

The Use of an Air-Assist Sprayer to Improve Canopy Penetration and Coverage of Soybean with Fungicides*

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Introduction

With the potential for increased fungicide usage in the U.S. to control soybean rust, it is important to maximize fungicide coverage in the soybean canopy. There are a number of ways to increase fungicide coverage on soybean plants, including the use of air-assist sprayers. Two experiments were completed using a JACTO air-assist sprayer with the objective of increasing fungicide coverage on soybean plants. One experiment compared different nozzle types with and without the air-assist. Another experiment compared the angle of the boom with and without the air-assist.

Methods

- JACTO air – assist sprayer used
- Two experiments (both RCBD)
 - First experiment compared five nozzle types with and without air – assist
 - Second experiment had two nozzle types and compared the angle of the boom with and without air – assist
- Each plot was 24 meters long and 9 meters wide
- Vision Pink dye was tank mixed with the fungicide
- Eighteen Kromekote spray cards were placed in each plot; nine at 1/3 canopy and nine at 2/3 canopy
- Cards were placed at 6, 12, and 18 meters in the plot
- Cards analyzed with the software program DropletScan™ for percent coverage, droplet size, number of drops and estimated volume output per area.

Results

Boom angle comparison experiment

- Air-assist significantly improved canopy coverage and volume of fungicides in the upper and lower canopy
- Boom angle of 0 deg had significantly more coverage than with the boom at 30 deg forward
- Droplet size was dependent on tip

Nozzle Comparison experiment

- Air-assist did not significantly improve canopy coverage or volume of fungicides
- Different nozzles had significant difference in canopy coverage, estimated volume of fungicides, droplet size and number of drops

This information is useful to researchers and growers as they consider using air-assist sprayers to control soybean rust.

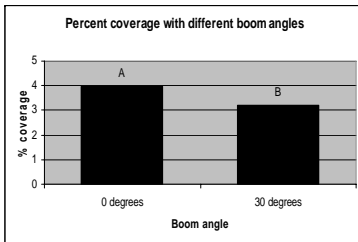


Figure 1: Comparison of angle of boom



Figure 2: Stakes set up in field with aluminum tray to hold spray cards

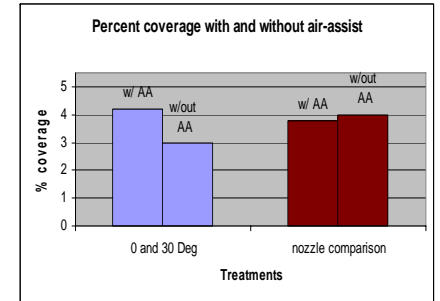


Figure 3: Comparison of canopy coverage with and without air-assist

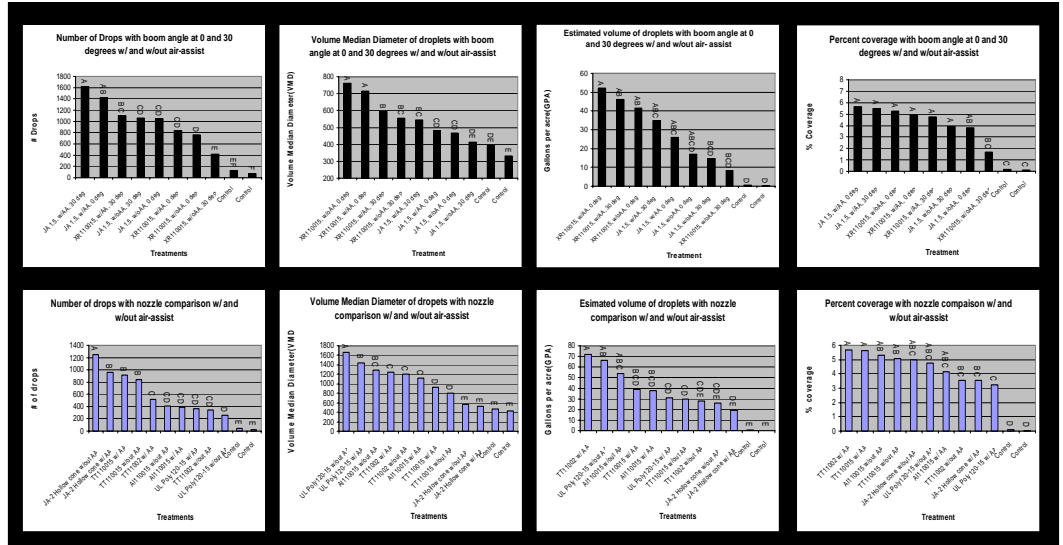


Figure 4: Comparison of number of drops, droplet size, GPA, and percent coverage for experiments comparing boom angle and comparing nozzle type



Figure 5: Pictures of air-assist sprayer