

Crop Dusting: There's more to aerial application aviation than you ever imagined

By Gates Scott
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The renegade crop-dusting pilot is a relic. Today, aerial application is a sophisticated and rapidly growing industry.

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From The Ground Up

The most wonderful thing about aviation is that there are so many different ways to fly. Gliders, helicopters, ultra-lights, biplanes. You name it. There isn't enough time in our lives to learn how to fly all of the aircraft available in the world. There are very few individuals across the globe that hold all certificates and are type rated in every single aircraft. John and Martha King are the only ones that I know. Anyone else?

In my search for both interesting aircraft and exciting career opportunities, I have come across some very intriguing pilots, recruiters and organizations with great stories to tell. None, however, like the age-old discipline of aerial application.

When people think of an "ag pilot," they envision some old guy flying a biplane, with no radio and no cares, buzzing the landscape as his leather cap flaps in the wind. You remember the pilot from the movie *Fandango*—the guy who packs Judd Nelson's parachute with his dirty laundry? That guy. Ag pilots appear suddenly from below, climbing briskly and diving abruptly, as you consciously scan your path on a long cross-country. They show up out of nowhere, with no radio call, no nothin'. You're surprised, maybe even angry, as they dart out like a stray cat in front of your car. But you admire their cavalier, cowboy type of flight. It actually looks exciting.

The first known aerial application of agricultural materials was flown by John Chaytor, who, in 1906, spread seed over a swamped valley floor in Wairoa, New Zealand, using a hot air balloon with mobile tethers. The first known powered aircraft to spread agricultural materials was a U.S. Army Air Service Curtiss JN4, or "Jenny," piloted by John MacReady spraying lead arsenate from a makeshift metal hopper to kill catalpa sphinx caterpillars that had infested an orchard near Troy, Ohio in 1921. A subsequent study revealed that the pesky caterpillars were virtually wiped out from the application and "crop dusting" was born. The first commercial operation to lead the charge in aerial application was Continental Dusters, once part of Delta Airlines, using insecticides and fungicides to treat a host of crops and tackle insects and other infestations.

Today, organizations like the National Agricultural Aviation Association (NAAA) are working

successfully to change this stereotype of the cavalier ag pilot. The mission of the NAAA has always been to promote and foster the development of aerial application and the significance that it plays on a global scale. By promoting research, new technologies and new application techniques, the NAAA has changed what it means to be an ag pilot. Education, training and safety are the highest priorities for the NAAA. Its nearly 1,500 members and more than 350 pilots in the U.S. lobby for this niche flight industry and protect its growth by thwarting and abating certain governmental regulation that may hinder their field.

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We All Have To Eat

From the ground up, pilots who are currently entering this industry are trained in all aspects of aerial application, safe pesticide use and entomology, all the while minimizing the risk to the environment. Without pesticide use, the world's food supply would be reduced by 40 to 50 percent, resulting in an increase in food prices estimated at more than 50 percent.

To produce future foods, fiber and bio-fuels, increased production on the land already in use will be critical. The use of fungicides, insecticides and herbicides has helped to increase crop yields, allowing more people and animals to be fed and clothed. And it has opened the way for advancements in alternative energies. High-yield agriculture benefits the environment by producing maximum crop yields from fewer acres. Aerial application is a critical component in maximizing this production from the land used. For example, corn fungicide applications during the "tasselling" or pollinating stage of corn growth will produce more corn for the use of bio-fuels, food growth and livestock.

It's estimated that, with the increase in the world's population, food, fiber and bio-fuel production will need to double by the year 2050 to meet the growing demand. Due to the large economic growth and middle class surges in India and China—accounting for almost 40 percent of the world's population—the demand for beef has grown tremendously. As the demand for meat rises, the demand for grain and protein feeds rises as well. It takes eight pounds of grain to make one pound of beef, so the demand for growth in grain production is at an unprecedented high.

"During my international travels as Secretary of Agriculture, I saw firsthand how the thriving agricultural sector decreases poverty, increases national wealth, allows the state to reinvest in the sector and provides a better daily life for the people," said Dan Glickman, who served as Secretary of U.S. Department of Agriculture from 1995 to 2001, speaking to the Chicago Council on Global Affairs about the need for renewed U.S. leadership in long-term global development. A grant from the Bill and Melinda Gates Foundation will aid the Council's ag development project. "It is in the direct interest of the United States to help as many nations as possible as it is in line with our foreign policy, economic development and humanitarian goals."

The use and development of pesticides and other agricultural application materials comes with its

share of environmental concerns. Spray drift, soil contamination, water pollution and occupational disease (often in the form of increased risk to cancer) are a few. Increased environmental regulations implemented by the FAA and EPA in recent years have reduced emissions and dangerous contaminations. In order to stay current, aircraft and equipment in the ag industry are state-of-the-art. Crop-dusting planes today have on-board computers that monitor the rate of application and GPS units to make each field pass more accurate. The days of attaching a 50-gallon drum of chemicals to a rickety airplane are over, as the aircraft today have sophisticated spraying capabilities to improve efficiencies and reduce environmental impact.

Recent technology developments such as GPS swath guidance, aerial imaging and prescription mapping and dispersal systems, have revolutionized the discipline. Fertilizer prices have increased due to the demand, and operators and legislators are looking for a balance between environmental impact and operation cost. Therefore, manufacturers of application systems and aircraft are designing equipment that is aerodynamically "clean," including optimal boom and nozzle placements resulting in a more predictable spray pattern that appeases both the client and the regulatory agencies. Companies like Hemisphere Air, a precision GPS developer, are producing GPS systems that provide guidance accuracy within three feet and guide the pilot using a light bar and electronic mapping system. John Deere Agri Service provides highly targeted infrared aerial technology that is essential in field mapping and additional research and development of variable rate nozzles is helping growers achieve higher yields, quality and profit. Also, electrostatic targeting dispersal equipment is starting to make its way into development.

So, now that you are intrigued with the agricultural industry, the technology and the growing need for aerial application, what's next? You want to be an ag pilot? Ag pilots are trained from the ground up, literally, loading the aircraft for the day, understanding the intricacies of the application systems and aircraft, all the while obtaining the training and flight certification to earn the insurance for a career position. This process takes time, however with the increase in demand for food, fiber and bio-fuels, there is plenty of opportunity out there. Pay rates can vary from one operator to another. For newer pilots, you can get paid a percentage of the gross application or per-acre rate. Your overall experience, your total time in specific aircraft and knowledge of the application processes will dictate your success as an ag pilot.

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First read at Alberta Aerial Applicators Association Newsletter

Found at website: <http://www.airliners.net/aviation-articles/read.main?id=144>