

Aerial Applications Rust Control

By Bobby Grisso, P.E., Extension Specialists
Biological Systems Engineering, Virginia Tech
Blacksburg, VA 24061-0303
rgrisso@vt.edu



Aerial applications have proven successful in controlling soybean rust in Brazil. Because they can cover large acreages very quickly, and are not limited by wet soil conditions, aircraft have significant advantages in timeliness over ground sprayers. By changing deflector angle or orientation of an aerial nozzle, the droplet size spectrum can be altered to best match fungicide application requirements.

The Aerial Spray Nozzle Models (<http://apmru.usda.gov/downloads/downloads.htm>) developed by the USDA Agricultural Research is a valuable tool that aerial applicators can use in setting up their aircraft. By entering the nozzle type, orifice size, nozzle or deflector angle, pressure, and air speed, the model calculates the droplet spectrum and other valuable information. This allows an aerial applicator to set up the aircraft to create the droplet spectrum required for a job. Good control of droplet size is one of the reasons agricultural aircraft can

successfully make soybean rust applications at five gallons per acre.

Agricultural aircraft have the advantage of speed and the ability to spray when field conditions are too wet for a ground sprayer. Thus, aircraft have significant advantages in timeliness over ground sprayers.

While keeping the boom as low as possible works well for ground applicators, flying too low can actually increase drift and reduce deposition for aerial applicators. An ideal height for aircraft to fly is often between 10 and 14 feet above the canopy. Any higher and the droplets are excessively exposed to wind. At lower heights, droplets can become trapped and carried off in air turbulence caused by the aircraft flying so close to the crop canopy. Whether using aerial or ground applications, it is important to follow the proper guidelines as closely as possible.