



David Eby of AgriFlite Services in Wakarusa, Indiana makes a pass over soybeans during an evaluation of the Spectrum Electrostatic spray system. Purdue University scientist, Syngenta and Pioneer Seed Company representatives are on-hand to review results.

## Spectrum ES system proves itself in Indiana

by Bill Lavender

WAKARUSA, INDIANA — Absolutely nothing takes the place of hands-on experience when it comes to convincing yourself of something's validity. "Seeing is believing", as the old adage goes. Reports have come from all over the world about how well the Spectrum Electrostatic spray system works. This has been particularly true with low volume applications in Brazil for control of the dreaded Asian soybean rust. Finally, in early July, AgAir Update had the opportunity to see firsthand the results of controlled applications with the Spectrum ES, monitored by Purdue University at AgriFlite Service's operation in northern Indiana. In a nutshell, it works.

AgriFlite is owned and operated by Denise and David Eby. With more than 30 years in the ag-aviation business and an aeronautical degree from Le Tourneau College in Longview, Texas, David's credentials for setting up the evaluation of an electrostatic spray system are impressive. Not only has he been flying ag for a long time, but he has applied his engineering skills to build the first spray nozzle check valve that consistently does not drip. That was over ten years ago. Ag-pilots worldwide know of this check valve as the AFS Check Valve, developed and built by AeroFlow Systems, a company owned by Denise and David (For more details about the Eby's family business, be sure to read the article, Eby's: Still Innovative in the May/June 2005 edition of NAAA's Agricultural Aviation).

David Eby is a technical kind of guy. Just because someone says it works, doesn't mean that he is completely convinced. To determine whether the Spectrum ES can be used, chemical label issues with state departments of agriculture have to be addressed. Knowing this, David arranged for an evaluation of the system with Purdue scientist Greg Shaner and assistant Shawn, along with Syngenta tech representative Dean Bowers and two Pioneer seed corn management personnel. Each person was critical for judging how

well the ES system would work, especially on Asian soybean rust control at a reduced application volume of one-gallon per acre.

“Bill, I feel that the ag-operator has to have a better way to compete. He has to be able to continue offering his services at a competitive price to the ground machines. If we can reduce our need for five-gallon per acre water volumes with the Spectrum ES, then I believe we are getting closer to being able to do that,” explained David.

AgriFlite operates four Air Tractors; an AT-502, AT-402, and two AT-301s. David’s two sons, Garrett (28) and Ryan (33) fly alongside David treating crops throughout northern Indiana and Illinois. The company works a 150-mile radius from Wakarusa treating mostly seed corn and soybeans. Should Asian soybean rust attack the lush fields of soybeans, it will be critical for Illinois and Indiana operators to be able to cover huge numbers of acres in a relatively short period of time. Reducing water volume per acre is an obvious way to accomplish this.

Both Blake Dobbins and Terry Dobbins of Spectrum traveled to AgriFlite in Wakarusa to assist with the set-up and training for the ES unit. After the installation on the AT-502 Air Tractor, a short briefing and a test flight the day before, David was ready to make the test applications. Lengths of PVC pipe used to mark swaths were erected in a soybean field where the soybeans were in the pre-bloom stage and about knee high. Adjacent corn in the tasseling stage was also be sprayed in the same application pass as the soybeans.

The first and fourth pass was with the ES spray system applying Day-Glow dye mixed in water at one-gallon per acre. The aircraft returned to the load site and a conventional system was installed using AFS Check Valves with TeeJet 1550 flat fan tips for a five-gallon per acre application, flying over the second and fifth pipe. After those two applications, the aircraft, again, returned to the load site and by turning off every other AFS Check Valve with a quarter turn and reducing the boom pressure, a third series of passes were made at a two-gallon per acre rate over the third and sixth pipe. A ground machine was also used to make an 18-gallon application.

Randomly, the Purdue scientists took full plant samples of the soybeans and complete leaf samples from various positions on the corn for evaluation and photo recording under black lights. Leaf and stem coverage was examined, particularly comparing the spray coverage on the five-gallon application to the one-gallon ES application. Most fungicides used for Asian soybean rust, e.g. Syngenta’s Quilt and Quadra, require an application rate of five-gallons per acre. It was important to David for key people from Syngenta, Pioneer and Purdue to see firsthand, as well as for himself, the results of applications made in a controlled environment.

My personal non-scientific observation is the Spectrum ES offers equal to or better coverage of the soybean leaf as compared to conventional five-gallon applications. The droplet size, under magnification, appeared to be more, uniform and smaller, with droplets and less “globs”. It is not to say the five-gallon application was not acceptable, as it was. But, the one-gallon ES application is at least equal to it, in my opinion.

Actually treating Asian soybean rust using ES is the only sure way to know if control of Asian soybean rust is obtainable in the United States, albeit, the unit worked flawlessly in other countries. Thus, there's really no understandable reason, all things being equal, why it would not work here.

Without question, one-gallon application rates, compared to five-gallon rates, are far more economical for the ag-operator. The savings are obvious, particularly with reduced fuel costs and the ability to cover more acres in a shorter period of time. Legality issues could present a problem, unless regulating agencies understand the situation and issue special rulings to allow efficient and effective control of Asian soybean rust, and possibly consider the same for other crop pests.

AgriFlite's efforts to scientifically evaluate the Spectrum ES system, allowing scientists to see the results for themselves, is to be applauded, bringing U.S. operators a step closer to having one more tool that will allow them to be more profitable, while providing equal or better service to the customer.