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Keeping plants, people S.A.F.E.

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By Gabe Licht, Daily Reporter Staff



A crop-dusting airplane releases pink dye, simulating chemical products, during the Iowa Agricultural Aviation Association Operation S.A.F.E. Clinic Wednesday morning at the Northwest Iowa Regional Airport in Spencer. (Photos by Gabe Licht)

As the capacity and role of aerial chemical applicators increase in the field of agriculture, so does the need to ensure such products are applied safely.

The Iowa Agricultural Aviation Association Operation S.A.F.E. (Self-regulating Application and Flight Efficiency) Clinic, hosted at the Northwest Iowa Regional Airport in Spencer on Wednesday, was one way for aerial applicators to brush up on their skills and make sure their equipment is functioning properly.

"The overall goal is to help aerial applicators do a better job protecting the crop and getting the applications on appropriately," said Iowa State University Extension Agricultural Engineer Mark Hanna, one of the analysts at the event. "You want to do it efficiently as far as killing insects and crop diseases, but also in minimizing off-target drift."

Pattern analysis makes sure chemicals are uniformly applied so subsequent applications are not needed, Hanna said.

That analysis includes a type of course made up of 150 feet of string about three feet off the ground. Pilots release a florescent dye from their craft, with the amount correlated to the amount of chemical the operator usually applies.

Aircraft speed, reaching as high as 130 mph or more; height of the application boon; cross winds; and other factors all play a role.

On the third pass, water sensitive cards are added to the equation to measure droplet size and patterns.

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The process is not too complicated, according to Ken Holscher, an associate entomology professor at Iowa State who also analyzed results.

"The hard thing is you have to set a flight pattern to fly directly into the wind," Holscher said. "Sometimes the winds here change. We were very fortunate. We flew planes starting at 7 a.m. until noon and then again until 4 p.m. and never had to change the flight line."

Airport Manager Randy VanderWeide, who also serves as president of the Iowa Agricultural Aviation Association, was thankful for the cooperative weather on the first of a two-day event, which was cut short by non-conductive weather Thursday.

"That's the nature of this event," VanderWeide said. "One of the days is going to be good. If the wind is right and precipitation is not a factor, everyone tries to cooperate. We had good analysts and it was a good turnout."

Applicators at the events also showed positive results, Hanna said.

"More commonly, it was (a matter of) making minor adjustments or changes here or there," he said, equating it to a tune-up for a road-worthy vehicle.

Compared to self-propelled ground sprayers, aerial applicators are often more efficient, according to Hanna.

"A custom ground-based operator may go over 10,000 to 12,000 acres a year; 15,000 would be good," Hanna said. "With aerial sprayers, they're more in the range of 100,000 acres a year."

Fairying the planes back and forth to the nearest airport for more chemicals takes up to half the time.

"It gets to be important to have a good ground crew that is well-trained," Hanna said. "You need professional people who can do the job safely and in a timely, efficient manner."

With a good ground crew, it would not be unusual to cover 500 acres an hour, even though fairying can take up to 30 minutes.

Disease and insect outbreaks can clear out acres of fields, drastically reducing yields, but aerial applicators help farmers respond quickly and efficiently to such outbreaks.

"There have been at least two years that, in late summer, we had tremendous outbreaks of spider mite, so many acres needed to be treated in a short period of time," Holscher said. "There were an awful lot of planes flying. I think aerial applicators can respond to things much quicker."

As the rural landscape changes, including the construction of wind generating farms, aerial applicator safety becomes even more paramount.

"If you put a large, tall structure out there and you're operating aircraft that need to be eight to 12 feet from the ground, you need to know where those structures are at," Hanna said. "We haven't had any issues there, but it can be a dilemma for aerial applicators. There are some situations where some areas should not be treated aerially."

Operation S.A.F.E. events are not required for certified applicators, but Hanna said the industry standard is to attend at least one such event every three years.

Emergency personnel also know how to respond to situations involving aerial applicators, and several fire departments were invited to attend an hour-long training Wednesday afternoon. Due to emergency situations elsewhere, turnout was low, but the departments have agreed to meet with airport officials during an annual meeting, VanderWeide said.

Those involved in Wednesday's event believe keeping open lines of communication between those in agricultural fields and the general public is key.



A variety of devices are used to capture data about a crop-dusting airplane in a certain flight line. A total of 16 aerial applicators took part in the training throughout Wednesday morning and afternoon. Safety training and product presentations were also part of the event.

"I think it's important to educate the public about this field and how the applicators police themselves and try to be good stewards," Hanna concluded.

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