UCCE Rice Farm Advisor, Sutter, Yuba, Sacramento and Placer Counties.

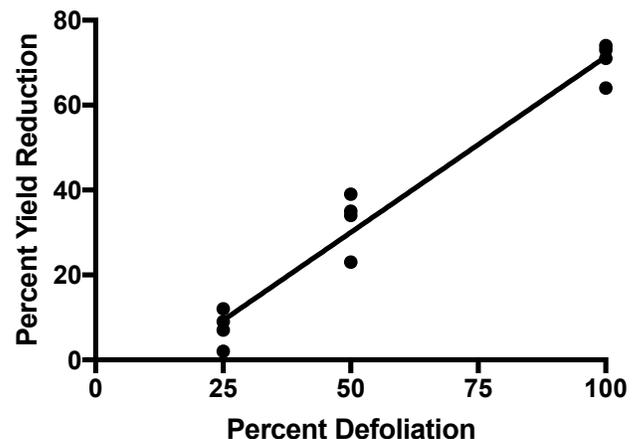
## Armyworms Revisited

Armyworms are still on everyone's mind after the 2015 outbreak. According to people who have been around for a while, it was one of the worst outbreaks seen in more than 25 years. In some fields, yields were reduced up to 20%.

Armyworms show up in significant numbers twice during the season, during the vegetative growth stage of rice in late June-early July, and then during heading in August. In June, they feed on rice foliage. Once they get large (4th instar and beyond) they start feeding voraciously on foliage. That's when we notice them because we see their feeding injury. If numbers are high, in just a few days they can cause significant damage.

During this stage, rice can withstand quite a bit of defoliation. Experiments conducted in the early 1980s using artificial defoliation showed that when defoliation was less than 25%, the

yield reduction observed was negligible. The graph above shows that when defoliation reached 25%, yield was reduced about 10%, and after that the yield reduction increased as



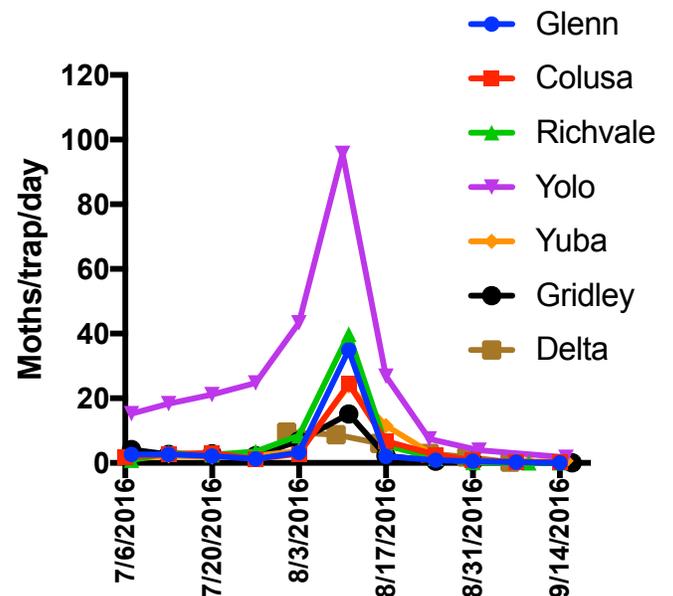
defoliation increased. A 10% yield reduction on a field yielding 90 cwt/a, would mean a loss of 9 cwt, or, given \$14/cwt rice, \$126/a.

The 25% defoliation threshold has to be taken with caution and used as a guideline. The numbers above are on a per acre basis, so a whole acre would have to be defoliated so that the level of loss mentioned above is realized. Most of the time, during the vegetative stage, armyworms only affect corners or borders in the field (except in 2015 when whole checks were mowed down). Use your judgment when making a decision to use an insecticide: if injury seems spread out and worms are still present, an insecticide application may be warranted. However, if injury is restricted to field corners and worms are nowhere to be seen, an insecticide application may not pay for itself.

During heading, armyworms feed on panicle branches, and this injury results in blank kernels. The injury is very characteristic, with blank branches seen hanging from the panicle. In my experience, this type of injury seems to be more widespread in a field than defoliation. I have seen fields affected soon after panicle emergence and fields that were affected later, during grain filling. The guideline during this stage is to consider a treatment if 10% of panicles are affected. An easy way to check for this is to grab a bunch of panicles at several places in the field, and count the total number of panicles and how many are affected. If 10% or more are affected, a treatment may be needed.

During heading, the challenge is to determine if the injury is old and the worms are gone, or if the injury is recent and worms are still out there ready to continue feeding. Worms are very hard to find at this stage; they feed at night and during the day hide in the foliage. August is hot and no one wants to spend 30 minutes in a rice field when it's 100 degrees out. Monitoring frequently can aid in determining if panicle injury is recent, and coming out early in the morning or late in the evening may make finding the worms easier.

I started monitoring for armyworms using pheromone traps last year. I set traps in six rice fields across the Sacramento valley, and one trap was set up in a rice field in the Delta. Monitoring was done from early July to mid September. The traps showed a very distinctive peak moth flight around mid August. I spent time in the fields being monitored looking for worms, specially at the Knights Landing location, given that the number of moths caught was very high. Worms showed up about one week after the peak was detected, but how high the peak was did not relate to the intensity of the infestation. I observed the most injury at the Yuba location, which was not the location with the most moths caught. However, what the trapping did show, is that all locations peaked at about the same time, and that worms showed up one week after the peak.



I was not able to detect a peak that would correspond to the infestation during the vegetative stage, most likely because the traps were set up too late in the season. I am trapping again this year, but this time the traps were set up right after fields were planted. To my surprise, I was catching moths very early after planting in one location. Armyworms overwinter as late instar larva, and may become moths in

late winter or early spring. The moths trapped right after planting may be coming from worms “waking up” from their winter resting stage. The plan is to use the traps to notify growers and PCAs that moth peak flights are happening and monitoring should be intensified so that infestations are caught early and, if treatments are needed, they are done before damage to the crop occurs.

I will be sharing the results of the trapping on our website UC Rice On-line, through the UC Rice Blog, and our social media accounts, so make sure to follow us.

Article by Luis Espino, UCCE Rice Farm Advisor, Colusa, Glenn and Yolo Counties.

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## Cass Mutters Retires

Cass Mutters, Farm Advisor in Butte County for the past 25 years, will be retiring by the end of June this year. Cass’ work with the California rice industry has had great impact. For example, Cass did much of the work on how to fertilize specialty varieties, developed the rice Leaf Color Chart to determine mid-season N needs, co-authored the Rice Quality Handbook, was instrumental in supporting the rice industry sustainability efforts, etc. The list goes on and on. And if you have had him out on a farm call, you know he is a wealth of information and a critical thinker. To others in the UC working on rice, he’s been a great friend and mentor.

If you run into Cass out in the field or have him out in a farm call, make sure to wish him a happy retirement.



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## 2017 Yield Contest

This year we plan to continue running the UCCE Yield Contest. Last year we had three winners with yields ranging from 115.0 to 122.5 cwt/a. Last year’s winners received a cap from UCCE and, compliments of LaserMan, a color map of 100 contiguous acres at a resolution of 2 inches per pixel (each valued at \$600). We encourage participation from all over the valley. For more information as well as access to forms please visit our web site ([http://rice.ucanr.edu/Rice\\_Yield\\_Contest/](http://rice.ucanr.edu/Rice_Yield_Contest/)). The last day to submit the Entry forms is at the Annual Rice Field Day on August 30.

## Weedy Rice Website

The California Weedy Rice website (a collaboration between UCCE and the California Rice Commission) has been updated and is now live. It contains information on identification, best management practices, sample collection, and additional resources on weedy rice. There is also a link to subscribe to our new Weedy Rice E-Newsletter, which will keep the rice industry updated on the latest information on weedy rice as we progress through the rice season. You can access the website at the UC Rice On-line website or directly at [www.caweedyrice.com](http://www.caweedyrice.com).

## Upcoming Events

### Weedy Rice Workshops

- August 9th, Yuba City, 9AM- 12PM
- August 10th, Colusa, 9AM- 12PM

*Venues to be determined*

Special Guest Speaker:

Dr. Nilda Burgos, Professor of Weed Scientist, University of Arkansas

### Rice Experiment Station Field Day

**August 30, 2017**

Rice Experiment Station

955 Butte City Highway [Hwy 99], Biggs, CA 95917

### 2<sup>nd</sup> Annual Rice Weed Course

**September 15, 2017 (8AM-4:25PM)**

at the

Hamilton Road Field and Rice Experiment Station, Biggs, CA

(Registration form attached)

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It is the policy of the University of California (UC) and the UC Division of Agriculture & Natural Resources not to engage in discrimination against or harassment of any person in any of its programs or activities (Complete nondiscrimination policy statement can be found at <http://ucanr.edu/sites/anrstaff/files/215244.pdf>). Inquiries regarding ANR's nondiscrimination policies may be directed to John I. Sims, Affirmative Action Compliance Officer/Title IX Officer, University of California, Agriculture and Natural Resources, 2801 Second Street, Davis, CA 95618, (530) 750-139.



UC COOPERATIVE EXTENSION and UC DAVIS

# Rice Weed Course 2017

Friday, September 15, 2017

[Hamilton Road Field](#) (on West Hamilton Rd. between Hwy. 99 & Riceton Hwy.) and Rice Experiment Station, Biggs, CA

Find out what the current weed science research is on rice. This one-day course will include training on:

- 1) emerging weed problems, such as red rice and winged primrose willow;
- 2) planning an herbicide program for susceptible and herbicide-resistant weeds;
- 3) hands-on early weed identification;
- 4) field component on new and standard herbicide programs.

Participants will tour the rice weed science research plots on West Hamilton Road then head to the Rice Experiment Station for the remaining part of the program. **\*\*BRING YOUR BOOTS\*\***

## WHO SHOULD ATTEND

Pest control advisors, farm advisors, chemical company cooperators, college faculty and students, and regulatory officials should not miss this event.

REGISTRATION FEE	Received by 8/1/2017	Received by 9/1/2017	Received after 9/1/2017
NON-STUDENT	\$70	\$80	\$90
Current student*	\$40	\$45	\$50
UCCE Farm Advisor	\$40	\$45	\$50

\*Students must provide proof of current student status with registration form.

A discounted fee (for current students and UCCE Farm Advisors) is limited to the first 5 requests.

Registration fee includes handout material, light refreshments and light lunch (sandwich, drink and dessert). Space is limited to 60 people, so register early.

## PAYMENT

Make checks payable to **UC REGENTS**. VISA, MasterCard, AMEX, and Discover credit cards accepted via online registration. UC account numbers also accepted.

## REFUND

No refunds. If you are unable to attend, you may send a substitute in your place at no additional charge.

## CONTINUING EDUCATION CREDIT

Pending approval from DPR and CCA.

## REGISTER

Online: <http://wric.ucdavis.edu> and click on RICE WEED COURSE

Mail your completed registration form along with your payment to:

UC WEED RESEARCH & INFORMATION CENTER  
DEPT. OF PLANT SCIENCES, MS4  
ONE SHIELDS AVENUE  
DAVIS, CA 95616

## CHECK-IN

7:45-8:15 AM at the [Hamilton Road Field](#) (on West Hamilton Rd. between Hwy. 99 and Riceton Hwy.) in Biggs, CA

## PHOTO RELEASE

Occasionally we use photographs of participants in our promotional materials. By virtue of your attendance, you agree to the use of your likeness in such material.

## QUESTIONS

Contact Whitney Brim-DeForest at (530) 822-7515 or [wbrimdeforest@ucanr.edu](mailto:wbrimdeforest@ucanr.edu).



# REGISTRATION FORM

# Rice Weed Course 2017

Sept. 15, 2017 • Hamilton Road Field, Biggs, CA

Please print.

NAME (first and last name)	BADGE NAME (first/nickname)
COMPANY	
MAILING ADDRESS	
CITY, STATE, ZIP CODE	
PHONE (       )	
E-MAIL	

COST		Received by 8/1/2017	Received by 9/1/2017	Received after 9/1/2017	Subtotal
NON-STUDENT	includes handout material, light refreshments and light lunch	\$70	\$80	\$90	\$
Current student*	Same as above; Limited to first 5 requests.	\$40	\$45	\$50	\$
UCCE Farm Advisor		\$40	\$45	\$50	\$
				<b>TOTAL</b>	\$

\*Students must provide proof of current student status with registration form

## PAYMENT INFORMATION

CHECK enclosed (made payable to **UC REGENTS**)

CREDIT CARD payments are accepted via the online registration system. Visit <http://wric.ucdavis.edu> and click on RICE WEED COURSE.

Charge my  
UC ACCOUNT NUMBER 3 L

ACCOUNT	SUB ACCOUNT	AUTHORIZED SIGNATURE

## How did you hear about this event?

- newsletter       e-mail       UC Rice Blog       UC WeedRIC website  
 trade magazine       supervisor       UC Farm Advisor       other \_\_\_\_\_

## REGISTER BY

**MAIL** completed form with  
 payment to:

UC WEED RESEARCH & INFORMATION CENTER  
DEPT. OF PLANT SCIENCES, MS 4  
ONE SHIELDS AVENUE  
DAVIS, CA 95616

**ONLINE** at:

<http://wric.ucdavis.edu> and click on RICE WEED COURSE

## OFFICE USE

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