

## 2011 Onion Fertilizer Trial

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**Introduction:** This trial investigated two fertilizer additive programs with claims of improving onion yield. In the case of the N-Boost program, N-Boost was evaluated with and without Radiant insecticide to test the compatibility and efficacy of the tank-mix combination. Additional treatments evaluated the influence of applying higher than recommended nitrogen fertilizer rates at planting on onion stand and onion yield.

### **General Trial Information**

<b>Location:</b>	Tulelake, CA
<b>Soil Type:</b>	Tulebasin mucky silty clay loam 4.2% organic matter
<b>Planting Date:</b>	May 6, 2011
<b>Harvest Date:</b>	October 7, 2011
<b>Irrigation:</b>	Solid-set sprinklers
<b>Plot Size:</b>	6 ft (2 beds) by 25 ft
<b>Bed (row) Spacing:</b>	36 inches; 4 seed-lines per bed spaced 6 inches apart
<b>Trt Replication:</b>	6 replications; CRD design
<b>Onion Seed Source:</b>	Sensient (87% germination)
<b>Seeding Rate:</b>	1200 seeds per plot (348,500 seeds per acre)
<b>Herbicides:</b>	Fusilade Dx, Goal Tender, Goal + Buctril
<b>Fungicide:</b>	Thiram, Follicur
<b>Insecticides:</b>	Admire Pro

### **Fertilizer Application Methods:**

- Fertilizer treatments are detailed in Table 1. Seed treatments were applied the day before planting according to manufacturer recommendations. Shortly before planting, a liquid fertilizer blend consisting of 65 lbs N/A, 60 lbs P205/A, 50 lbs K20/A, and 10 lbs of Zn/A was applied in three bands placed 2 inches below and to the side of the onion seed rows. Postemergence treatments were applied with a CO<sub>2</sub> backpack sprayer at 20 GPA. Plots were irrigated 24 to 48 hours after postemergence treatment application according to manufacturer recommendations.

### **Onion Stand Count, Onion Vigor, and Onion Yield:**

- Onion stand density was measured in each plot by counting the number of green onions in the entire plot on June 29th. A visual evaluation of onion stand and vigor was estimated in each

plot on June 25<sup>th</sup>, July 5<sup>th</sup> and July 25<sup>th</sup> using a 0 to 5 scale. 0 = 100% stand loss and 5 = highest stand and vigor in the trial (Fig 2). Yield was measured by harvesting and weighing all onions in each plot.

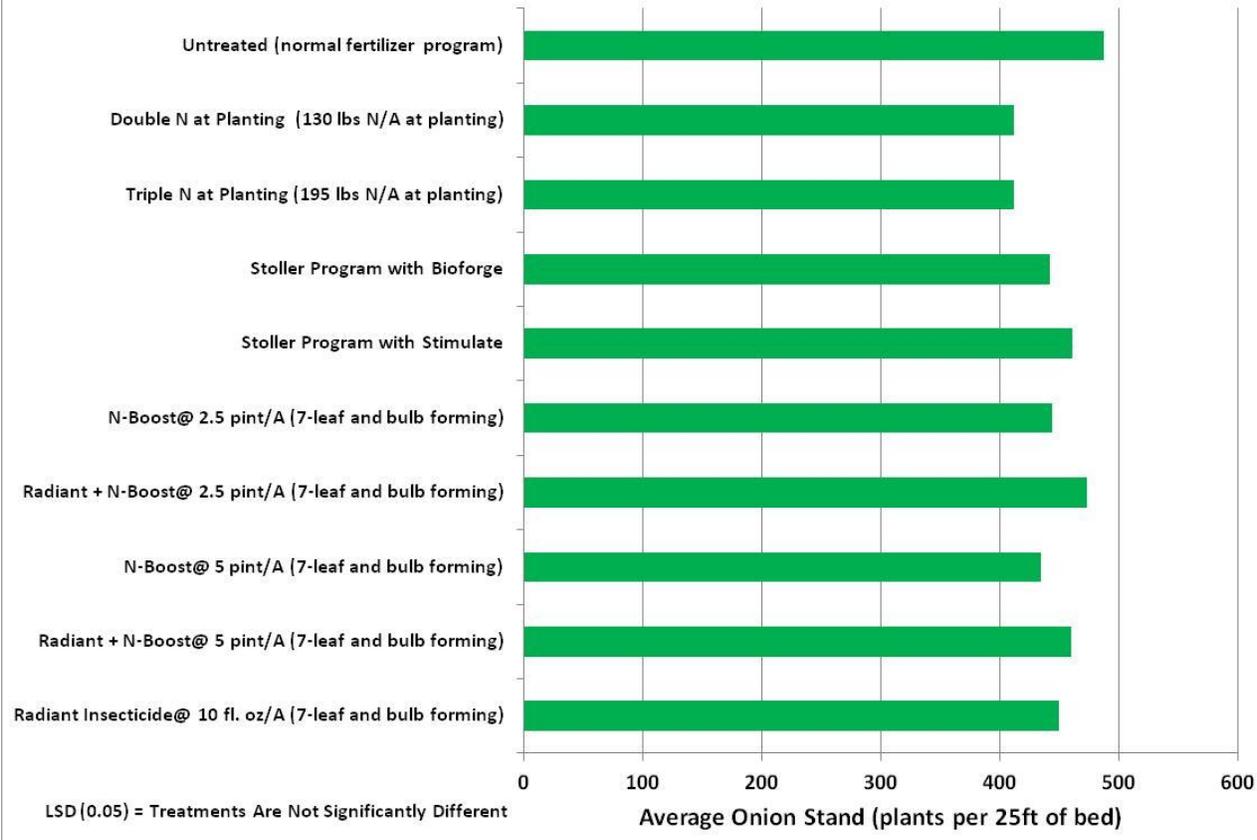
### Results

Treatments did not have an influence on onion stand (Figure 1). None of the fertilizer additive treatments increased onion yield compared to the untreated control (Figure 2). Increasing the amount of nitrogen applied at planting did not increase yield compared to the recommended 65 lb N/A rate (Figure 2). The triple N (195 lb N/A) at planting treatment decreased onion yield compared to the untreated control (Figure 2). Treatments did not have a significant influence on average onion bulb size (Figure 3). Results suggest applying additional nitrogen above recommended rates at planting should be avoided as it did not increase yield and high N rates decreased onion yield.

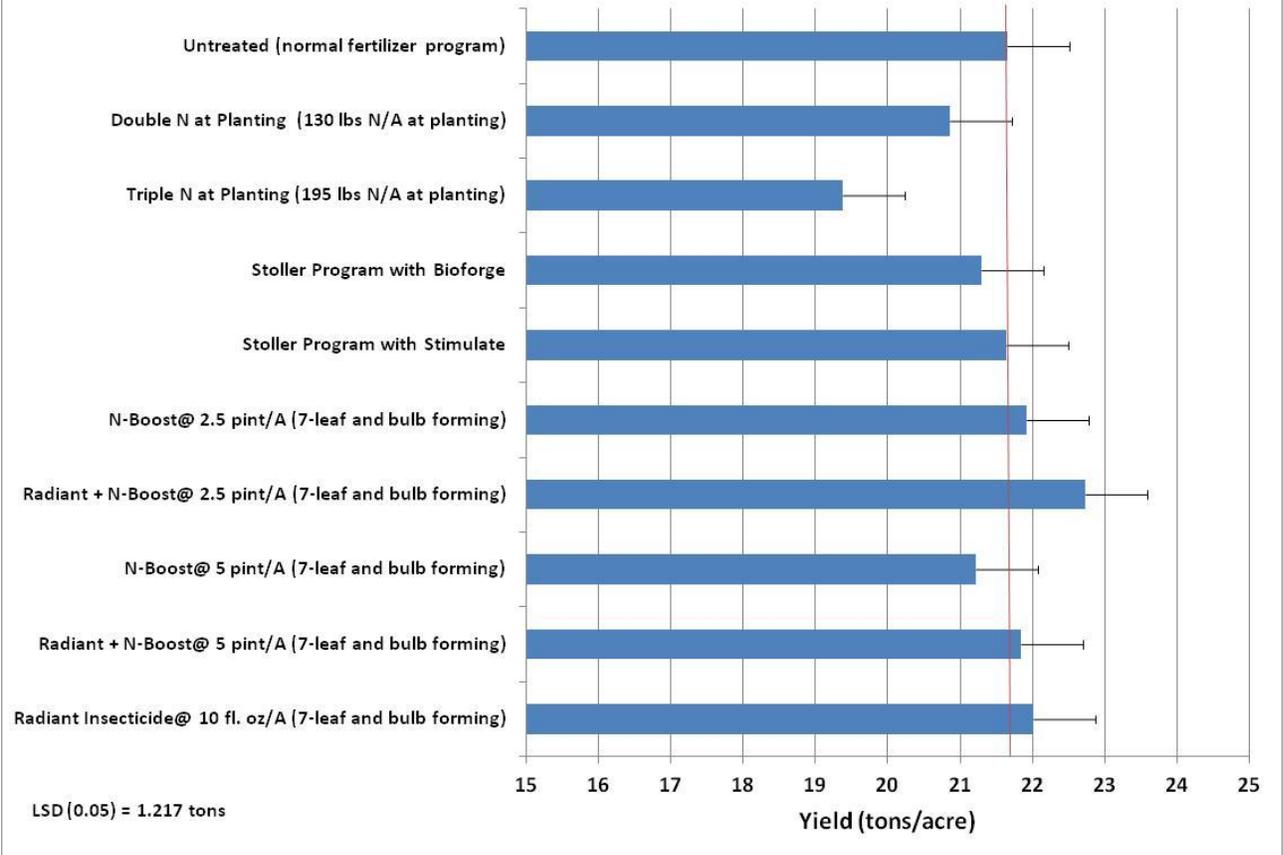
**Table 1. Treatment List & Timing**

Trt #	Fertilizer Treatment	Seed Treatment	Planting	Split Applications starting at 5 Leaf (early July) & ending at mid-bulking (mid-August)	29-Jun	12-Jul	20-Jul	28-Jul	2-Aug
		Rate/100# seed	#'s N /A	#'s N /A	Rate/A	Rate/A	Rate/A	Rate/A	Rate/A
1	Control		65	130					
2	Radiant		65	130		10oz		10oz	
3	Radiant		65	130		10oz		10oz	
	+ N-Boost					2.5pts		2.5pts	
4	N-Boost		65	130		2.5pts		2.5pts	
5	Radiant		65	130		10oz		10oz	
	+ N-Boost					5pts		5pts	
6	N-Boost		65	130		5pts		5pts	
7	Stimulate Program	1oz	65	130					
	Calcium 5S				8oz				
	Rezist				4oz				
	N-Large					1oz			
	5X					8oz			
	Sugar Mover						2pts		
	Nitro + 9								5gallon
8	BioForge Program	4oz	65	130					
	Calcium 5S				8oz				
	Rezist				4oz				
	N-Large					1oz			
	5X					8oz			
	BioForge						16oz		
	Nitro + 9								5gallon
9	Double N		130	130					
10	Triple N		195	130					

**Fig 1. Influence of Fertilizer Programs on Processing Onion Stand**



**Fig 2. Influence of Fertilizer Programs on Processing Onion Yield**



**Fig 3. Influence of Fertilizer Programs on Processing Onion Bulb Size**

