

Agricultural aviation

A new perspective

EVERYONE KNOWS ABOUT crop dusters. Daredevil pilots flying two to five feet above the ground, popping up just before the wires at the end of the field, performing a wingover, and then right back down on the deck to spray in the opposite direction. A few months ago, I had the opportunity to attend the Ag Aviation Expo in Fort Worth, Texas, which included four days of educational courses, conference sessions, and a grand exhibit hall. I came away with a new appreciation and complete respect for this segment of flying. I found a mature, data-rich, and technologically advanced industry.

I arrived three days before the Expo started so I could attend a seven-hour "Wires" course. When class began at 7:30 a.m. Saturday, more than 150 pilots were seated and ready for "Flying in a Wires and Obstruction Environment." By 7:40 a.m., I learned my first important lesson: These professionals are known as "aerial applicators," not crop dusters. These were fixed-wing and helicopter pilots, ag business owners, and brand-new pilots. Many had attended this wires course multiple times and all attested that they learn something new each time they attend. Impressive—these pilots were eagerly seeking additional education to improve safety.

The convention center was abuzz Monday morning with over 1,800 attendees being treated to industry updates and the latest technological advances in aircraft and product dispensing equipment. Postdoctoral research was presented on the latest in nonionic surfactants and achieving the most effective spray pattern and droplet sizes. Another presentation focused on perfecting application technology and technique to minimize "drift"—better to place 100 percent of your agricultural product on the intended field and not the neighbor's yard! By 9 a.m., I learned my second important lesson: These folks are not just pilots—they are full-blown agronomists, crop scientists, who are as interested in the science of farming as the stick and rudder challenges of flying low over a field.

The atmosphere in the grand exhibit hall was electric. New production aircraft were being showcased, and several drone manufacturers were displaying new prototypes. According to the National Agricultural Aviation Association (NAAA), host of the Ag Aviation Expo, 5 percent of the aerial applicators/operators are using unmanned aircraft systems/drones, and that segment appears to be growing (80 percent is fixed wing, 15 percent is helicopters).

The \$37 billion industry comprises 1,500 aerial applicator operators in all 50 states and 3,400 ag pilots. And to those who may



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hold a dim view of spraying crops with pesticides and fertilizers, the industry reports that 27.4 million acres of cropland would be needed to replace the yield lost if aerial application was not available for these crops—an area roughly the size of Tennessee.

Is this a safe segment of GA? Our AOPA Air Safety Institute analysts looked at the past 10 years of Part 137 accident data and arrived at not-so-surprising conclusions. The most dangerous phase of flight is maneuvering, followed by landing, then takeoff. Maneuvering accidents outnumber landing accidents by nearly three to one. Similarly, the phase of flight where the most fatalities occur is the maneuvering phase. When we looked at the leading accident causes, we found "System Component Failure—Power Plant" was the leading cause of all accidents. While engine failures caused the most accidents, these were almost entirely nonfatal. The second leading cause of all accidents was "Low ALT," which was also the second leading cause of fatal accidents. The NTSB uses the category "Low ALT" for any accident that occurred during "intentional low-altitude flight not connected with a landing or takeoff, usually in preparation for or during observation work, demonstration, photography work, aerial application, training, sightseeing, ostentatious display, or other similar activity." "Loss of Control—Inflight" was the third leading cause of all accidents but was also the leading cause of all fatal accidents.

The NAAA is doing something right. The 10-year accident trend is improving—which mirrors GA. Since we do not have an accurate number of annual flight hours flown under Part 137, we cannot calculate the accident rate. However, the average number of annual accidents between 2015 and 2019 was 62, and the average for the five-year period from 2020 to 2024 was 54.8.

The NAAA and its nonprofit arm, the National Agricultural Aviation Research & Education Foundation, have established a strong culture of safety for the industry, and it is working. Stoking the safety fire at NAAA is Scott Bretthauer, director of policy, education and safety. Bretthauer closely tracks the safety stats and dives deeper than the NTSB for underlying causes and solutions to those causes. Hats off to the NAAA for keeping a challenging segment of GA as safe as possible. ✦
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