Sacramento Valley Field Crops Newsletter, Fall 2014

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Timing of nitrogen (N) demand for wheat

With the summer season wrapping up, people are starting to look ahead to the wheat season. I talked to a grower recently about the timing of N demand for irrigated wheat grown in the Sacramento Valley. Based on the N rate and timing studies we began last year (and will continue this year), I put together a few figures that may be of interest in planning for the upcoming season. They are the final two pages of this mailer.

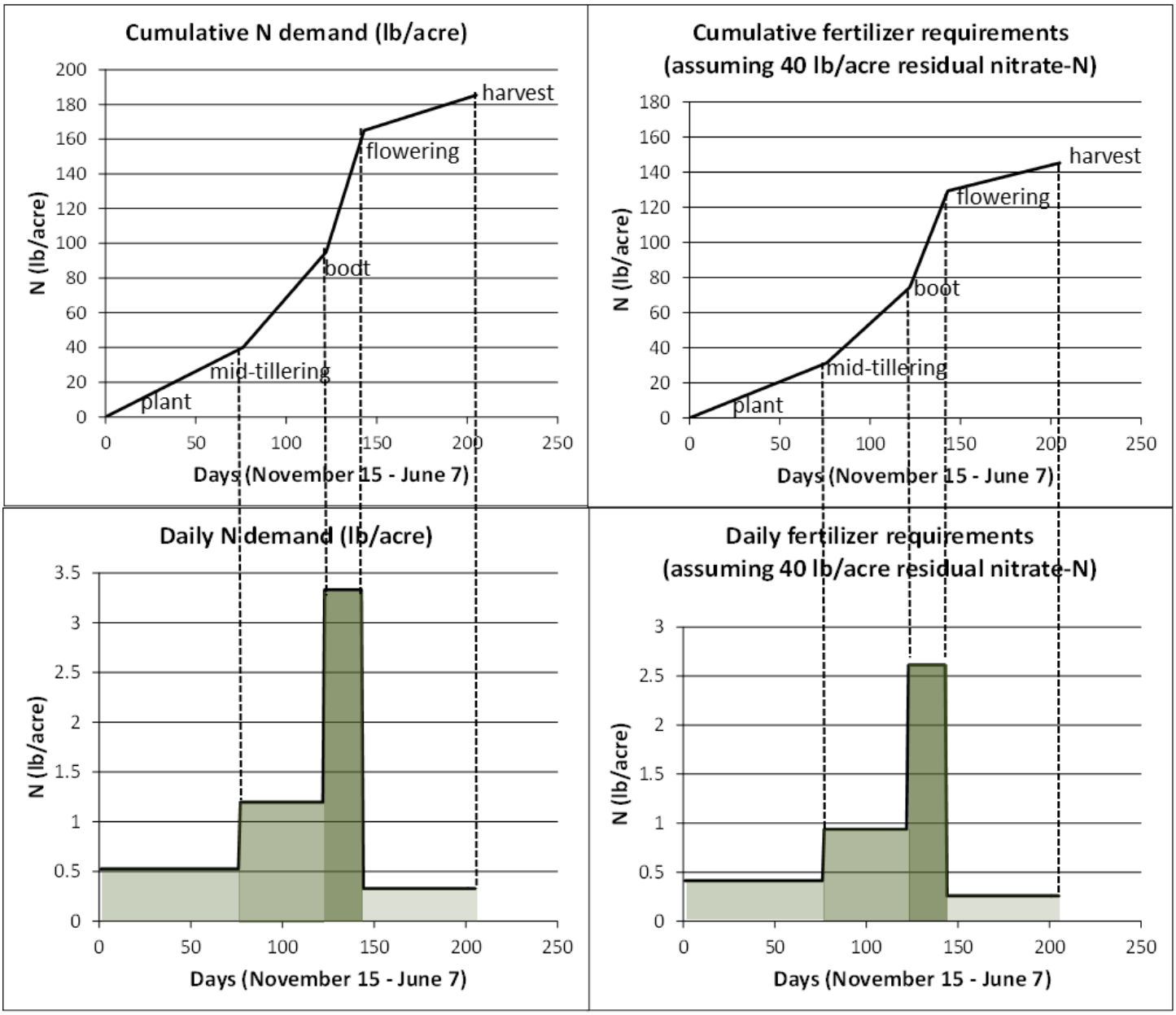
The first figure (**page 2**) is a depiction of the cumulative and daily demand for nitrogen (N) by a high-yielding (7500 lb/acre) wheat crop with 11.5% protein. This was based on measurements taken from last year's multiple N-rate, multiple N-timing study, where we grew Patwin (a hard white wheat) and Cal Rojo (a hard red wheat) at separate locations. It's important to note that the absolute demand will change depending on how much residual soil nitrate-N there is available to the crop. If you don't have an idea about how much residual N you have, you might want to consider a pre-plant soil sample to inform your fertility decisions and, potentially, save some fertilizer costs.

The second figure (**page 3**) shows how yield, protein, protein yield and N use efficiency change according to when N fertilizer is applied. This was measured at the UCD research fields where the yield potential was high and the management of water was optimal. So the absolute yields are probably less relevant than the way that the yield, protein, and efficiency change according to when N is applied. The take home messages from this trial were that: 1) applications at tillering are more valuable in terms of N use efficiency than preplant applications and 2) late-season applications can boost protein content *if the crop has sufficient protein yield potential*. Of course, these biophysical results don't take into account important logistical consideration (Can you get the fertilizer on the field at these times? Will sufficient water follow it to get it into the root zone?). But, if it's feasible, considering N applications at these times may prove worthwhile.

We have also been calibrating decision support thresholds for several in-field tools. We are cautiously optimistic that they may help to determine, in real-time, whether a crop is likely to see a protein yield response to a late-season application. But we need to repeat the work this year under a wider set of conditions to improve our confidence. We took some measurements in growers' fields last year around boot, heading and flowering to help validate the work we were conducting on the research station. I'd like to increase the number of 'real-world' data points that inform our calibrations. So, if you are growing wheat and are interested in seeing how these tools work, get in touch with me and I'll come take some measurements at your field and give a hands-on demonstration of how they work.

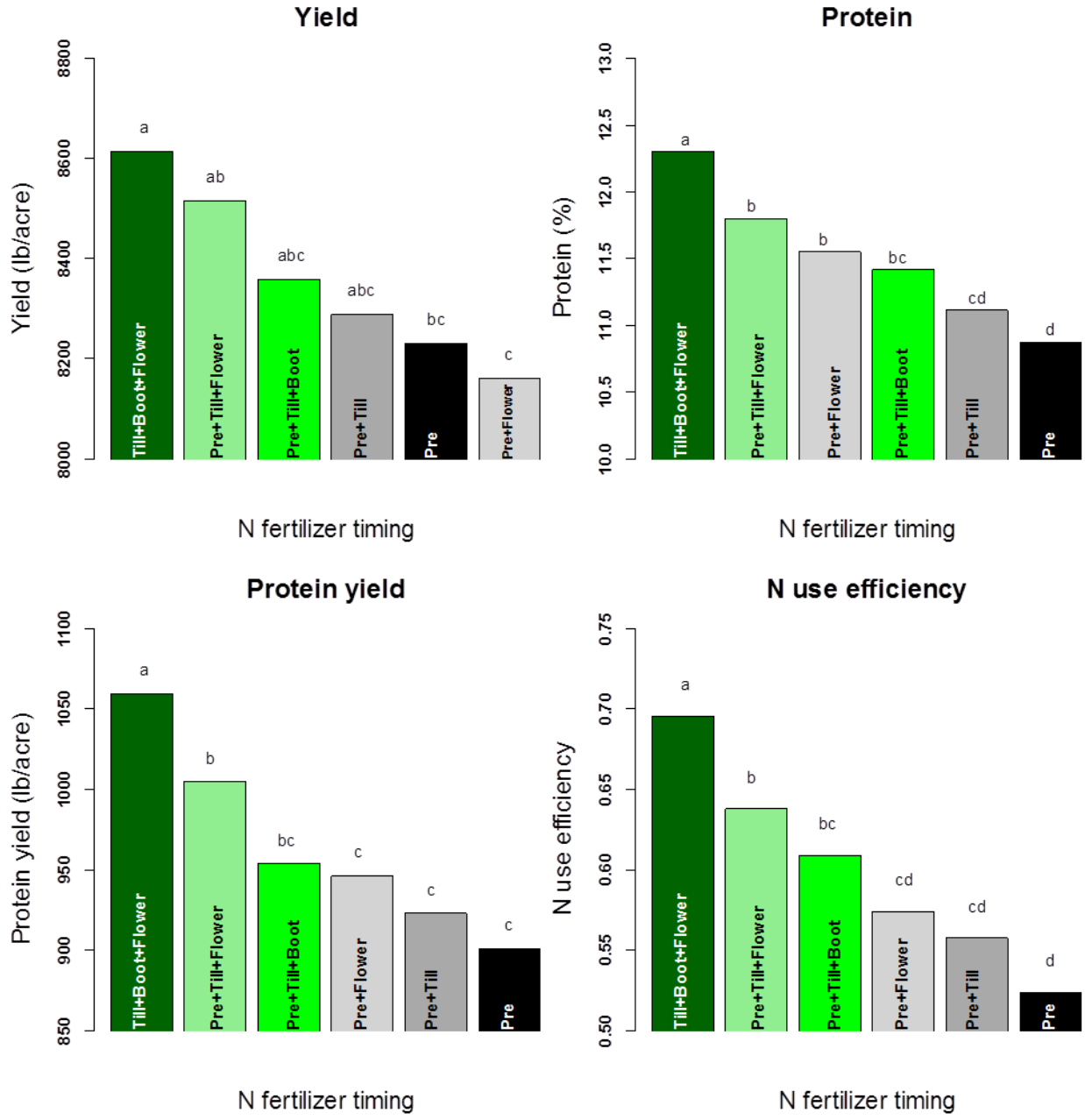
Demand for N by irrigated wheat in the Sacramento Valley

Yield = 7500 lb/acre, Protein = 11.5%



Produced by Mark Lundy, UCCE Advisor; melundy@ucanr.edu; 530-902-7295

N fertilizer timing affects yield, protein and N use efficiency for irrigated wheat in the Sacramento Valley



Different letters indicate statistically significant differences.

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Meeting announcements

The 2014 FREP/WPHA Conference "**Managing Agricultural Nutrients: Challenges of Nutrient Efficiency for the Future**" will be held **October 29-30, 2014** at the Doubletree Hotel in **Modesto, California**. Agenda and registration information can be found at this link:

file:///C:/Users/MarkL/Downloads/2014_FREP_ConferenceAgenda.pdf

The 2014 **California Alfalfa, Forage, and Grain Symposium** will be held **December 10–12, 2014** in **Long Beach, California**. This year's conference will cover vital issues pertaining to water, pest management, and economics of alfalfa, forages, and grain crops — which cover greater than 2 million acres in California. Agenda, activities and registration details can be found at this link:

http://ucanr.edu/sites/Alfalfa/

A digital copy of this newsletter is available at this link:

http://cecolusa.ucanr.edu/Field_Crops/Newsletter_805/

Stay up to date on information between quarterly Newsletters at the Sacramento Valley Field Crops Blog:

http://ucanr.edu/blogs/SacValleyFieldCrops/index.cfm

Don't hesitate to contact me with questions, concerns or ideas:

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