

**EVALUATION OF AT-PLANT LIQUID INSECTICIDE/FERTILIZER APPLICATIONS IN COTTON****D. Ames Herbert****Virginia Polytechnic Institute and State University****Suffolk, VA****Hunter Frame****Virginia Tech****Suffolk, VA****Dominic Reisig****North Carolina State University****Plymouth, NC****Jack S Bachelier****North Carolina State University Entomology****Raleigh, NC****Jeremy Greene****Clemson University****Blackville, SC****Francis Reay-Jones****Clemson University****Florence, SC****Phillip Roberts****Michael Toews****University of Georgia****Tifton, GA****Ron Smith****Auburn University****Auburn, AL****Tim Reed****Auburn University****Belle Mina, AL****Abstract**

Field trials were conducted to evaluate the efficacy and compatibility of insecticides and fertilizers applied alone or tank mixed as liquids into the seed furrow at planting using different in-furrow applicator devices. In 2013, Admire Pro at 8.5 oz per acre was applied alone through a micro tube or via the Y-Not Split-It device, and tank mixed with either  $\text{Ca}(\text{NO}_3)_2$  at 2.0 lb per acre or with 1.7 gpa of 10-34-0 (NPK). The Admire Pro plus 10-34-0 did not mix well and resulted in a significant reduction in plant population and plant height, higher levels of thrips injury to seedlings, and reduced lint yield. The Admire Pro plus  $\text{Ca}(\text{NO}_3)_2$  mixed well, resulted in good plant population, and excellent thrips control and lint yield. Performance with the Y-Not Split-It was generally equal to performance with micro tube delivery.

In another 2013 trial, Admire Pro was delivered in-furrow at 9.2 oz per acre with a Rebounder Seed Cover, either as a single stream at 3, 5, or 9 gpa, or in combination with the Y-Not Split-It device at 5 gpa, or via the Keeton seed firmer at 5 gpa. With the single stream delivery there was no difference in levels of thrips control among the application volumes, but control was reduced with the Y-Not Split-It and Keeton Seed Firmer devices. This reduced efficacy could have been due in part to the setup of these devices and inaccurate product placement.

In 2014, Admire Pro was tank mixed at 0, 6 or 9.2 oz per acre with 0, 2.5 or 5.0 lb of  $\text{Ca}(\text{NO}_3)_2$  per acre. There was a slight delay in plant emergence with the increase in  $\text{Ca}(\text{NO}_3)_2$  rate, but no difference among treatments in the final plant population. There was a general increase in plant population with the increase in Admire Pro rate. The tallest plants were achieved with the highest rates of Admire Pro and  $\text{Ca}(\text{NO}_3)_2$ . Thrips injury to seedlings was least with the highest rate of Admire Pro. There were no significant differences in lint yield with the main effects (insecticide, fertilizer) and no significant interaction. But numerically, the highest yields were achieved with the Admire Pro plus  $\text{Ca}(\text{NO}_3)_2$  tank mixes.

The take home points were:  $\text{Ca}(\text{NO}_3)_2$  will tank mix well with Admire Pro but 10-34-0 is not compatible; efficacy of Admire Pro was not effected when applied with the Y-Not Split-It device; application of  $\text{Ca}(\text{NO}_3)_2$  caused a slight delay in plant emergence but there was quick recovery; correct placement of these products into the seed furrow is critical for success; and, Admire Pro provided equal levels of control at 3, 5 and 9 gpa.