

PROTECTING YIELD & PROFITS

Foliar Yield Enhancements Rachel Vann, NCSU

A variety of products claim to improve soybean yields and profits. Having an unbiased and trusted source evaluate the efficacy of such products is essential to making decisions about what products, if any, should be added to a farm operation. Over the last six years, the NCSU has utilized checkoff funding to evaluate the efficacy of these products with N.C. State Extension.

While products tested varied from year-to-year, the trial has generally included foliar fungicides, foliar fertilizers and stress reducers. It was conducted across 19 different N.C. environments from 2013-2018. The number of environments in which a product was evaluated is included in the graph below, with only products tested multiple years reported. Confidence in the results increases the more times and environments a product has been tested.

FUNGICIDES

When combining the 19 trial environments and various fungicide products evaluated, **fungicide use provided on average a 2 bu/A yield advantage compared to the nontreated control.** This varied by environment, with a large increase in yield seen in some environments and not in others. A number of factors can influence the effectiveness of a fungicide application, including the soybean variety and the resistance package it carries and environmental conditions (heat, moisture, disease pressure, soybean biomass), which can impact foliar disease pressure.

The multi-mode of action (MOA) fungicides evaluated (Priaxor, Quadris Top, Stratego Yld) provided a 2.5 bu/A yield advantage on average over the nontreated control, whereas the single-MOA fungicides only provided a 1.6 bu/A yield advantage on average over the nontreated control. The yield advantage provided by the multi-MOA fungicides may indicate the presence of fungicide-resistant diseases, which require additional inputs to manage. In addition to the yield increases from the use of a multi-MOA fungicide, it is also beneficial for fungicide-resistance management.

FOLIAR FERTILIZERS

Significant yield increases were seen when Soar, Ironman or Smart B-Mo were applied, but there was no significant increase observed with N-Boost or Smart Quatro.

STRESS REDUCERS

The stress reducers evaluated in this trial (Photon and Bioforge) did not significantly impact soybean yield in the environments tested. Also, sugar applied with or without Bioforge did not impact yield.

When considering adding inputs to a management program it is essential to look not only at the potential yield increase but to consider the potential return. The cost of the product and the cost of application should be considered when deciding which products to use. Of the foliar products evaluated in this trial, **foliar fungicide use at early reproductive development would provide the most**

consistent positive impact on soybean profit compared with other foliar inputs evaluated.

