

A Report Regarding the Application of Bluestim to Lisbon Lemons for the 2006-07 Season

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Introduction:

This experiment was initiated for the purpose of determining whether the application of Bluestim to Lisbon lemons would increase yield or fruit size.

Methodology:

The experiment was conducted on Lisbon lemon (*Citrus limon*) and was laid out in 2005 at the University of Arizona Yuma Mesa Agriculture Center at Somerton, AZ, in Block 18. This field consisted of 10-year old trees on macrophylla rootstock. Tree spacing was 24 x 24 feet, and there were 8 treated trees in a row.

There were seven treatments, but only the control and the Bluestim treatment will be addressed in this report. A treatment unit consisted of eight adjacent trees in a row, and experimental design was randomized complete block, with five blocks. Therefore, there were a total of 10 treatment units, (80 trees, 1.05 acres) included in the experiment. Guard rows separated one treatment from the next.

Bluestim was first applied on 7/20/06, and again on 8/23/06. Applications were made with an airblast sprayer @ 100 psi. All treatments were applied with 90 gallons of water per acre. For both applications, the rate was 4 lb. per acre.

2006-07 yields across the entire Yuma Mesa area were low; therefore, all fruit were harvested on 9/28/06. Fruit from each tree was harvested by hand using professional pickers from a local packinghouse. Fruit from each tree was harvested into plastic tubs, each holding approximately 30 lbs. Fruit from the tubs was optically sorted using a completely automated photographic sorter (Autoline, Inc., Reedley, CA). This sorter is trailer-mounted so that it can be towed to the citrus orchard study site. Each fruit that passes through the sorter was photographed and weighed. Weight, color, exterior quality (% blemish), fruit shape and fruit diameter data was collected for each fruit. Fruit were not physically sorted, but the data collected was stored in a laptop computer that is an integral part of the sorter. Data collected from the sorter were later analyzed and the percentage of fruit from the eight fruit sizes and fruit grades (fancy, choice and juice) as well as fruit color and shape were determined.

Data was analyzed statistically using analysis of variance.

Results and Discussion:

Yield: Yield for the trees treated with Bluestim averaged 127.5 lbs., while yield for the untreated trees was 129.0 lbs.; an insignificant difference.

Packout (Fruit Size): We did not note any significant difference in packout due to the treatments. Because of the relatively low yield, fruit size was rather large. Fruit of the largest size (size 75) comprised 6 to 10% of the total, fruit of the next largest size (95) comprised 21 to 23% of the total, fruit of the third largest size (115) comprised 20 to 22% of the total, and fruit of the next largest size (140) comprised 23 to 24%. All the smaller sizes comprised about 25% of the total.

Fruit Grade, Color and Shape: We did not note any significant difference in fruit color, shape or grade (exterior quality) due to the treatments. In general, exterior fruit quality ranged from 70 to 75% fancy, about 20% choice, and 5 to 10% juice.

Conclusions: Compared with our results in the Minneola trial, it is rather disappointing to see that the Bluestim was ineffective in this trial. Since lemon is typically less impacted by stress later in the season than is Minneola, it is possible that an earlier season application, such as late May, to lemons might be advisable.