

Agricultural Aviation



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Vol.40, No.6

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A. See pg. 40 for the
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ON THE COVER

Saddle up for NAAA's 2013
 Convention & Exposition in Reno, Nev.



ALSO INSIDE:

A new survey NAAA conducted to gauge how U.S. aerial application businesses fared shows that most NAAA Operators' fortunes improved this year

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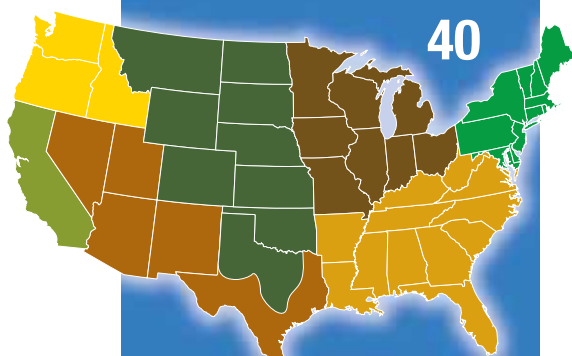
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President's Message

Dana Ness

Coming in for a Landing

As I write this, the flying season has started winding down for many in the industry, and that means my term as NAAA President is also coming to an end. I must say this has been one of the most challenging, and rewarding, years I have ever experienced. I reflect back on my year as NAAA President with many fond memories that I will carry with me for the rest of my life. One of the many highlights I have enjoyed has been meeting and talking with many of you at the different state and regional association trade shows and conventions.

I also had the pleasure of seeing the PAASS Program several times over the course of my travels and learned something new every time I saw it. What a phenomenal safety program! I am convinced the success of PAASS is based on three things: outstanding training material, gifted trainers, and a commitment from the audience to put those lessons into practice. The PAASS presenters are the face and voice of the program, and this year we were fortunate to be led by 13 incredible instructors with an amazing ability to convey important lessons about safety, security and stewardship to their audiences.

I need to thank my exceptional officer team for supporting me this year. I couldn't have asked for a better group of officers than Vice President Rick Boardman (Neb.), Secretary Doug Davidson (Ark.) and Treasurer Brenda Watts (Ark.). To my fellow officers, WNAAA President Dona Jordan and the entire NAAA Board of Directors, thank you for your service on behalf of the industry. You have my utmost respect and gratitude.

I also want to recognize the NAAA staff: Andrew Moore, Peggy Knizner, Ken Degg, Jay Calleja, Lindsay Barber, Margaret Dea, Marisa Beam and our newest employee, Sterling Wiggins. They do a great job of representing the industry and ensuring we get to continue doing what we love to do. If you get a chance to attend this year's convention in Reno, please make a point to tell each and every one of these NAAA people, "Thank you for the quality job you do!"

Serving as NAAA President is a big commitment that comes with important responsibilities, but there's no doubt it is also immensely fun—at least it has been for me this year. From visiting with many of you at various state conventions, to meeting Harrison Ford at a GA Caucus event in Washington, D.C., to getting an advance look at Disney's *Planes*, to hosting the world's largest agricultural aviation convention and trade show in Reno next month, there are so many great memories that will stick with me long after I leave office. It has truly been my honor to serve as your 2013 NAAA President. I will remember this year, the many people I have met and the good folks who work on behalf of NAAA on a daily basis.

Revved Up About Reno

The 47th Annual Convention & Exposition is going to be another can't-miss show. I hope you can join us in Reno, Nev., Dec. 9–12. More than 130 vendors that provide great support to the industry will be there, and the schedule is loaded with informative sessions for all to attend. It all starts with the Kickoff Breakfast, featuring Jeff Skiles, the co-pilot from "The Miracle on the Hudson," as our keynote speaker.

I encourage everyone attending the convention to personally thank any of the Pratt & Whitney Canada people you see for their very generous donation of a new PT6A-34AG engine to our auction. The engine gift is part of P&WC's yearlong celebration marking the 50th anniversary of the PT6 engine series. That celebration will culminate in Reno at NAAA's Annual Convention.

In closing, I would urge everyone to belong to their state associations, as well as to NAAA. If you are a member already, thank you for your continued support. I look forward to seeing and meeting all of you in Reno. Thank you again for the great honor of letting me serve this great industry, one that has served me and my family very well.

Tailwinds and happy landings! ■

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Executive Director's Message

Andrew Moore



TTIP and the Precautionary Principle; Are More Stringent Regulations Forthcoming?

Trade agreements between the U.S. and other governments have helped U.S. agriculture by reducing tariffs and other trade barriers, making our agricultural products abroad more competitive and resulting in a nearly \$38.5 billion trade surplus last year. Of course, this is good for American farmers and farm service providers, such as aerial applicators.

Currently, the United States and the European Union are negotiating the Transatlantic Trade and Investment Partnership (TTIP), a proposed free trade agreement (FTA) between the EU and U.S. to increase market access through the elimination of barriers to trade and investment in goods, services and agriculture, and enhance regulatory cooperation. The two sides account for nearly half of world gross domestic product (GDP) and 30% of global trade, and have investments of more than \$3.7 trillion in each other's economies. For example, according to one economic estimate, the increased dynamic welfare gains from such a deal could be quite high (e.g., when taking into account factors such as the administrative costs of tariffs that accrue due to intra-firm trade between foreign affiliates), estimated by one study to be \$58 billion–\$86 billion for the European Union and \$59 billion–\$82 billion for the United States.¹

Reducing these tariffs and trade barriers with the EU is good for U.S. agriculture, especially considering that the EU ranks fifth as an ag export market for the U.S. with \$9.9 billion in U.S. ag exports in 2012. But the EU benefits too. It exported \$16.6 billion in ag products to the U.S. in 2012.

Probably one of the most concerning issues to U.S. agriculture when it comes to the TTIP is the development of the regulatory compliance portion of the trade pact. The reason is the U.S. and the EU take two considerably different regulatory approaches in determining risk when it

comes to environmental issues such as pesticide regulations. The EU has codified the precautionary principle when regulating a pesticide or other environmental issue. The precautionary principle states that if an action or policy has a *suspected* risk of causing harm to the public or to the environment—in the absence of scientific consensus that the action or policy is harmful—the burden of proof that it is not harmful falls on those taking an action. This requires one to “prove a negative”—that under absolutely no condition is there a risk, which is an impossible standard to meet for almost any pesticide. In other words, the precautionary approach, in regards to pesticides, requires regulation of chemicals when there is an indicative, but not scientifically conclusive, reason to believe a threat to the environment is posed. In short, hazard equals risk, regardless of whether the exposure is exceedingly small—which means more stringent risk regulations under the precautionary principle. Benefits don't play a role in this discussion. So if a compound like the anti-fungal compound trizole might have health effects when in high doses, that trumps the fact that the compound kills fungi that produce aflatoxins that can kill humans and livestock. In fact, it's not even considered at all.

In the U.S., government officials rely on a science-based, cost-benefit analysis approach. The science-based risk assessment adds more complexity to the evaluation formula. With this approach more than just the hazard determines risk. The *hazard combined with the exposure to the hazard* determines the risk and drives a decision whether or not to regulate. Bringing this all back to the TTIP and the regulatory compliance portion of the pact, there are fears that weak negotiation of the treaty on the part of the U.S. may result in more acceptance of the use of the precautionary approach over the science-based risk assessment approach. For example, if the EU is able to negotiate a zero minimum risk level for pesticides that may have certain health risks—even though the exposure to those chemistries would have to be extremely

¹ Fredrik Erixon and Matthias Bauer, “A Transatlantic Zero Agreement: Estimating the Gains from Transatlantic Free Trade in Goods,” European Center for International Political Economy (ECIPE), ECIPE Occasional Paper No. 4/2010, 2010.

high before those health risks are triggered—and no benefits could be considered, it could freeze out U.S. agricultural exports to the EU to the tune of \$3.9 billion in raw agricultural commodities,² and \$4.6 billion in processed food and feed products. The trickle-down effect of this could hurt not only U.S. farmers but also farm service providers such as aerial applicators.

To keep the precautionary principle at bay and ensure a science-based approach NAAA is joining with other national agricultural and farm service organizations urging the Office of the U.S. Trade Representative that the TTIP include a science-based risk assessment that does not undermine the present independent authorities of the U.S. government. Negotiations are on to prevent this marked shift in regulatory thinking, but as Nicholas Ashford, professor of technology and policy at the Massachusetts Institute of Technology, wrote in his prescient 2007 article titled *The Legacy of the Precautionary Principle in U.S. Law*, “Trust in both government and industry has declined, with a corresponding increased demand for the participation of the public,

² Tree nuts, fruits, soybeans, peanuts, grains

The U.S. and the EU take two considerably different regulatory approaches in determining risk when it comes to environmental issues such as pesticide regulations.

consumers, non-government organizations and citizens in decision-making related to protection of health, safety and the environment.” This is taking place more in more in the U.S. at the state government level, where we are seeing regulatory action in the form of labeling of genetically modified organisms (GMO) even though no sound scientific evidence exists that they differ from non-GMO products.

These policies have a way of “crossing the pond” so to speak. Aerial application was banned except in emergency situations in the EU more than half a decade ago, and we’ve seen efforts at the state and federal level to push for more and more aerial restrictions. Is the precautionary principle and all that comes with it next? Not without a fight! Stay tuned. ■

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WNAAA President's Message

Dona Jorden



Teamwork at its Finest

As I wrote my final article as WNAAA President, I began to reflect back on the year. One thing that stood out above all others is the opportunity I have had to witness teamwork at its finest. Men and women bringing their talents and skills, along with different ideas and personalities, together to achieve a common goal—a commitment to maintain and enhance the agricultural aviation industry's image and secure the future of aerial application in agriculture for generations to come. NAAA and WNAAA bring a mix of professionalism and passion, producing an impressive result. These organizations work diligently together to ensure that agricultural aviation makes a positive impact on both the public and private sectors.

This year I had the opportunity to attend several state conventions. I saw firsthand how dedicated the organizers and members at ag aviation associations across the country are to the success of the industry. These men and women work together volunteering their time and energy to make important decisions that positively impact the ag aviation industry in their state and communities.

I am proud to be part of such a dynamic organization and thankful to those who came before us. Their dedication to the industry has been instrumental in clearing the path for the successful future of aerial application.

Many Thanks

As my term comes to a close, I would like express my sincere gratitude and thanks to this year's officers: Vice President Leslie Craft, Secretary Erin Morse and Treasurer Kelli Bartholomew. Their commitment and support were unsurpassed in helping me in my role as president. Each one of these ladies has such great passion for the ag aviation industry. Ask them why they volunteer, and you will see it on their faces and hear it from their hearts.

I would also like to thank each WNAAA committee chair and committee member. These women have given

generously of their time, working tirelessly on committee assignments and WNAAA projects such as the Athena program and attending events like Commodity Classic, Ag in Classroom and other shows that help to promote the ag aviation industry throughout the year. The WNAAA committees have come together and created some exciting events for this year's convention in Reno, Nev., so make plans to attend and help support our industry. While attending the convention please be sure to stop by the WNAAA booth to check out the wonderful auction items and other merchandise that will be available.

I am so thankful to the NAAA staff—they are always ready to help whenever needed. They do a truly magnificent job working behind the scenes to ensure everything runs smoothly throughout the year.

Last but certainly not least, I would like to thank the WNAAA for having the confidence in me, and giving me whatever support I needed to serve as president. It has been a great honor and privilege. Thank you for giving me such a wonderful opportunity. It has truly been a memorable year and one I will always cherish. Everyone has worked so diligently making my term in office a smoother journey than I could have ever imagined.

I would like to close with this final comment: the agricultural aviation industry will continue to grow if we, as individuals working in the industry, continue to support our associations. I would like to encourage anyone who is not member of their state or national ag aviation association to become one. There is power in numbers, and our voices speak louder when we become united in our mission to help feed and clothe the world. Make membership a priority. The benefits of associations will become obvious when you do.

Your support of NAAA and WNAAA makes a real difference. By banding together, we can secure the future of this great profession. ■

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Washington Report

By Ken Degg, Director of Education & Safety



FAA Part 137 Interpretation Questions

NAAA has been asked by members to research possible changes to FAA interpretation of 14 CFR Part 137 which regulates agricultural aviation operations. Three distinct topics have been raised in social media comments, phone calls and email communications with operators throughout the U.S. Those topics involve the ability to be issued a new part 137 certificate in a timely manner; endorsement required for proof of the knowledge and skills required by part 137; and compliance with the “500-foot rule.”

Timely Issuance of New Part 137 Certificates

The first topic was brought to light when a former operator wished to purchase an ag operation during the winter months. A rather sizable investment was required to make the purchase and would require meeting the lending institution’s requirements. The individual applied for a part 137 certificate from the FAA and the necessary loan from the bank. The loan company required the potential buyer to pay more than \$5,000 up front in expenses for preparation of the loan. One of the requirements of the loan agreement was for the applicant to meet all licensing requirements for a business of the type for which the loan was to be issued. Then the problems began to develop.

The Flight Standards District Office (FSDO) having jurisdiction over the area where the operation was based supposedly did not have personnel available to issue a new certificate. For any new certificate, the FAA requires inspectors from operations, airworthiness and avionics to be available to issue, maintain and perform surveillance on that certificate. Due to personnel, each FSDO is limited in the number of certificates, new or existing, which may be managed. This is true whether they are part 137 (ag), part 135 (air taxi), part 141 (approved schools) or others. To make a long story short, the applicant was unable to get his certificate in time for the beginning of the spray season and consequently, lost his non-refundable loan expenses to the bank.

At the same time, we were hearing rumors throughout the country that various FSDOs were saying they could

not issue new certificates or that there may be a three- to 10-year delay. We suspect the huge delays were said more tongue-in-cheek than an actual estimate, but nevertheless, it causes some concern for the future of the industry. We checked with FAA Headquarters for an explanation.

We were told the FAA has not stopped issuing new certificates and no new policy has been issued regarding certification timelines. However, each Region must follow the FAA Certification Services Oversight Process (CSOP) which requires them to ensure that they have sufficient resources to 1) complete new certification activities, and 2) provide continued operational safety oversight of newly certificated organizations without compromising the ability to provide adequate oversight of existing certificated organizations. When resources are not available, the applicant is put on a “first come, first served” waiting list until arrangements can be made. Unfortunately, sequestration and the FAA’s hiring freeze have done nothing to improve the situation. Additional information on CSOP is available at www.faa.gov/documentLibrary/media/Order/8000.92.pdf.

FAA offers the advice that if applicants feel they were treated unfairly in regards to the application, they should talk with the manager of the FSDO involved and, if necessary, initiate the Consistency and Standardization (CSI) process. Information on CSI is available at www.faa.gov/about/office_org/headquarters_offices/avs/consistency_standardization/.

Endorsement Requirements for Part 137 Proof of Knowledge and Skills

The next topic we researched involved FSDOs in the southeast U.S. allegedly telling existing operators, even though they have held a part 137 certificate for many years, if they do not have an FAA §137.19(e) endorsement (knowledge and skill test) given by an FAA inspector in their logbook or in a letter, they were going to be brought in for a written knowledge and skills test. The operators involved thought it was a new regulation. We were told by the FAA there is not a new regulation to this

The FAA has no intention of requiring existing operators to take a knowledge and skills test from the agency. However, the FAA clarified that applicants seeking a new part 137 certificate are required to demonstrate proficiency to the inspector or possess an endorsement previously given by an FAA representative.

effect, and the agency has no plans to require existing operators to take a test from the FAA. However, the FAA clarified that applicants seeking a *new* part 137 certificate are required to demonstrate proficiency to the inspector or possess an endorsement previously given by an FAA representative.

With regard to employee endorsements, the FAA reminds operators that both designated supervisors and pilots are required by §137.41 to demonstrate they meet the requirements of §137.19(e) and have either a logbook entry or a letter of competency to verify this requirement. If an operator hires a new pilot or one that had an endorsement by another operator but not the FAA, that pilot must again demonstrate competency to the new employer that he or she meets the requirements of §137.19(e). This demonstration is not required to be made to the FAA but may be made to the holder of the operating certificate or his designated supervisor. Although the test is not required to be administered by the FAA to a pilot employed by a part 137 operator, if the opportunity arises to be tested by the FAA, it is advisable to do so. An endorsement by the FAA would meet the requirements of competency if the pilot wishes to work as a pilot for another operator and it will also meet the knowledge and skills demonstration requirement if the pilot should decide to apply for a 137 certificate.

To restate the requirement, in the event that a new ag pilot or a veteran ag pilot who does not have an FAA endorsement is seeking work at an operation in which the pilot has never worked, the holder of the operating certificate or his designated supervisor at that new operation for the pilot must ensure that pilot meets the knowledge and skills demonstration. The FAA guidance on this topic is found in the Flight Standards Information Management System (FSIMS) at <http://fsims.faa.gov/> in FAA Order 8900.1, Vol. 2, Ch. 8, Section 1 and Vol. 5, Ch. 11, Section 1.

Compliance With the “500-foot rule”

The final question was “What is this 500-foot rule I keep hearing about?” This subject was brought up when several

FSDOs announced in publications and at educational meetings that they were going to enforce minimum altitude requirements of 500 feet while ferrying to and from the field of application. They based this policy on FAR §91.119 “Minimum safe altitudes: General” in which paragraph (c) requires airplanes to be operated at a minimum altitude of: *“Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.”*

Part 137 grants some relief from this altitude requirement but only under certain conditions. FAR §137.49 titled “Operations over other than congested areas” specifies these conditions. *“Notwithstanding part 91 of this chapter, during the actual dispensing operation, including approaches, departures, and turnarounds reasonably necessary for the operation, an aircraft may be operated over other than congested areas below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures, if the operations are conducted without creating a hazard to persons or property on the surface.”* The underlining was added to show the FAA’s interpretation of when part 137 allows for deviation from the minimum altitude requirement of part 91; it does not mention a deviation during the ferrying phase of the operation.

NAAA has found that interpretation of the FARs and guidance for inspectors published in FAA Order 8900.1 frequently vary from inspector to inspector and FSDO to FSDO. We endeavor to seek the “official” interpretations from knowledgeable employees within FAA Headquarters, but don’t be surprised at some differences of opinion in the field. FAA HQ interpretations trump those of the FSDO. We suggest everyone working under the FARs become as familiar as possible with the regulations so you can intelligently express your opinion to the FAA inspector if his interpretation varies from yours. Who knows, maybe you can enlighten the inspector! ■



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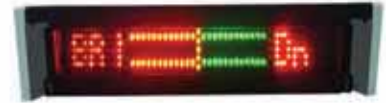
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▶ Please visit us at booth #1201 and TOUCH the new Agnav SCREEN, you will be surprised!

The AG-NAV INC. team invites you to visit us at Booth # 1201 during the 47th NAAA convention in Reno, NV. FREE GIS post-processing software will be available to all visitors. On-site training provided. This year, AG-NAV INC. is pleased to introduce the new and improved Guidance system "AGNAV GUIA PLATINUM". This system is designed like no other Nav system without operational costs. The Guia Platinum operating system is based on the LINUX platform, thus many advantages and higher performance delivered to our customers. With the latest technologies in computer and data communications, the Guia Platinum is designed to bring you the following benefits:

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Making your next job safer: The Guia Platinum includes the obstacle and power line warning feature, which warns you of incoming obstacles and power lines. Now you can fly with a peace of mind.

Making your next job more accurate: The Guia Platinum has auto booms technology, which turns spray on and off automatically. No more worries about when to turn spray on and off. No more worries about spraying over exclusion zones.

Making your next job more effective: The Guia Platinum is compatible with our optional flow and gate control devices. This ensures that you apply the amount you want no matter what speed you're flying.

Making your next job more comfortable: The Guia Platinum has 8.4" super bright screen which can display a moving map with the aircraft centered on screen; or aircraft moving on the map with Line up or North up depending on your preference. Geo-referenced topo map background is available. If you work at night, just press a button to change the display from day time mode to night time mode. Optional NVG Navigation screen available.

Keeping all companies that interact with your application connected: The Guia Platinum has built in Wi-Fi and 3G module, which allows your customers and/or contractors to

send project and area files directly to your system. You can send emails and spray data in your system directly to your customers and contractors when job is done.

We will be glad to show you other products and technologies from AG-NAV:

The SPRAYVIEWWW software has been very successful with helping our clients interface applied data to Google Earth KMZ and KML maps. During the 2013 season many customers used this software to get accurate maps and geo-referenced data for their applications by interfacing with Google Maps. With SPRAYVIEWWW, data analysis is easy and reporting is better than with other more costly agriculture GIS software on the market. Software upgrades are FREE forever. The Auto ON/OFF BOOMS System is the technology that allows you to use geo-referenced maps with exclusion zones and such when doing an aerial application and you want automatic control of the spray system. This year we delivered a fully automatic on/off valve that reacts in a fraction of a second to the maps information during the application. This allows for the pilot to just fly the lines and maintain the guidance line accuracy. This makes the Nav system fully automatic along with our automatic AG-FLOW control.

The SMART BAR (Large & Small), BRIGHT BAR (Large & Small), PILOT INDICATOR hardware suits the requirements for fixed wing aircrafts and helicopters. Light weight and aerodynamically designed to fit any type of aerial application aircraft. All models will be on display at Booth # 1201. When you visit us at our booth, we will have several systems on display for you to interact with, such as the popular AG-NAV GUIA "GOLD" model for aerial application. The AG-NAV GUIA is a DGPS navigation system designed to meet and exceed specific requirements for guidance in aerial applications. Features such as the USB ports allows for fast uploading and downloading of files, saving you time and money. One USB stick can store data for a whole season, making the AG-NAV GUIA very safe and reliable. No data cards, no PCMCIA, no memory cards to carry or lose, just a plain USB key will do the trick. With the AG-NAV GUIA, your data stays in the hard drive until you decide otherwise. The NAV SYSTEM - The operating system for the AG-NAV GUIA allows pilots to navigate through menus with relative ease. It runs on LINUX platform; there are no attacks from viruses most common found in Windows operating systems. The AG-

NAV GUIA uses features with full data logging that has proven user-friendly and successful in agricultural, forestry, geophysics, mosquito control and many other airborne applications.

The FLIGHTMASTER and Accuair navigation systems have been designed to meet Mosquito Control Aerial Application specific requirements in the battle against field infestation and Forest Pest Control respectively. These systems carry an on-board weather station and provide real-time information on wind speed, wind direction, relative humidity, temperature and barometric pressure. Data is updated on every pass and displayed on a Moving Map during navigation. FLIGHTMASTER and Accuair provide the pilot with swath, directional guidance and other navigational information required to carry out precise offset drift aerial applications. The AG-FLOW automatic flow control system has been designed to ensure a steady distribution of application rates by automatically adjusting its flow. This system consists of a flow meter or sensor, a valve and DC motor to adjust the valve position, and a controller box. The flow rate is adjusted automatically by the valve position; thus, controlling the required flow to the spray booms. The controller box is a state-of-the-art computer which has serial ports and CAN bus technology used for communications with other systems. The simple and easy installation process guarantees that the AG-FLOW is ready to use right after installation as calibration is very fast and effective. The AG-FLOW is also capable of variable rate application.

The AG-FLOW 1 is the only one you need for automatic flow control, working as a standalone unit the system performs same as the Ag-Flow (above) but without the need of a guidance system. Data is recorded at all times and can be easily viewed with Navviewww Software.

Please register with us at www.agnav.com/ NAAA2013 for a FREE Q&A session. This session will take place on December 09 from 4:30 to 6:00 PM.

For more information on the above systems and other AG-NAV products such as FIRE-NAV, TRAX-NAV, GROUND-NAV, LI-NAV and PHOTO-NAV, please visit us at NAAA BOOTH # 1201 or contact us today at 1-800-99 AGNAV (24628). You can also visit our website at www.agnav.com.

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Rolling Into Reno!

With a jam-packed itinerary, success is in the cards for attendees of NAAA's 2013 Convention & Exposition

By Lindsay Barber, Manager of Meetings, Marketing & Special Projects



The aerial application industry is set to land in Reno, Nev., for NAAA's 47th Annual Convention & Exposition from Dec. 9–12. Purchase your plane tickets, book your hotel room and register for the world's largest gathering of agricultural aviation personnel.

Are you new to the industry; an experienced pilot or operator looking for CEUs, networking and business opportunities; an allied company with something to sell to ag pilots; or a spouse and/or office staff member looking to share advice to make your operations more efficient? If you answered yes to any one of these questions, you'll find a wide range of professional and business growth opportunities in Reno!

What are we offering you? Countless opportunities to conduct business for your company, visit with old and new friends and learn about cutting-edge technologies and products. NAAA's Convention & Exposition is the best place to network, socialize and hear from industry experts. And this year we've upped the ante by adding three new marquee programs to the convention slate.

Here's more on what's in store for you at the Biggest Little Convention in the Biggest Little City in the World.

All-New Thursday Lineup!

Stay at the NAAA Convention through Dec. 12! NAAA has added three exciting new sessions to Thursday afternoon's lineup.

Safety Session: For the first time ever, NAAA and NAAREF are proud to present the NAAREF Safety Session. This hour-long safety program will focus on the elimination of stall/spin accidents. This is a must-attend event for all attendees, regardless of experience level. You can never learn



Attendees can get up close and personal with vendors at NAAA's Trade Show.

enough about safety as an operator and pilot in the aerial application industry. *Sponsored by Bayer CropScience*

Speed Mentoring: If you've been in the industry less than five years, don't miss NAAA's "Ask the Expert" Speed Mentoring Session immediately after the Dec. 12 *Compaass* Rose Session. Essentially, it's a fast-paced orientation session for new and prospective ag pilots designed to shed light on what an aerial applicator's life is really like. A series of 10-minute speed mentoring rounds will be led by experienced operators and pilots, insurance representatives and ag schools. This is your chance to pose questions to industry experts in a smaller group setting than the *Compaass* Rose sessions and builds on that popular session.

Unmanned Aircraft Session: What Are They and How Do

They Affect You? Drone; UAV; UAS—you've heard these acronyms used repeatedly, but what exactly is an unmanned aerial system and how does it affect you as an aerial applicator? Come to this intriguing panel and find out from representatives of the UAV, academic and federal government communities. Invited panelists include the Director of the FAA's UAS Integration Office, Jeff Williams; Executive Vice President of the Association for Unmanned Vehicle Systems International (AUUVSI) Gretchen West; and Dr. Ken Giles, Professor at the University of California, Davis's Department of Biological and Agricultural Engineering. All presenters will be taking questions from the audience following their presentations. Join us for NAAA's first-ever session on unmanned aircraft Dec. 12 at 2:15 p.m.

REGISTER TODAY!

Save \$50 by pre-registering for the NAAA Convention before Nov. 20! Register online at www.agaviation.org or fill out the form on pg. 29 and mail it to the NAAA office. You may also use the print form to simultaneously register for the convention and pay for your 2014 NAAA membership dues in one transaction.



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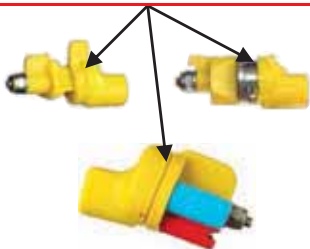
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Additional Sessions & Events of Interest

Kickoff Breakfast: Don't miss the opportunity to hear from Jeff Skiles, First Officer and co-pilot of "The Miracle on the Hudson," U.S. Airways Flight 1549. He will share his story of what happened the morning of Jan. 15, 2009, when the aircraft made an emergency landing on the Hudson River. Enjoy the breakfast buffet and hear the stories, lessons and scenarios from Skiles' experiences in the cockpit. The breakfast is also an opportunity to say hello to friends and see who's at this year's convention. See pg. 20 for further details.

ASABE Technical Session: NAAA's educational programming leads off

with the ASABE Technical Session, led by members of the American Society of Agricultural and Biological Engineers (ASABE). As always, you can expect a science-based overview of the latest state-of-the-art aerial application research—from minimizing drift to maximizing efficacy. ASABE's presenters will focus on practical uses for aerial applicators during their presentations. See pg. 33 for more information on the research topics scheduled for discussion. *(Several states have granted CEUs for this session, including Delaware, Georgia, Indiana, Kentucky, Maryland, Montana, Oklahoma, Oregon, Pennsylvania and Wyoming.)*

COVER STORY CONTINUES ON PG. 22

BOOK YOUR ROOM AT THE BEAUTIFUL SILVER LEGACY RESORT CASINO



The deadline to book your hotel at the Silver Legacy in the NAAA room block is Nov. 6. The Silver Legacy has spent more than \$6 million upgrading sleeping rooms and restaurants since the last NAAA Convention held in Reno in 2009. When staying at the Silver Legacy Hotel, you will be provided with complimentary transportation, between the hotel and the Reno-Sparks Convention Center for the trade show. Transportation sponsored by Dow AgroSciences.



The room rate is \$75/night + taxes for a single or double. Book your room online at www.agaviation.org, scan the QR Code on the left with your smartphone to be taken directly to the registration page or call 1-800-687-8733 and give the reservation code NAAA13.

Please note: Independent third-party companies have contacted NAAA Trade Show exhibitors with different rates than what our block offers. NAAA and the Silver Legacy do not have agreements with any companies and it is recommended that you book your own hotel room.

2013 CONVENTION SCHEDULE

While the NAAA Convention is quickly approaching, there may still be changes to the schedule of events. Updates are posted online at www.agaviation.org

Sunday, Dec. 8

5 a.m.	Aircraft Move
8 a.m.–4:30 p.m.	CD Aviation– TPE331 Engine Maintenance Training
9 a.m.–4 p.m.	Pratt & Whitney Canada PT6 Seminar
12–6 p.m.	Registration Open
12–4 p.m.	PAASS PDC Meeting
4–6 p.m.	Compaass Rose
4:30–6 p.m.	NAAA/WNAAA Board Meetings
6–7 p.m.	Operation S.A.F.E. Analysts Meeting

Monday, Dec. 9

7:30 a.m.–6:30 p.m.	Registration Open
8 a.m.–10 p.m.	Exhibitor Setup
8–9:45 a.m.	Kickoff Breakfast <i>Sponsored by BASF</i>
10 a.m.–12 p.m.	ASABE Technical Session
10 a.m.–5 p.m.	Canadian AAA Board Meeting
10 a.m.–12 p.m.	WNAAA Meet & Greet
12:30–2 p.m.	WNAAA President's Open House
1–2:30 p.m.	Concurrent/Company Sessions <i>Satloc Session</i> <i>FAA/Security Session</i>
2:45–4:15 p.m.	Concurrent/Company Sessions <i>Radial Engines Session</i> <i>AgSync Session</i> <i>Chemical Session</i>
4:30–6 p.m.	Concurrent/Company Sessions <i>AG-NAV Session</i> <i>New Product Update from DuPont Crop Protection</i>
6:30–7:30 pm	Welcome Reception

Tuesday, Dec. 10

7:00–8:30 a.m.	CP Products Breakfast & Seminar
7:30 a.m.–10:30 a.m.	Registration Open–Hotel
8–11:30 a.m.	Exhibitor Setup
8 a.m.–5:30 p.m.	Registration Open–Conv. Center
8:45–9:30 a.m.	NAAA Business Meeting
9:30–11:30 a.m.	WNAAA Athena Program
9:45–11:30 a.m.	NAAA General Session <i>Sponsored by Syngenta, AIG & Ag Container Recycling Council</i>

Tuesday, Dec. 10 continued

11:30 a.m.	Transportation to Convention Center <i>Sponsored by Dow AgroSciences</i>
11:30 a.m.–5 p.m.	Registration Open–Conv. Center
12–5:30 p.m.	NAAA Trade Show
3–5 p.m.	NAAREF Board Meeting
5:30–7 p.m.	Live Auction & Reception <i>Reception sponsored by Syngenta</i>
7:30 p.m.	Pratt & Whitney Canada Reception

Wednesday, Dec. 11

7–9 a.m.	PAASS Presenters Meeting
8–9:30 a.m.	Concurrent/Company Sessions <i>Future of Aerial Applications with the Model 47 Helicopter</i> <i>Laviasa Session</i>
8:30–9:30 a.m.	Allied Industry Meeting
9:30–11:30 a.m.	WNAAA Breakfast with Cathé' Fish
9:30 a.m.–3 p.m.	Registration Open–Conv. Center
10 a.m.–4 p.m.	NAAA Trade Show
3 p.m.	Silent Auction Closes
4–8 p.m.	Exhibitor Teardown
4–5:30 p.m.	Concurrent/Company Sessions <i>P&WC PT6 Turbine Engine Session</i> <i>TPE331 Engine Session</i> <i>Helicopter Session</i>

Thursday, Dec. 12

8 a.m.–12 p.m.	Registration Open
8–10 a.m.	Final Freight Move-out–Conv. Center
8–9:30 a.m.	Concurrent/Company Sessions <i>Air Tractor Session</i>
9:45–11:15 a.m.	Concurrent/Company Sessions <i>Thrush Session</i>
1–2 p.m.	NAAREF Safety Session
2:15–3:15 p.m.	Compaass Rose
2:15–3:45 p.m.	Concurrent/Company Sessions <i>Unmanned Aircraft: What They Are and How They Affect You</i>
3:30–4:45 p.m.	"Ask the Expert" Speed Mentoring Session
5:30–6:30 p.m.	Farewell Reception
6:30 p.m.	Farewell/Awards Banquet <i>Sponsored by DuPont Crop Protection and Southeastern Aircraft Sales & Service</i> <i>(Tickets sold at the door until sold out)</i>

Kickoff Breakfast

NAAA Nabs Hero of the Hudson as Kickoff Speaker for 2013 Convention

Jeff Skiles doesn't walk on water, but he sure knows how to land on it. NAAA is pleased to present the co-pilot of U.S. Airways Flight 1549, better known as "The Miracle on the Hudson," as our Kickoff Speaker for the 47th Annual Convention & Exposition. We can't think of a better way to inspire attendees out of the gate than to hear Skiles' uplifting account of what happened on that fate-defying flight nearly four years ago.



On Jan. 15, 2009, U.S. Airways Flight 1549 departed from New York La Guardia Airport for Charlotte, N.C., on a bright 20-degree afternoon. Everything

*Kickoff Speaker
Jeff Skiles will
jumpstart NAAA's
2013 Convention.*

was normal at the outset until Skiles spotted a flock of Canadian geese on the right side of the aircraft, seemingly headed directly toward them. Flying the plane manually, he was relieved when the nose of the plane rose above the geese.

A few seconds later, he heard four distinct thunks as the geese were sucked into the engines. Both of the Airbus A320's engines failed immediately. Skiles' instrument panel malfunctioned too. Captain Chesley Sullenberger took over the controls and tipped the nose down to retain airspeed. Within 60 seconds the pilots determined that returning to La Guardia or diverting to Teterboro or Newark Airports was too risky since they'd have to fly over densely populated areas and there was no guarantee they would make it. Surrounded by nothing but skyscrapers and neighborhoods they decided to head to the only open, flat space available—the Hudson River. Flight 1549 came to be known as "The Miracle on the Hudson" after Sullenberger and Skiles set the packed Airbus A320 down safely in the middle of the famed New York waterway. All 155 passengers and crew on board emerged from the incident unscathed.

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The events of that day catapulted Captain "Sully" and First Officer Skiles into the spotlight. They were lauded as heroes and miracle workers, but Skiles seems like the last person who would characterize himself in those terms. True to his Wisconsin roots, he comes across as a very down-to-earth guy who happens to have an extraordinary tale to share. "It's really an odd situation," Skiles told Agricultural Aviation. "I mean it is what it is, but somehow with the media hype and everything, it became so much more for people, not just in this country but around the world."

His newfound fame opened the door for speaking engagements and other opportunities, but Skiles has managed to maintain a semblance of normalcy through it all. "My life completely changed, but also it's the same in that I'm still sitting in my house that I lived in before this incident happened. But on the other hand, when I leave the house, I go do entirely different things. It's led to a lot of opportunities to try new things, which is really exciting. I feel like I've lived two or three lifetimes just because of the things I've gotten to see."

Skiles has a connection to the Experimental Aircraft Association (EAA), an organization for recreational aviation enthusiasts. Skiles and Captain Sully were volunteer co-chairmen of EAA's Young Eagles program, which provides free aircraft rides for about 80,000 kids a year.

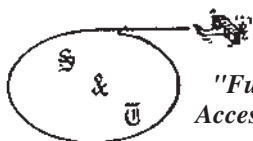
"I was their most active volunteer chairman of this program if for no other reason than I live in Wisconsin," he said. (EAA is based in Oshkosh, Wis., about an hour and 40 minutes away from his home in Madison.)

About 18 months ago, EAA approached Skiles to see if he would be interested in a full-time position serving as the association's vice president of communities and member programs. He jumped at the chance to work with recreational pilots at the 180,000-member organization. "It's a really interesting job because it combines my lifelong interest in aviation with a regular business job, which, let's face it, is completely new to me," Skiles said.

Meet the Hero of the Hudson in Reno!

The Miracle on the Hudson captivated America in 2009 and continues to leave audiences spellbound today. On Dec. 9, Skiles promises to share the events that transpired on Jan. 15, 2009—events that exemplify aviation and America at their best. Don't miss this must-see affair! Tickets for the Kickoff Breakfast and Farewell Banquet are included in the "with banquets" registration package. Anyone with a "without banquets" package can purchase tickets for the 2013 Kickoff Breakfast à la carte. —Jay Calleja

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Many attendees view the two-day trade show as the main event of the NAAA Convention & Exposition, and for good reason. The world's largest agricultural aviation trade show features 140+ exhibitors from across the aerial application spectrum.

General Session: Earning a Skeptical Public's Trust: How to Make a Compelling Case for Agricultural Aviation and the Work You Do: Did you know that fewer than 2% of Americans farm for a living today and only 17% of the U.S. population lives in rural areas? The farm is a long way off from the fork for 49 out of 50 Americans, which is why NAAA has made advocacy and public relations training the focus of the 2013 General Session.

Two of agriculture's best linguists will show you how to make a compelling case for all the good agricultural aviation does. Leonard Gianessi, Director of the Crop Protection Research Institute at the CropLife Foundation, and Steve Powell of Solum Consulting will expound on the valuable role aerial application plays in meeting global food production needs, and demonstrate how to share that message in a way that resonates with the public and aligns with their values. They will also provide tips for telling ag aviation's story when being interviewed by the media. Everyone associated with the industry—from ag pilots and their spouses, to office and ground personnel, to allied industry representatives—will walk away with sound strategies for building a story to tell the public about the importance of the industry and the work you do. *Co-Sponsored by Syngenta, AIG & Ag Container Recycling Council*

Concurrent & Company Sessions: There are nearly 20 educational and training sessions scheduled throughout the week for new and experienced pilots and operators. In addition to the aforementioned new programming, listen and participate in sessions including engine performance and maintenance, chemical, security and FAA regulations, helicopters and

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airframe sessions. On Sunday, Dec. 8, and Thursday, Dec. 12, the PAASS presenters will moderate *Compaass* Rose, an information-sharing session geared toward low-time and prospective ag pilots.

Trade Show & Live Auction: In NAAA's 2012 post-convention survey, 71% of respondents identified the NAAA Trade Show as their favorite program. There's a reason it's the convention's premier event. This year, the world's largest agricultural aviation trade show will feature 140+ exhibitors from all facets of the agricultural aviation sector and eight different aircraft, including celebrity aircraft Dusty Crophopper from Disney's *Planes* movie. Talk to the company representatives you work with on a daily basis and learn about other allied companies that support our industry.

On Tuesday evening, join us for the Live Auction and Reception on the floor of the trade show. This annual auction has become a highlight of the NAAA Convention with top-notch industry items to bid on and an engaging auctioneer, Illinois operator Kevin Palmer. To commemorate the 50th anniversary of the PT6 engine, Pratt & Whitney Canada is contributing a brand new PT6A-34AG turbine engine. To make a donation to the Live or Silent Auction, visit the NAAA website at www.agaviation.org/content/live-and-silent-auctions or send an email with your donation information to information@agaviation.org. See a sampling of auction items on pg. 30. *Auction Reception sponsored by Syngenta.*

Networking: Are you looking for a pilot, a job, companies with the best parts and services in the industry? Or are you just looking to catch up with old friends and meet new people in the industry? If so, you can find all of this and more at the NAAA



NAAA is pleased to announce that the live-action version of celebrity aircraft Dusty Crophopper, from the hit movie Disney's *Planes*, will be on display at the 2013 NAAA Trade Show.

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NAAA Treasurer Brenda Watts shakes hands with a fellow convention attendee. Networking is the No. 1 reason people attend the NAAA Convention.

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Convention. Between the Kickoff Breakfast, Welcome Reception, Trade Show, Live Auction, Pratt & Whitney Canada Reception, Farewell Banquet, private functions and informal get-togethers, there are no shortage of opportunities for socializing and networking with friends and business acquaintances. According to the 2012 post-convention survey, the No. 1 reason people attend the NAAA Convention is for the networking, which basically goes on 24/7.

WNAAA Convention: Ladies, this year's WNAAA Convention mixes business and pleasure by combining a variety of educational events and fun-filled activities. Whether you're a spouse, family member or an employee working in the industry, you're welcome to participate in WNAAA events. Join the WNAAA for Monday's Casino Royale Meet & Greet and the President's Open House. Learn tips and techniques to positively advocate for the agricultural aviation industry at Tuesday's Athena Program. On Wednesday, don't miss an upbeat, fun and motivating breakfast with Cathe' Fish, a CFII, MEI with more than 6,000 hours of flight time. Space is limited for this breakfast; contact Leslie Craft at Leslie@craftairservices.com for your complimentary ticket.

The 2013 NAAA Convention is loaded with ample opportunities for education, networking and fun! All of the convention details are online at www.agaviation.org. We'll see you in Reno! ■

ENJOY THE RENO/TAHOE AREA

Arrive early or stay later to enjoy many things that the Reno/Tahoe area offers. Visit <http://renotahomeetings.com/naaa2013/> to learn about museums, skiing and other fun events.

AND THE WINNER IS...

NAAA is proud to announce the winners of the Association's 2013 Annual Awards. The award recipients will be honored Dec. 12 at the Farewell/Awards Banquet, the closing ceremony of NAAA's 2013 Convention & Exposition. Without further ado, the 2013 honorees are as follows:

- 2013 Agrinaut Award: **Pratt & Whitney Canada**
- 2013 Allied Industry Individual Award: **Tom Harkin**
- 2013 John Robert Horne Memorial Award: **Wade Berry**
- 2013 John Robert Horne Memorial Award: **Mike Rivenbark**
- 2013 Larsen-Miller Community Service Award: **John Larson (posthumously)**
- 2013 Most Active Woman Award: **Lynn Baxter**
- 2013 Opal & Bill Binnion Memorial Award: **Covington Aircraft Engines**
- 2013 Opal & Bill Binnion Memorial Award: **Peggy Knizner**
- 2013 Outstanding Service Award: **Leif Isaacson**
- 2013 Outstanding Service Award: **Jeff Summersill**
- 2013 Related Industry Award: **Larry Sneed**
- 2013 William O. Marsh Safety Award: **Brian Rau**
- 2013 Evans-Christopher Operation S.A.F.E. Award: **Allen Corr**

Please join us in recognizing these individuals for their service to their industry, their association and their communities at NAAA's awards dinner and ceremony Dec. 12 at the Silver Legacy. Tickets for the Farewell/Awards Banquet are included in the "with banquets" registration package. Anyone with a "without banquets" package can purchase tickets for it à la carte.



Garco Products' John Garr received NAAA's Allied Industry Award in 2011.

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According to an NAAA Industry Survey, 73% of aerial applicators surveyed would be “very likely” to use the products and services of a company that sponsors an event at the NAAA Convention. Thank you to the following companies that have already committed to supporting the industry through a sponsorship.

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Session, Convention Passport

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GOLD SPONSORS (\$5,000–\$11,999)



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page), Convention Passport,
Registration Bag Item



Convention Lanyards,
Convention Passport,
Program Guide Ad (inside
page), Convention Benches



Conference Registration Bags,
Program Guide (Back Cover)



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Farewell/Awards Banquet
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Pratt & Whitney Canada
A United Technologies Company

Program Guide Ad, Banner
at the Conv. Center

Get your name in front of 1,200+ attendees and choose one of the sponsorships still available. Your sponsorship will be visible to attendees via convention signage and banners, and in the convention program and throughout various NAAA publications. Learn more at www.agaviation.org/content/2013-convention-sponsorships or contact Lindsay Barber at lbarber@agaviation.org or (202) 546-5722.

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Convention Keepsake Pins



Farewell/Awards Banquet
Co-Sponsor, Window Cling



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Auction Paddles



Thursday Continental Breakfast



Cell Phone Charging Stations,
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Window Cling

Aero Flow Systems

Tuesday Continental Breakfast

Farm Air

Wednesday Continental Breakfast

Packer & Associates

Tuesday Coffee Break

Queen Bee Air Specialties

Monday Coffee Break

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Starr Aviation Agency

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Tulsa Aircraft Engines

Museum Booth

BRONZE SPONSORS (Up to \$999)

**Texas Agricultural
Aviation Association**

Compaass Rose Thursday
Concurrent Session

**Torell Aviation
Insurance Agency**

Compaass Rose Sunday
Concurrent Session

NAAA Trade Show Exhibitors Are Excited to See You

What companies will you meet with on the NAAA Trade Show floor? View the exhibitors below to plan out your visit and determine what business you can conduct in person. Take advantage of all these supporting companies in one location!

COMPANY	BOOTH #	COMPANY	BOOTH #	COMPANY	BOOTH #
A & C Aviation, Inc./Davidon, Inc.	#814	Falcon Insurance Agency, Inc.	#612	Pratt & Whitney Canada	#910
ACES Systems	#1220	Farm Air Inc.	#631	Precision Accessories and Instruments	#531
Acorn Welding	#535	Fire Boss	#530	Precision Laboratories	#900
Aero-Engines, Inc.	#408	First Priority Bank	#902	Premier Turbines, Inc.	#1211
AeroFlow Systems	#824	Flight Grip, LLC	#633	Prime Turbines, Inc.	#607
Aero Fuel Additives	#730	Flying Tigers Aviation	#936	Queen Bee Air Specialties	#634
Ag Air Turbines, Inc.	#436	FMC Corporation	#921	R.T. Turbines	#731
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AgSync	#907	Frost Flying	#727	Rotorcraft Enterprises/Start Pac	#734
AgAir Update	#919	Garrco Products Inc.	#301	S&T Aircraft Accessories Inc.	#433
AG-NAV	#1201	GE Aviation	#1100	Satloc	#712
AgriData, Inc.	#213	Genuine Aircraft Hardware	#435	Scott's – Bell 47 Inc.	#300
AgriNavics	#904	Gibson & Barnes	#114	Serv-Aero Engineering, Inc.	#126
AgriSmart Information Systems, LLC	#119	Great Lakes Turbines, Inc.	#430	SIFCO Minneapolis	#128
Agtelligent	#108	Hammonds Technical Services, Inc.	#736	Simplex Aerospace	#806
AIG	#601	Hancock Enterprises	#1218	Skeet-R-Gone/Flock Buster	#101
Air Plains Services	#222	Hardy Aviation Insurance, Inc.	#700	Sky-Tractor Supply Co.	#512
Air Repair, Inc.	#1117	Heupel Farms Inc.	#605	Southeastern Aircraft Sales	#431
Air Tractor Inc.	#718 & #818	Huffy's Airport Windsocks, Inc.	#406	Southwest Turbine Inc.	#1006
AmSafe	#637	Hunter Agri-Sales Inc.	#603	Spectrum Electrostatic Sprayers, Inc.	#1036
Application Management, LLC	#704	Intercontinental Jet Service Corp.	#1226	StandardAero	#224
APS Brakes	#215	International Governor Services	#630	Starr Aviation	#708
Arrow Energy	#412	Isolair	#439	Sutton James Inc.	#307
ASI Jet AG Division	#1209	J & C Enterprises Aviation, Inc.	#635	Syngenta Corporation	#1118
Association for Unmanned Vehicle Systems International (AUVSI)	#1310	Johnston Aircraft Service, Inc.	#1219	Teledyne Battery Products	#636
Aventech Research Inc.	#614	Kansas Aviation of Independence, LLC.	#434	Tennessee Aircraft Company, Inc.	#115
Avfuel Corporation	#732	Kawak Aviation Technologies	#733	Thrush Aircraft	#1200
Aviation Specialties Unlimited, Inc.	#836	Kimmel Aviation Insurance Agency, Inc.	#400	Tiger Performance Products, Inc.	#129
BASF Corporation	#1000	Lane Aviation, Inc.	#515	Timken	#303
Battlefords Airspray	#533	Leading Edge Aviation Insurance	#214	TK Aviation	#1319
Bayer CropScience	#1012	Machida Inc.	#103	TracMap Aviation	#313
Cascade Aircraft Conversions	#1018	Merit Apparel Co Inc.	#937	Trade-A-Plane	#707
CD Aviation Services	#1225	MF Helicopters, LLC.	#837	Transland LLC	#711
Covington Aircraft Engines Inc.	#918	Micronair Sales & Service Inc.	#125	Tulsa Aircraft Engines Inc.	#1222
CP Products Company Inc.	#812	Mid Continent Aircraft Corp	#1213	Turbine Conversions	#1024
Curtis Dyna-Fog	#107	Mid-Cal Ag Aviation Inc.	#312	Turbine Engine Consultants	#1221
Custom Stitch & Print	#333	Midwest Turbine Service, LLC.	#414	Turbine Installation, LLC	#1224
Dallas Airmotive, Inc.	#826	Mindrum Precision Inc.	#536	Turbines Inc.	#131
Datasmart Software	#437	Mint Turbines LLC	#839	Turtle-Pac P/L	#534
Davidson Solid Rock Insurance	#609	Nachurs Alpine Solutions	#832	United Turbine Corp.	#113
Dow AgroSciences	#801	NationAir Aviation Insurance	#218	Valley Air Crafts	#725
Dromader USA LLC	#410	NAAA	#701	Weber Aviation Insurance	#513
DuPont Crop Protection	#402	National Flight Services	#305	Wilbur-Ellis Company	#632
DynaNav Systems Inc.	#709	North Star Aviation, Inc.	#314	Winfield	#1125
Eagle Vistas/Laviasa USA	#600	Pickett Equipment Co.	#807	Wings Insurance	#127
Electronics International	#226	PIM Aviation Insurance	#331	WNAAA	#330
Executive Aircraft Maintenance	#1223			World Fuel Services	#532

To view an up-to-date list of exhibitors and view booths still available for purchase, visit www.agaviation.org/content/trade-show. Contact Lindsay Barber for further details at lbarber@agaviation.org or (202) 546-5722.

Saddle Up for the WNAAA Convention!

By Leslie Craft

WNAAA Convention Committee Chair

Saddle up and hitch those wagons! We are gearing up for “Ag Aviation’s Best Deal” in the biggest little city, Reno, Nev.! If you are ready for the latest in technology, the education to take you to the next level or the networking that will connect you to the next business opportunity, you do not want to miss Reno this year, especially the ladies program! Have you ever heard the saying, “Behind every successful man there is a great woman”? Well, it’s true, and I like to think we make up the WNAAA!

2013 WNAAA Convention

This year’s WNAAA Convention features a great slate of events, starting with an opening day Casino Royale meet and greet. Later that afternoon we’ll honor our president, Dona Jordan, at the President’s Open House. Come for the fellowship, and bring your big hair and dazzling good looks to our photo booth, which will be making its first appearance.

Another program dear to my heart is the Athena Project. Please join us as we look at ways to put “a positive spin on ag aviation” on Day 2. The next morning we’re pleased to present a special breakfast engagement led by flight instructor Catherine (Cathe’) Fish. Cathe’ has taught motivating and entertaining aviation safety courses in every state in the union. In nearly 40 years of flying, she has flown more than 6,000 hours. Fish spent five years as an aviation technology professor at Cochise College in Arizona and has

been an AOPA Air Safety Foundation lead instructor since 1983. You don’t want to miss her fun, upbeat and motivating program, “Flying Fish’s Wild, Wacky and Outrageous Pilot Whoppers.” Cathe’s unusual and hilarious aviation stories are sure to make you laugh, and we’ll even throw in breakfast on the house! You will need a ticket for this seated event, so be sure to email me for a seat or two at Leslie@craftairservices.com. So what are you waiting for? Book your room and flight today! See you in Reno! ■



The WNAAA has several exciting events planned for women attending the convention.

WNAAA CONVENTION SCHEDULE

Monday, Dec. 9

10 a.m.–12 p.m.

Meet & Greet: Casino Royale

Come try your luck ~ Is it true what they say about Lady Luck?

12:30 p.m.–2 p.m.

President’s Open House:

Texas Grill

Giddy Up! Texas Style Lunch ~ Photo Booth Fun!

Tuesday, Dec. 10

9:30 a.m.–11:30 a.m.

Athena Program: Putting a Positive Spin on Ag Aviation

12 p.m.–5:30 p.m.

Trade Show, WNAAA Booth & Silent Auction

Who doesn’t like to shop? Especially at Christmas time! You’ll find great gifts and convention apparel at the WNAAA booth. Check out the silent auction too to bid on great items that benefit the WNAAA.

Wednesday, Dec. 11

9:30 a.m.–11:30 a.m.

Breakfast with Cathe’ Fish

Wacky & Outrageous Whoppers
Sponsored by GarrCo Products Inc.
Space is limited, tickets are required.
Email me to order your complimentary tickets! Leslie@craftairservices.com

10 a.m.–4 p.m.

Trade Show, WNAAA Booth & Silent Auction*

* Silent auction closes at 3 p.m.



47th Annual NAAA Convention & Expo

Reno, Nev. ◇ Dec. 9-12, 2013

Pre-Registration must be received in the NAAA Office by Wednesday, Nov. 20, 2013. Use this form and register today!
Registration is also available online at www.agaviation.org.

MEMBER REGISTRATION: You must be the designated member of an Operator or Allied Industry Company, State Association Executive, or have a Pilot, Affiliated Operator, Affiliated Allied, Associate, International or WNAAA membership in your name, or be the spouse of a NAAA member to qualify for member rates.

Registration at the convention site will cost \$50 more per person!

EXTRA BANQUET/RECEPTION TICKET FEES: Attendance at the Welcome Reception, Auction Reception and Farewell Reception are included in your registration fee. Purchase Kickoff Breakfast or Farewell Awards/Banquet tickets only if you purchased "without banquets" package. Purchase extra Welcome Reception and Farewell Reception tickets only for guests with no registration package.

	Registration With Banquets	Registration Without Banquets
NAAA Members		
Member	\$335	\$230
Spouse	\$280	\$170
Child (under 12)	\$115	Free
Non-NAAA Member		
Non-member	\$460	\$355
Spouse	\$400	\$295
Child (under 12)	\$115	Free

Monday, Kickoff Breakfast	\$45/each	# needed ____
Monday, Welcome Reception	\$45/each	# needed ____
Thursday, Farewell Reception	\$30/each	# needed ____
Thursday, Farewell Banquet/Awards	\$80/each	# needed ____

REGISTRANT: First Name _____ MI _____ Last Name _____

(Please print your name as you would like it to appear on your convention badge.)

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Country _____ Fax _____ Email _____

SPOUSE REGISTRANT: First Name _____ MI _____ Last Name _____

(Please print name as you would like it to appear on convention badge.)

ADDITIONAL REGISTRANTS:

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 First _____ MI _____ Last _____

PAYMENT:

Registrant Fee \$ _____
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 Add'l Registrants \$ _____
 Banquet Tickets \$ _____
 NAAA Member Dues \$ _____
TOTAL DUE \$ _____

(U.S. funds only, must accompany registration)

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"Signature is permission to bill Credit Card."

NAAA MEMBERSHIP DUES: *(Check appropriate boxes)*

Note: Participating Operator or Pilot does not belong to a State/Regional Association. See www.agaviation.org or call (202) 546-5722 for further membership information.

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- Affiliated Operator: \$200
- Participating Operator: \$1,000, plus \$100/ aircraft over one
 - Extra Aircraft: \$100/ aircraft over one _____
- Pilot: \$200
- Participating Pilot: \$380
- Allied (1-10 employees): \$500
 - (11-50 employees): \$750
 - (51-100 employees): \$950
 - (101-500 employees): \$1,100
 - (500+ employees): \$1,900
- Affiliated Allied: \$200
- Associate: \$95
- International: \$250
- State/Regional Association: \$750
- WNAAA: \$200


Mail payment and registration form to: NAAA, 1440 Duke Street, Alexandria, VA 22314 Fax 202-546-5726
Register online at www.agaviation.org Questions? Call 202-546-5722 or email information@agaviation.org.

AUCTIONS PROVIDE INCOME FOR ASSOCIATION PROJECTS

The Live and Silent auctions provide income for association projects and programs. Not only do you provide support to NAAA and WNAAA, but your company name and generosity will also be seen by thousands of people in the industry through NAAA publications, website and onsite at the NAAA Convention.

We are still in need of auction items to have the most successful auction possible! To donate an auction item, fill out a form online at www.agaviation.org/content/live-and-silent-auctions or email your donation information to information@agaviation.org. Big-ticket items are usually reserved for the Live Auction, with smaller items allocated for the Silent Auction, but final determinations are made on site once all the offerings have been inventoried. ■

SAMPLING OF 2013 AUCTION ITEMS

COMPANY	ITEM
 Pratt & Whitney Canada <small>A United Technologies Company</small>	To commemorate the 50 th anniversary of the PT6 engine, Pratt & Whitney Canada is contributing a brand new PT6A-34AG engine. (See accompanying article for more details.)
AgAir Update	Lifetime Subscription to AgAir Update Two pen and ink drawings by Richard DeSpain
Agrinautics	Agrinautics Pump assembly with Teflon Tuffcoat
AgriSmart Information Systems	Nexus 7 Tablet – 16GB
Air Plains Services	For Cessna 188 Operators Only: McCauley 3-Blade Propeller STC Paperwork Authorization (paperwork only, doesn't include propeller)
Covington Aircraft	\$15,000 Gift Certificate
Phoenix Aviation Managers and John "JT" Helms	Matted print of "Leland's Legacy"
S&T Aircraft Accessories Inc.	Certificate for a Starter Generator Overhaul
Satloc	New L7 LB Lightbar – 4 Window Displays, Approach Warnings, Variable Color LEDs, Compatible with any M3, Bantam, IntelliStar and G4
Sea Glass Fine Art	Limited Edition 12-inch Fine Art Print selected from artist's portfolio, or apply full value of your certificate to a larger print.
Star-Flex GPS Antenna Mount	Aircraft Windshield Sun Visor (for all models of Air Tractor)
Starr Aviation Agency	Citizen Blue Angels Skyhawk A-T Watch
Turbine Conversions	\$2,000 gift certificate/card to use towards any Turbine Conversions products
United Turbine Corp.	Three separate Fuel Nozzle Labor and Hot Section Labor
WRK of Arkansas & Garrco Products	One-Day Operation S.A.F.E. Fly-In Clinic
Western Aviation	Aircraft Windshield Sun Visor (for all models of Thrush)



Rick Reed hoists a pedal plane donated by Devil Dusters Inc. over his head so that everyone at NAAA's Live Auction can get a good look at it.

2013 AUCTION PAYMENT INFORMATION

Auction Payment Arrangements

NAAA items selling for \$3,000 or more require either payment in full or a 10% deposit at the time of purchase. The balance must be paid within 30 days of the auction. Item will be transferred upon receipt of payment in full. Payment must be made via cash, certified check, credit card or wire transfer.

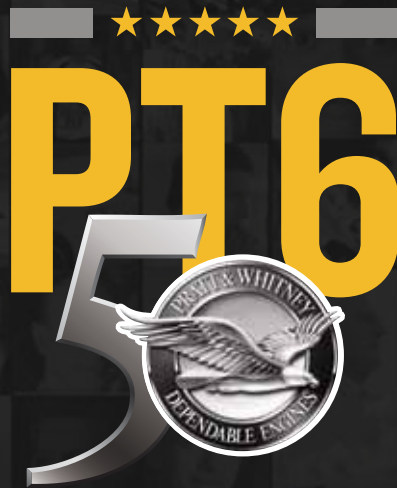
All items selling for less than \$3,000 must be paid in full at the time of the auction. Payments may be made by cash, check or credit card (MasterCard, Visa and American Express).

Auction Payment Arrangements for PT6A-34AG Engine

Potential buyers must provide a letter of credit from a financial institution to NAAA and place 10% down as an initial deposit. The estimated value of the engine is \$350,000.

Auction Shipping Arrangements

NAAA is not responsible for shipping auction items. You can make arrangements with GES to ship your auction purchases for you. GES can pack and ship anything you purchase. ■



What makes a **LEGEND**? It starts with an idea, it grows with the **PURPOSE** to delight **CUSTOMERS**, and it's born from **VICTORY**. But the only legends that are truly worth celebrating are those that carry on long after the first victory lap, where **VISION**, purpose and success are ongoing. This is the legend of the PT6 engine, and now it's time for us to **CELEBRATE 50** inspiring years of turboprop **INNOVATION**.

Visit us at **NAAA 2013 Booth #910**



Pratt & Whitney Canada

A United Technologies Company

Pratt & Whitney Canada Pledges Its Popular PT6A-34AG to NAAA's Live Auction

Pratt & Whitney Canada (P&WC), a regular contributor to NAAA's annual Live Auction, has made a notable donation to this year's auction: a brand new PT6A-34AG engine fresh from the factory. The gift coincides with the 50th anniversary celebrations of the iconic PT6 engine family.

"We are very proud that the PT6 engine has helped change the face of modern aviation," said Denis Parisien, Vice President, General Aviation, P&WC. "Its simplicity of design, versatility and dependability have made it one of the most enduring engines in aviation history. And thanks to the unmatched reliability and durability of the PT6A engine family, P&WC has gained an increasing presence in the agricultural aviation segment. As part of our 50th anniversary celebrations, it was important to us to make this contribution to NAAA's Live Auction."

"The Live Auction is a key fundraising initiative for NAAA," NAAA Executive Director Andrew Moore said. "Pratt & Whitney Canada's commitment to the ag industry and NAAA's initiatives has enabled us to raise record dollar

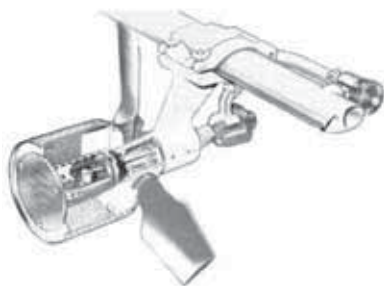
amounts, which provide income for NAAA projects and programs. We can't thank them enough for their support."

P&WC has a history of generous contributions to the Live Auction. In 2011 and 2012, the company donated two Hot Section Inspection certificates. P&WC also provided a new PT6A-34AG engine in 2010. "We hope this year's pledge of a PT6A-34AG will contribute to establishing a new bidding record!" Parisien said. ■



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Flying Tiger Aviation
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flytigeraviation@aol.com
flyingtigersaviation.com

2013 Aerial Application Technology Technical Session

2013 ASABE/NAAA Technical Session
Dec. 9, 2013 | Reno, Nev.
10 a.m. to 12 p.m.

Spray Droplet Size and Classification and Implication on Drift

Presented by Brad Fritz, USDA-ARS
Aerial Application Technology Unit

Summary: One of the first things any applicator is concerned with when setting up his equipment is the droplet size or spray classification required for the job and/or product label. While droplet size and spray class are fairly simple concepts, there are a number of factors to consider when selecting nozzles and other operational settings. Many product labels specify either VMD (volume median diameter) or a specific spray class such as a MEDIUM spray. Applicators have many tools and sources of information for selecting

nozzles. However, the flipside to having such an array of information is that it can lead to somewhat less than straightforward results when it comes to fine-tuning your aircraft and nozzle settings to maximize efficacy and minimize potential drift. For example, while selecting a particular nozzle and set of operating conditions to generate a MEDIUM spray is simple, all MEDIUM sprays are not alike. Depending on the setup selected, differences in downwind deposition of the applied product can vary by as much as two- or three-fold. Likewise, all 300 μm VMD sprays are not equal with downwind and

airborne spray movement varying by as much as tenfold. Fine tuning your nozzle selection as well as its setup and operation can enhance your applications while decreasing the chance of unintended movement and impact.

Speaker Bio: Dr. Bradley Fritz is an Agricultural Engineer with the USDA-ARS Aerial Application Technology Unit in College Station, Texas. Dr. Fritz's research areas focus on the impact of nozzles, spray solutions and other operational parameters on applied droplet size. He also is focused on how environmental effects play a role in the movement and ultimate fate of these applied sprays and their impact on target and

As of Oct. 15, operators and pilots in Delaware, Georgia, Indiana, Kentucky, Maryland, Montana, Oklahoma, Oregon, Pennsylvania and Wyoming can earn CEUs for attending the ASABE session. Many additional states are expected to offer CEUs. Visit www.agaviation.org/content/ceu-information for the latest details.

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non-target species. He has authored or co-authored more than 50 peer-reviewed papers and serves on a number of national and international professional organizations.

Nozzle Selection and Operation: Do You Know How Your 2 GPA Nozzle is Operating?

Presented by Clint Hoffmann, USDA-ARS Aerial Application Technology Unit

Summary: Basic nozzle setup and operation is something that all

applicators routinely do and is a key component of making professional applications. The problem with routines is that one can become complacent in how much time and attention is given to the details of setting up a spray boom. This presentation will therefore serve as a refresher for applicators and cover the basics of calculating flow rate, nozzle selection and spray quality as required by product labels. Building on some of the other presentations in the technical session, such as AGDSIP modeling

and droplet size determinations, several real-world aircraft operational scenarios will be used to go step-by-step through the nozzle selection process. Through this process, applicators will be shown how to meet droplet size or spray quality requirements that exist on many pesticide labels.

Speaker Bio: *Dr. Wesley "Clint" Hoffmann is an Agricultural Engineer with the USDA-Agricultural Research Service (ARS) in College Station, Texas. Dr. Hoffmann joined ARS with a focus on aerial application research, where he serves as the Lead Scientist of the Aerial Application Technology project. His research efforts are focused on effects of physical properties and nozzle operational parameters on spray atomization, spray evaluation and development, and sampling methodologies for measuring spray droplet transport in the environment. He has authored or co-authored more than 80 peer-reviewed articles on application technology and many more magazine or conference proceeding papers. He is a member of numerous professional organizations, including ASTM International, the American Society of Agricultural and Biological Engineers and the American Mosquito Control Association.*

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Portable Tower Systems and Guidelines Indicating Atmospheric Stability

Presented by Steven Thomson, USDA-ARS CPRSU

Summary: For good environmental stewardship from aerial application of crop protection materials, it is essential that the applicator avoid application under "stable" atmospheric conditions when a temperature inversion is likely to occur. Surface temperature inversions occur during nighttime surface cooling and until morning surface heating. Guidelines for Mississippi and most other states regarding spray avoidance during temperature inversions are very general and do not provide

adequate guidance on identifying and avoiding inversion conditions. A simple scheme based on temperature changes can provide better guidance and is something anyone can easily measure. Low-cost portable towers can be used to both record and transmit the type of information aerial applicators can use to make application timing decisions. Construction details and results of a proposed low-cost tower system will be presented along with guidance and recommendations on identifying and avoiding inversion conditions.

Speaker Bio: *Dr. Steven J. Thomson is a Lead Scientist and Agricultural Engineer with the USDA-ARS Crop Production Systems Research Unit in Stoneville, Miss. Dr. Thomson's research areas focus on mitigation of drift from aerial application, optimization of canopy penetration from ground and aerial spraying, remote sensing and spray sampling for plant injury assessment, and environmental effects on off-target drift. He has authored or co-authored more than 70 peer-reviewed journal articles, has been an invited keynote speaker at overseas research forums, and is Division Editor for two of ASABE's research journals, Transactions of the ASABE and Applied Engineering in Agriculture.*

Spray Deposition into the Canopy with Different Nozzle Systems and Rates

Presented by Randy Price, LSU AgCenter, Dean Lee Central Research and Extension Center, Alexandria, La.

Summary: In recent years, newer fungicides have become important to battle Strobilurin-resistant sheath blight in rice. A fungicide with a Section 18 in Louisiana needs direct contact to operate on the fungus, and since most fungus start at the plant stem/water contact, good coverage during spraying is desired at this location. The purpose of this study was to determine the spray penetration at several standard application rates (GPA) used by agricultural aircraft

when spraying fungicides in medium density rice. Testing was done with an AT-502 equipped with CP-11 nozzles at 30-degree deflection at 40 psi at rates of 3, 5 and 10 GPA. The mean diameter of the droplet size was approximately 270 µm for each rate. Chemical rates were kept constant and flow rates set by either changing the orifice size or lowering the number of nozzles. Tests indicate that the 10 GPA rate provided the best coverage of all the rates, and for each rate, approximately 50% of that attained at

the top level was maintained down to the bottom level of the plant. Testing with a Micronair system showed similar results.

Speaker Bio: *Dr. Randy Price is an Agricultural Engineer with the LSU AgCenter, Dean Lee Central Research and Extension Center in Alexandria, La. He has numerous peer-reviewed publications and patents that have resulted from his research career. Dr. Price is currently focused on application technology and precision application issues.*



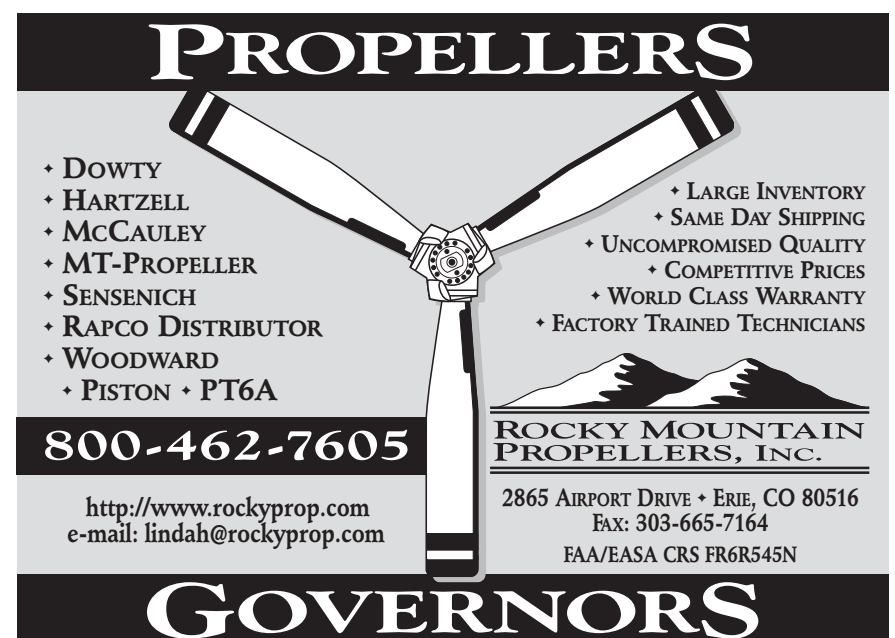
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Field Trial Updates Related to Fungicide Applications, Higher Spray Pressures and Droplet Sizing

Presented by Scott Bretthauer, Extension Specialist, University of Illinois

Summary: The results of several projects will be shared. The first is a comparison of rotary atomizers and flat fan nozzles for making 1 gallon per acre applications of fungicide on corn. Instead of using artificial collectors to measure deposition, plant tissues were harvested from corn plants within in each treatment area and analyzed for the amount of fungicide in them.

The second project involved using straight stream nozzles and 20-degree flat fan nozzles at higher pressures in order to reduce the percentage of spray contained in droplets less than 100 microns in diameter. Wind tunnel work was used to measure the droplet size for several nozzle options. These results were evaluated to select three nozzle types for additional testing. The nozzles were set up on an AT-802 to evaluate their pattern uniformity and swath width when operated at higher pressures. The AT-802 was calibrated at a pressure of 90 psi. Finally, droplet size information for both flat fans and straight stream nozzles with several

different pesticide formulations and adjuvants will be presented.

Speaker Bio: *Dr. Scott Bretthauer is an Extension Specialist in Application Technology with the Department of Agricultural and Biological Engineering at the University of Illinois at Urbana-Champaign. He is an Operation S.A.F.E. analyst and conducts aerial application fly-ins for Illinois and several other states. Dr. Bretthauer's research interests include optimizing aerial applications with respect to nozzle selection and setup, how drift reduction technologies impact efficacy, and how various components of a spray solution impact spray droplet size. ■*

Advertorial provided courtesy of Air Tractor's 2013 Convention Sponsorship

Air Tractor Reaches New Production Heights in 2013

This year has been a year of milestones for Air Tractor, the Olney, Texas manufacturer of aerial application and firefighting aircraft. In April the company delivered its 500th AT-802A, the company's popular 800-gallon capacity ag aircraft. Soon after, the company's 3,000th aircraft rolled off its production line.

Speaking at the event held to commemorate its 3,000th airplane,

Air Tractor President Jim Hirsch remarked, "Today, Air Tractor produces more ag airplanes annually than all of our competitors combined. We only wish that our founder, Leland Snow, was with us to celebrate and enjoy this moment."

In 2012 Air Tractor produced and sold 180 aircraft, a company record. "Just over half of our aircraft sales are exports, which reflects the growing popularity of Air Tractor aircraft around the globe," said Hirsch.

The 3,000th Air Tractor, a bright yellow and blue AT-502B was delivered to its new Brazilian owners, Agropecuaria Maggi Ltda., part of an agribusiness conglomerate that is the largest private producer of soybeans in the world.

"This year has been one for the record books for Air Tractor", said Jim Hirsch. "We can't wait for 2014."

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Make the Most of Your Time at the NAAA Convention

By Randy Hardy, NAAA Insurance Committee

Aviation insurance is a vital part of your business. It exists to manage risk and protect your business assets. Belonging to NAAA and your state and regional associations is another form of business insurance. Attending the NAAA Annual Convention falls into that same category for me.

Like many of you, I have been attending the NAAA Convention & Exposition longer than I want to admit. As so many of you have, I have been involved with the NAAA board in various positions for years, including as chairman or co-chair of NAAA's convention committee in recent years. I've also been involved on the state level in any capacity where I have been needed. Many times, I'm asked why. I assume they ask because I'm an "allied member" and not an operator. The answer is really very simple, and that's because we're all in this together.

I want to know what's going on, what the new trends are, who's who and why. Even as an allied member I want to know what's affecting you and the aerial application industry, including

the politics of the industry, and what's being done to either promote your livelihood or harm you. I've used the term "I" a lot here, but in truth it's "we." We're all in this together, and thus it's always best if "we" can get together to talk, renew friendships and forge business relationships. That's why NAAA's convention is the place to be this December. We go to see what's new—to see new products and ideas to make us a better industry. The convention lets you physically put your hands on new products and ideas to see if they would work at your facility.

I've said many times I'm amazed at the dedication the allied group has for operators and ag pilots both on the state level and national level. Yes, we all sell a product, and we need you to purchase them from us, but this industry has a unique blend or attitude you rarely see in other groups. I'm part of many other aviation associations. Honestly, the blended effort on the part of operators, pilots, allied members—and for that matter the WNAAA, state associations and international groups—is very unique to our association.

Maybe that's why I'm so attracted to aerial application and its people.

The NAAA Annual Convention is a place where all this comes together in one place and at one time of year. NAAA's allied industry come from seven allied divisions. Along with the insurance division, the application technology, airframe, chemical, dealer/parts, propulsion and support divisions are out in full force at the convention. These dedicated folks are spending the money and time to bring all this together for one common goal which is to sell, promote and contribute to the advancement of the aerial application industry. What an opportunity to get together and advance your knowledge, network with others, experience firsthand what's new and different in the industry, and on top of that get lots of valuable information through the concurrent sessions and all the various other meetings that take place at the convention.

Since I'm from the insurance division, let's use that as an example. Be prepared to come to the convention and find your



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respective insurance company or agent. Sit down and review the past year, the highs and lows. Discuss your policy. Consider what you have now and any changes you might have made this past year that would change your physical damage needs on the aircraft or liability coverage. Are you seeking any contracts for the next year that would require changes to your limits? How about pilot changes, hangar projects, contents additions, etc.?' The phone works great, but there's no substitute for one-on-one time with people you purchase your business needs from, whether it's insurance or any other product you have.

If you have never been to NAAA's convention before, I can assure you it is well worth your time and money. It's one of those low-risk, high-reward propositions that any businessperson ought to love. The knowledge you'll gain and the contacts you will make at NAAA's convention are another valuable form of insurance. The face time you'll get at the trade show, in the convention hallways and at different receptions and concurrent sessions is priceless. Not only will you get to know people—you'll get to know people who know people.

From Day One it's all there, starting with the Kickoff Breakfast, the concurrent sessions and the opportunity to network in a relaxed atmosphere during receptions, along with the world's largest agricultural aviation trade show—all in one place at one time. Plan your dinners ahead, set up meetings with your business partners, allied representatives and friends. Stay through the meetings on Thursday and finish the week off with a great final banquet. It's all there, and now is the time to register. Come with a plan. Then leave with a plan of attack. ■

Randy Hardy is Co-Chairman of the 47th Annual NAAA Convention & Exposition in Reno, Nev., Dec. 9–12.

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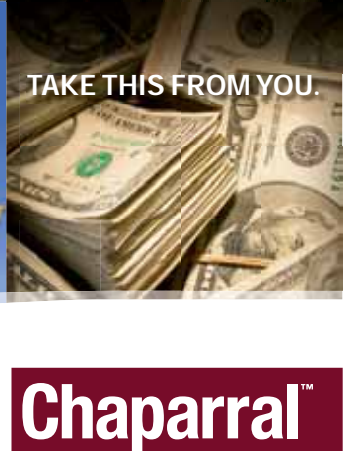
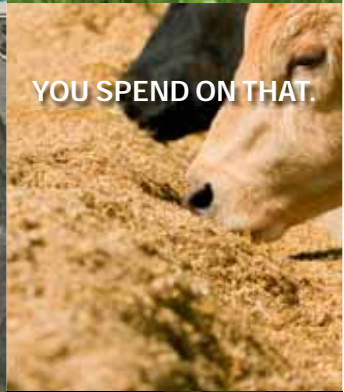
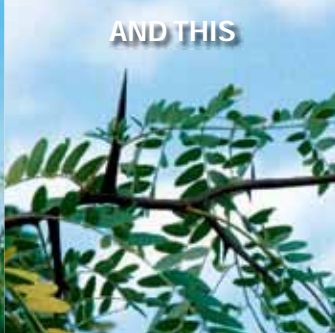
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Bounceback Year for Aerial Applicators

After a down year in 2012, a new NAAA survey finds that most U.S. operators got back on track in 2013

By Jay Calleja, Manager of Communications

After a tough-luck 2012 season in which aerial applicators across the country suffered through the worst drought in more than half a century, the number of hours flown and acres treated by the nation's operators rebounded this year and appear to be more in line with traditional norms, a new survey of NAAA Operator members finds. The majority of operators surveyed also expressed optimism about their prospects for 2014.

To gauge how U.S. aerial application businesses fared this season, in

September, NAAA invited member operators to participate in its 2013 End-of-Season Operator Survey. Out of 750 operator members, NAAA had email addresses on file for 699 of them. The survey request was successfully delivered to 687 recipients. Overall, 213 of the 687 operators who received the notice completed the online survey, a 31% response rate. The rate of response based on the actual number of NAAA operator members is 28.4%. There are approximately 1,350 aerial application businesses in the United States. Based on the total universe of Part 137 operators,

including non-members, NAAA's survey response rate equates to 15.8%. Any way you slice it, that's a healthy sample size. Here's what we learned.

2013 Operator Survey Findings

Operators weighed in from all areas of the country for our 2013 end-of-season survey. Regionally, the highest number of responses came from operators in the Midwest (34%), Southeast (24%), Great Plains (17%) and Southwest and Pacific Northwest (9% each).

Although it wasn't the case for operators across the board, compared to 2012, the trend lines in terms of acres treated improved greatly this season. Forty-four percent of operator respondents nationally said their acres were either somewhat higher or much higher than the number of acres booked in 2012. Another 19% said their acres stayed the same. Meanwhile, 37% of operators saw their acres fall slightly or significantly below their 2012 levels; however, that too is better than things were a year ago. For instance, last year a survey NAAA conducted to measure the impact of the 2012 drought showed that 53% of aerial application operations treated slightly or significantly fewer acres in 2012 than normal, including one-fourth whose acres plummeted.

At the opposite end of the spectrum, no area of the country has been hit harder by extreme drought conditions than the Great Plains region, which

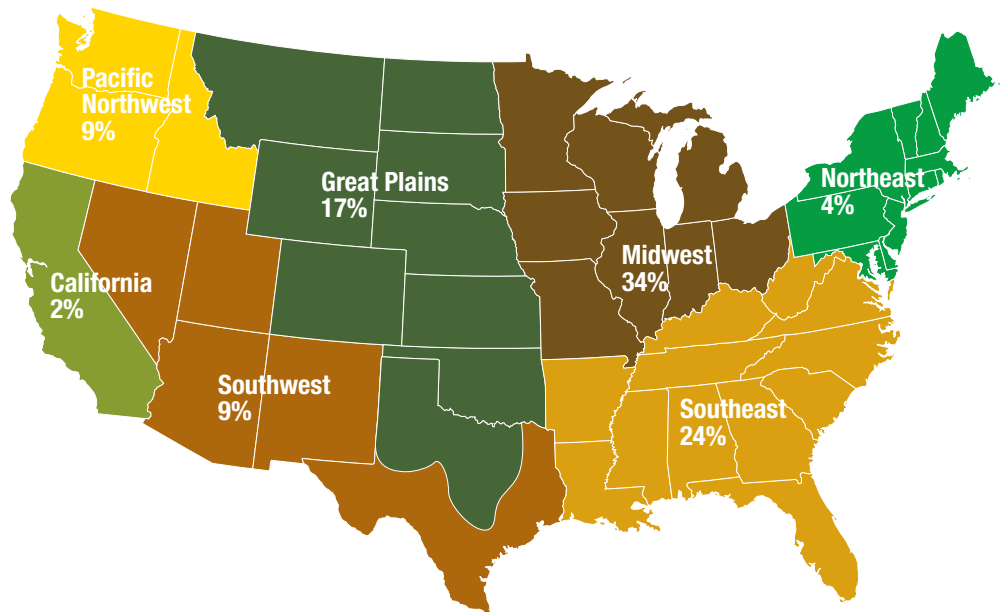
Fig. 1: NAAA Operators' responses by region to question of how 2013's acres compared to 2012's

	National	Southeast	Southwest	Midwest	Great Plains	Pacific Northwest	Northeast*	California*
Same amount of acres as last year	19%	29%	26%	15%	14%	15%	13%	0%
Slightly above last year's acreage	33%	31%	32%	30%	27%	35%	63%	100%
Much higher than last year	11%	14%	5%	15%	5%	5%	25%	0%
Slightly below last year's acreage	21%	20%	21%	25%	22%	20%	0%	0%
Significantly less acres than last year	16%	6%	16%	15%	32%	25%	0%	0%

* Due to small sample sizes for California and the Northeast, the percentages specified in each of those regions' response categories may be under or overrepresented.

includes parts of Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Wyoming. The 2013 operator survey indicates operators in the Great Plains region still haven't recovered from the drought. As Fig. 1 shows, 54% of operator respondents from the Great Plains reported that their acres were either slightly below or significantly less than 2012—and that's saying something because their acres were already way down last year. When we posed a similar question in last year's drought survey, asking operators to compare the number of acres they treated in 2012 to a typical year, 20% of Great Plains operators reported that their acres were down slightly *then*, and 36% reported spraying significantly fewer acres in 2012. Therefore, for more than half of NAAA's Great Plains operators, things went from bad to worse in 2013.

Fig. 2: Operator Respondents Based on Region



See Fig. 1 for the full breakdown of NAAA Operators' responses by region comparing the amount of acres they treated aerially this year to last year's acres. The continuing struggles of many operators in the Great Plains

notwithstanding, nationally, all of NAAA's acre benchmarks are moving in the right direction. As Fig. 3 shows, relative to a typical season, by and large, the numbers improved across the board this year—the good signs look

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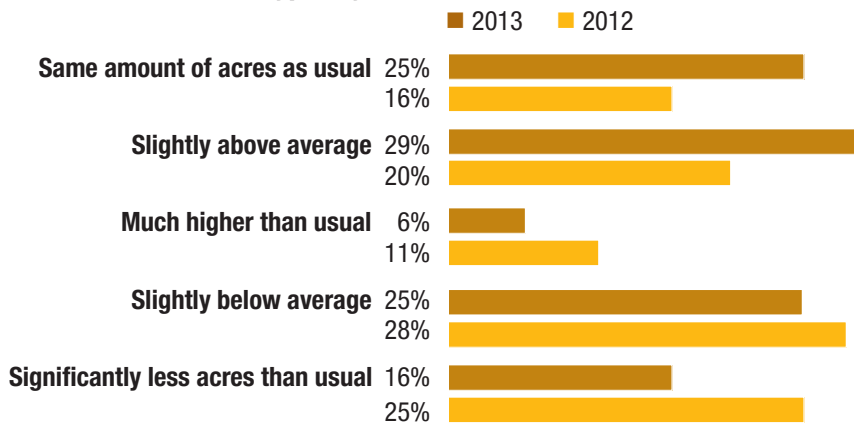
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Fig. 3. Moving in the Right Direction: Amount of acres treated in 2012 and '13 vs. "a typical year"



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better and the bad ones aren't nearly as bad as they were in 2012.

How Many Hours?

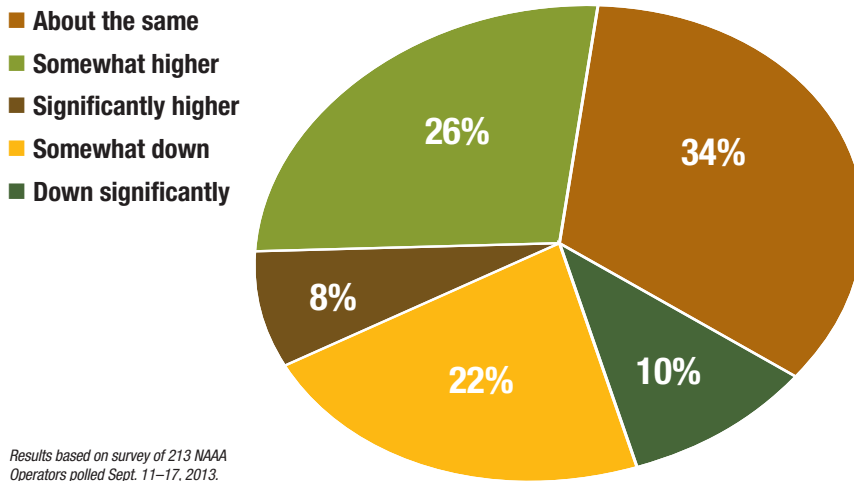
The number of acres treated is a useful yardstick, but it isn't the only measure of an ag pilot's workload. Some aerial applicators talk in acres, while others prefer to think in terms of the number of hours flown in a given season. The two measurements go hand in hand. In general, the number of hours flown should correspond roughly to the amount of acres treated. Not perfectly, but approximately. For example, a larger aircraft can accomplish more work in less time. We didn't ask survey respondents about aircraft type, only how their hours this year compared to last year. The responses were evenly split: 34% said their hours were about the same, 34% said their hours increased and 32% reported logging fewer hours this year. (See Fig. 4 for a more complete breakdown.)

NAAA's operator members listed a wide range of hours when asked how many hours each of their planes averaged during the 2013 season. On the low end of the spectrum, one operator flew 40 hours and another operator listed 50 hours. On the high end, several operators reported averaging 800 hours or more, including one 900-hour respondent and another who specified averaging 800–1,000 hours.

Crops and Crop Inputs

NAAA's end-of-season survey also asked operators to specify the crop input classification they applied the most in 2013. Not surprisingly, the responses were split fairly evenly between the big three crop inputs. Thirty-three percent of operators performed herbicide applications the most, 29% listed insecticides as their most common form of aerial application and 27% listed fungicides as their top crop input. Only 10% of operators specified fertilizer

Fig. 4. Hours flown by U.S. Operators in 2013 compared to 2012



Results based on survey of 213 NAAA Operators polled Sept. 11-17, 2013.

as their top application input. Aerial seeding ranked last with just 1% of respondents choosing this as the input they applied most.

Corn trumped all other commodities, ranking first in acres sprayed for 33% of operators. Soybeans acres were No. 1 for 15% of operators surveyed. Twelve percent of respondents

identified something other than the commodity choices NAAA provided as their top crop, including cranberries, sunflowers, sugar beets, avocados and pastures. See Fig. 4 for more details.

NAAA also asked operator members if they had embraced any new methods in 2013. It was an open-ended question that could have

Fig. 4. NAAA Operators' responses when asked to pick the commodity their operation treated the most by acres in 2013

Corn	33%
Soybeans	15%
Small Grains/Wheat/Barley	13%
Rice	12%
Other	12%
Roots and Tubers	6%
Cotton	5%
Leafy Vegetables	1%
Sorghum	1%
Alfalfa	0.5%

applied to new application techniques, new products, new services or any number of new concepts. While about three-fourths (77%) of the respondents answered no, about a quarter of the operators (23%) said they had. Some of the new methods they cited included night vision goggles, aerial seeding and cover crops, and new or more use of

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adjuvants and drift retardants. One operator stated a “conscious effort to fly higher this year resulted in better work and no streaking.” Another declared: “Products are constantly evolving so always using new products. More alternative crops coming in, so applying more fungicides and insecticides.”

Outlook for 2014

Almost every participant responded to the final optional question when asked to share their outlook for next year. The opinions were as varied as the individuals expressing them, but one of the most common refrains was a simple expression of optimism: “good.”

Here are some of the more expansive outlooks operators provided:

- “Depends on crops planted and commodity prices. If the farmer makes money, he will spend it.”
- “Mixed feelings because you just never know. Mother nature can be our best friend, and our worst enemy!”
- “The forecast for our area is more rice for 2014.”
- “Hopefully better than this year. I will be pursuing some types of work and crops that we usually do not go after.”
- “It all depends on commodity prices. If prices are lower than they are now acres will be down significantly.”
- “An end to the drought would change things for the better. Three years is enough but I fear we may be only half through.”
- “Decent outlook, but commodity prices have and are falling; not good for those of us offering crop inputs.”
- “There has been a long-term slight increase each year. I look for that trend to continue.”
- “Much bigger acreage because of our good service and we are buying an additional aircraft.”
- “Next year, starting on time, I expect to improve the earnings for the season in comparable percentages. I plan to pick up a few more farmers in my area who I was not able to serve last year. We are exploring affiliating with other pilots/owners to assure service to our customer bases.”
- “Better, it is currently raining in Colorado, commodity prices are moderate, attitude is good among growers.”
- “I leave it in God’s hands.”

While it’s too soon to tell for sure how 2014 will turn out for aerial applicators, one thing you can count on is that *Agricultural Aviation* will check in with NAAA’s operators again at the end of next season to get a read on how their year really went. ■

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Reaching Higher with Aerial Application

With more than 80 million acres of cropland treated by air each year, aerial applicators play an important role in today's production agriculture. In fact, more than 1,600 aerial application businesses make 2.3 million applications a year.

Aerial application is relevant for virtually all crops, but in 2013, fungicide application to corn and soybeans received particular attention, as those crops were delayed by a wet spring.

The spring delays caused corn and soybeans to mature later in the year, and late-planted crops are more susceptible to disease. This combination of events meant growers and custom aerial applicators were faced with making fungicide applications later in the year, even into September.

Weather aside, aerial applicators are generally in higher demand as many more growers are incorporating fungicide applications into their management plans. Greg Brown of Southern Illinois Custom Aerial, LLC, in Carmi, Ill., which provides aerial application services for growers in Illinois, Indiana and Ohio, believes it is because growers know the return on investment fungicides can have on their bottom line and that Stratego® YLD from Bayer CropScience is the choice growers – and aerial applicators – have come to trust for disease control and that yield bump.

"Growers choose Stratego YLD because it's an excellent product. It's the most economical with regards to dollars to the bushels," said Brown on the cost of an application to increase bushels.

Brown said that growers in his area have seen an attractive yield bump. "You can see a 10 to 12 bushel advantage in fields treated with Stratego YLD versus untreated fields," Brown noted. "The yield difference [with spraying a fungicide] is significant in a normal year, but even more dramatic in stress years."

Unlike many of today's fungicides that contain just a single active ingredient, Stratego YLD has two – a triazole and a strobilurin. Each has a unique mode of action for lasting, all-around plant coverage and broad-spectrum control of yield-robbing diseases. The multiple modes of action also help manage and prevent the development of disease resistance to fungicides.

According to Randy Myers, Stratego YLD product manager at Bayer CropScience, 80 percent of all fungicide at-tassel applications are done aerially. Aerial applications take a fraction of the time of ground application. Plus, growers don't have to worry about ruts or compaction issues in wet fields with spraying rigs.

To maximize the effectiveness, Myers advises aerial applicators should make sure Stratego YLD gets fully dispersed in water before mixing with other crop protection products. "Follow the mixing recommendations on the label. Mix Stratego YLD with water first," said Myers. "After it is fully dispersed then you can add in products like adjuvants and insecticides. And when mixing with a fertilizer, the aerial application should be made right away to avoid any separation issues."

Following the mixing recommendations, Myers added, increases sprayability and reduces clogging. "It allows aerial applicators to be more efficient and for Stratego YLD to be its most effective."

Just that simple attention to details, according to Brown, is what separates Bayer CropScience from other fungicide suppliers. "The customer service is unmatched. Bayer CropScience provides the best service that anyone can expect," said Brown. "Our Bayer field rep would be out scouting fields and provide me with information on when we would be coming up on application timing windows."

Brown indicated that Bayer even provides a valuable service for aerial applicators. "Bayer brings in technical experts to help us out with calibrating our equipment before the season starts," he said. "We are particular about our equipment. The appearance and shape of the equipment is a direct reflection of the work we do."

If the performance of Stratego YLD and service from Bayer CropScience are any indication, it is no wonder why more and more growers across the country are experiencing healthier fields and higher yields.



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Flying Ahead of the Demand Curve

By Gary Fellows, Technical Market Manager, BASF

When women are asked which traits they look for in a husband, “a good listener” inevitably finds its way to the top of the list. Fortunately for the romantic prospects of most aerial applicators, that one is already covered.

Or at least it should be – because good aerial applicators have plenty of practice in this area. Every day, you must listen to the demands of your customers and deliver if you want to stay in business.

But, like in any relationship, listening is only the first step. If you want relationships with your customers to flourish – and, in turn, your business – you’ll have to anticipate your customers’ demands and provide them with solutions before they even know they have a problem.

It worked for Joel Meyer. Meyer’s Wellsburg, Iowa-based aerial application operation, Meyer Agri-Air, has been in business for 20 years. Much of that has been spent as a one- or two-plane shop, but the operation recently went through a growth spurt.

How? By getting ahead of the demand curve.

“The past few years have brought growers more competition, more costs, more pressure for higher yields and more extreme weather than any time I can remember,” Meyer said. “And because of that, growers have prioritized Plant Health and demand it more than ever before.”

Instead of waiting for his customers to come to him for help with diseases threatening their fields, Meyer managed to solve their issues early on with **Headline AMP**® fungicide from BASF.

“When we first implemented **Headline AMP** fungicide, we often took before and after photos of treatments to see how accurate and effective they were,” Meyer said. “After the treatments, you could tell with just a quick glance which crops were treated and which weren’t. We even had a neighboring farmer who wondered why his crops, only a few feet away, were not as green or healthy-looking.”

Neighboring growers weren’t the only ones who noticed. The kind of results Meyer achieved with **Headline AMP** fungicide drew the attention of other growers and created a cycle of demand that ultimately led to a huge expansion for his business.

“Growers in the area saw the results and asked us to do the same thing to their fields. It worked, and the next year the same thing happened. The demand for us grew, so we needed to increase our supply by adding planes and pilots,” Meyer said. “Now most growers can’t afford not to spray, and our business is reaping the benefits.”

But this cycle doesn’t start by itself; it often needs to be catalyzed by the applicator. And sometimes that means more than anticipating the customer’s demands – it means creating them.

While growers are usually on the lookout for ways to improve their operation, applicators shouldn’t take this for granted. After all, growers are busy people, their days filled with tasks from sunup to sundown, and they may not see every possible opportunity to improve. It’s your job to find these opportunities and provide solutions that make their fields better, even if they don’t see the need for it right away.

To do this, applicators need to become salesmen. They need to plant a seed in growers’ minds, to prove to them that they need this product or service, even if they

haven’t used it, thought about it or perhaps heard about it before – which is no small task, especially today.

“Farmers are doing a much better job of being businessmen now,” said Dennie Stokes, owner of the Parkin, Arkansas-based Stokes Flying Service. “They have a better eye for their expenses and try to minimize them at every turn.”

Stokes’ company has been in business since 1981, succeeding even when growers were trying to cut costs. Part of the reason he’s been successful is by convincing growers that his operation, and the products they offer, are not expenses at all – they’re investments.

“When some growers hear fungicide, they worry about the \$25 or \$30 per acre it will cost them and ignore the additional 10 bushels per acre we’ve seen it yield,” Stokes said. “That’s quite a hefty return, especially when spread across the majority of their acres. And we have to show them that.”

All gains come with a price, and yield increases are no different. But it’s an investment that needs to be made.

With fierce competition, rising input costs and ever-unpredictable weather, the margin for error is low in agriculture.

So if growers aren’t doing something to constantly protect yields, they aren’t likely to succeed.

“As my grandpa used to say, ‘You can save yourself broke if you’re not careful,’” Stokes said. “Applicators can’t save farmers enough money to make them prosperous, but with the right timing, equipment and products, we can help them make a lot of money.”





By Lindsay Barber, Manager of Meetings,
Marketing & Special Projects

Aerial Application Makes Its Mark at AirVenture Oshkosh 2013

Aerobatic planes, warbirds, military aircraft and ag planes! oh my! This past summer marked the 60th anniversary of EAA AirVenture Oshkosh, which is organized by the Experimental Aircraft Association (EAA) each summer at Wittman Regional Airport in Oshkosh, Wis. AirVenture 2013 was packed with nearly 10,000 aircraft, a record 821 exhibitors, more than 1,000 forums and workshops, 4,800 volunteers and approximately half a million visitors.

As a first-time attendee to AirVenture (or any other air show), my experience was overwhelming with new information at every turn and beautiful aircraft in every color on the palette imaginable. I was blown away by the variety of aircraft parked in fields and taxiing on multiple runways. It was exciting to watch aerobatic airplanes flipping around in the air, old military

aircraft simulating bomb drops during the daily air show and Dusty Crophopper flying low and slow. It was an incredible first experience.

Ag Planes Land and Fly in Oshkosh

The aerial application industry was widely represented in Oshkosh with participation and aircraft on display from Air Tractor, Thrush Aircraft and the highly anticipated real-life Dusty Crophopper, the lead character from Disney's hit movie, *Planes*. Besides these aircraft manufacturers, many companies that are allied members of NAAA also exhibited or attended the weeklong show.

Air Tractor displayed its 3,000th manufactured aircraft, an AT-502B. Thrush displayed and performed in two air shows with a new Thrush 510G to show the aircraft's capabilities. Both companies exhibited the entire week

and chatted with aviation fans about aerial application and the opportunities that the industry offers.

The representation by our industry at AirVenture brought positive awareness about aerial application to the general public. AirVenture is one of many airshows in the United States that can help recruit potential ag pilots. Not only that, but it's a great way to educate adults and children about the importance of our industry in producing a safe, affordable and abundant supply of food, fiber and bio-fuel, in addition to protecting forestry and controlling health-threatening pests.

A heavily visited display, especially for children, was Disney's *Planes* exhibit and real-life Dusty Crophopper, as well as an advanced screening of the movie. Each evening during AirVenture, EAA's Fly-In Theatre fills with



Thrush performed in two air shows with its new Thrush 510G at AirVenture Oshkosh 2013.

moviegoers who are ready to sit back and relax after a long day of walking around. The attendance for Disney's *Planes* broke a record at the Fly-In Theatre with more than 15,000 people in attendance, triple its previous high.

In just one day, I witnessed hundreds of children walking up to Dusty, all with large smiles on their faces and instantly falling in love. Adults and children chatted with Rusty Lindeman, the Texas-based aerial applicator who spent the summer traveling and performing in air shows throughout North America as the live-action version of Dusty Crophopper. Disney studios hired Lindeman to play the role of Dusty in air show performances this year to assist with promoting the movie. The transformation from Rusty to Dusty was no easy feat. With a big assist from Air Tractor, Lindeman converted his piston Air Tractor to the equivalent of a turbine-powered AT-400A and painted it to match Dusty's paint scheme and features.

Lindeman made children's dreams come true by allowing them to sit in the cockpit. One child asked him, "How do I get him to talk?" Lindeman responded with a big smile on his face, "He only talks when he's flying!"

History of AirVenture Oshkosh

Not always called EAA AirVenture Oshkosh, the Experimental Aircraft Association held its first Fly-In Convention in September 1953, shortly after EAA was established that same year. The first gathering had less than 150 attendees and mostly homebuilt aircraft at the Milwaukee airport. By the late 1950s, the EAA event had grown too large for Milwaukee. In 1959, it moved to the municipal airport in Rockford, Ill. During its time in Rockford the fly-in grew from homebuilt aircraft to include warbirds, antique aircraft and aerobatic performances.



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Terry Humphrey, Thrush's chief instructor pilot, waves to the crowd after his air show performance.

By 1969, the event outgrew the Rockford airport, and EAA searched for a new location. While there was no convention site or event infrastructure in Oshkosh, Wis., aviation legend Steve Wittman suggested the Oshkosh airport. EAA and volunteers worked with the airport to host the Fly-In Convention ... and the rest is history!

EAA's Fly-In Convention became very popular in the 1980s with more than 100,000 attending each year. Renamed EAA AirVenture Oshkosh in 1998, the event now draws nearly half a million people from around the world, including aviation enthusiasts, governmental officials, businesses associated with the aviation industry

and a lot families with transfixed children. Today, the event contributes more than \$110 million to the local and state economy in Wisconsin.

This year, agricultural aviation also received a welcome boost thanks to AirVenture Oshkosh and the industry representatives who exhibited there. ■

Visit NAAA's Facebook Page (www.facebook.com/NationalAgriculturalAviationAssociation) to view additional photos of the ag planes at AirVenture. AirVenture Oshkosh 2014 will take place from July 28-Aug. 3 and will observe the 100th anniversary of the start of World War I and the 75th anniversary of the jet engine.



Air Tractor's 3,000th aircraft and newest AT-502B, on display at EAA AirVenture 2013.

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The USDA-ARS and Aerial Application Technology Research

By Clint Hoffmann and Brad Fritz, USDA-ARS Aerial Application Technology Group

In October 2013, our aerial application research group in College Station, Texas, became a stand-alone research unit within the USDA-Agricultural Research Service maintaining the name Aerial Application Technology (AAT). The two main factors affecting this change within the ARS management were to give the AAT group more autonomy and identification and to increase its financial stability. NAAA played a significant part in this decision through its continued support for the project on Capitol Hill and within ARS. In light of this move, it is interesting to take a look back at where this group came from and acknowledge those who contributed to its past and future growth and success.

The Early Days

ARS first become heavily involved in aerial application research during the Vietnam War when the effectiveness of aerially applied herbicides needed to be maximized to clear jungle habitats. The College Station project was established in 1964 under the direction of Dr. Fred Bouse, who was later joined by Dr. Jim Carlton. During the first decade of the project, research focused on wind tunnel studies of spray drift as well as aerial spray penetration into wooded canopies. Until 1973, all aerial field work was conducted using an aircraft owned by Texas A&M University (Ag-Cat Serial No. X-1, which is on exhibit at the National Agricultural Aviation Museum in Jackson, Miss.)

or through commercially contracted aircraft and pilots.

In 1973, the group had an ARS pilot and aircraft, a Cessna 180, transferred to it, and soon after an aircraft hangar and research facility were constructed at the Texas A&M University Riverside Campus, where our group operates out of to this day. During the 1970s and '80s the group's focus was on automating measurements of spray swath uniformity, examining factors that impact spray droplet size and development of an aerial electrostatic spray system.

Growing Resources

With the termination of the ARS aerial application project in Yakima,



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Wash., in 1983, the group received additional research equipment, aircraft (Cessna 206, Cessna Ag Husky and Bell 47G3B) and funding, which led to further expansion of the Riverside Campus facilities. Two additional scientists, Dr. R. A. Stermer and Dr. Buddy Kirk, were assigned to the group in 1986 and '87, respectively. When Stermer retired in 1989, Dr. Eric Franz came on board. Dr. Franz left in 1992, while Drs. Bouse and Carlton retired in 1994 and '97, respectively. During this time Dr. Clint Hoffmann came on board full-time and the group obtained an Air Tractor AT-402. Over the next decade, the group saw the retirement of Dr. Kirk as well as the start of four new scientists: Drs. Brad Fritz, Dan Martin, Yubin Lan and Chenghai Yang. Also during this time the group's research equipment and tools

THEN An early USDA-ARS research project on a bi-fluid spray system with M&M Air Service of Rosenberg, Texas, using a circa 1964 Stearman.

NOW The USDA-ARS AAT group conducts an aerial spray drift/biological assay study over the summer in cooperation with the University of Nebraska-Lincoln.



Courtesy of Dr. Fred Bouse, Retired Agricultural Engineer, USDA-ARS



Courtesy of Dr. Larry Schulze, University of Nebraska-Lincoln

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were further expanded with several spray sizing systems, wind tunnels, aerial imaging systems and other critical resources.

Today's Aerial Application Technology Group

The newly formed Aerial Application Technology group consists of five Agricultural Engineers: Drs. Fritz, Hoffmann (Research Leader), Lan, Martin and Yang. With the formation of the new, more autonomous group, there will be no significant changes in research focus or commitments, as the group's primary emphasis remains aerial application technology. The bottom line is that this is an internal ARS change rather a change in the mission of the project.

For those of you who have interacted with the AAT group or used our research findings, you will not see any significant changes. Recent projects like the spray nozzle atomization models and smartphone apps will still be supported and updated. Our new group maintains its current research-related equipment and resources as well as its four research aircraft: an AT-402B, a Cessna Ag Husky, a Cessna 206 and our newest acquisition, a McDonnell Douglas 600 Helicopter.

Our project's main research areas for the next several years include:

- **Spray atomization under aerial application conditions:** Effects of spray nozzles, adjuvants, operating conditions, etc. on spray droplet size.
- **Spray pattern uniformity:** Effects on spray patterns from aircraft structures, aircraft speed and weather conditions.
- **Remote sensing studies:** Acquisition and development

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of remotely sensed images for generating precision application spray maps.

- **Use of unmanned systems:** Develop testing and evaluation protocols for ground and aerial unmanned vehicles and how that can be used in agriculture.
- **Role of pesticides in honeybee health:** In collaboration with the ARS project in Stoneville, Miss., evaluate the impact of

pesticide applications on honeybee health and ways to mitigate any negative impacts related to these applications.

Overall, our group sees this change as nothing but positive, providing us with both the resources and motivation to move forward. We look forward to our continued close relationship with NAAA and its members, as well as all the other industry and research partnerships we have developed. If you are ever in College Station, Texas,

and would like a tour of the facilities or to discuss current or future research studies, please feel free to contact us at 979-260-9354 or by email at clint.boffmann@ars.usda.gov, brad.fritz@ars.usda.gov or aerialapplication@gmail.com. Most of the researchers will also be at the USDA booth at the 2013 NAAA Convention in Reno, Nev. ■

Special thanks to Dr. Fred Bouse, whose notes on the history of the Aerial Application Technology group were used in this article.



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LARGE PT6A SERIES ENGINES

Are You Protecting One of Your Largest Investments?

Proper engine preservation during the offseason is essential

By Fletcher Sharp, PT6A Customer Support, Covington Turbines



The aircraft engine is one of the largest single investments an aerial applicator makes for his or her business when we consider the cost of operating turbine-engine equipment. In addition to keeping it well maintained, the ongoing care an engine requires extends to properly preserving it during the offseason. Failure to do so could invalidate your warranty. Nobody wants to see that outcome, least of all you.

This article addresses how to store a large PT6A series engine. It is intended for anyone who has an Air Tractor 602, AT-802, Thrush 550, Thrush 660, Fire Boss or Dromeder with a large PT6 engine installed. This information is especially for operators of all large PT6 engines, -60AG, -65AG, -67AG, -67F and any other model with a -60 series engine installed, such as -67R, -65B or -67D. In short, if there's a 6 after the PT6A dash number of your engine model, this article is for you.

It is especially relevant to large PT6As primarily because all of these engines have FCUs (Fuel Control Units) that are very different from the Bendix, now Honeywell, FCUs found on all the smaller PT6A AG engines. All of the -60 series PT6As have FCUs manufactured by Woodward, the same people who make the propeller governors and overspeed governors.

What makes this FCU different? While the Bendix/Honeywell FCU has some fuel flowing through it, the primary material flowing through those smaller FCUs is air. It's a pneumatically controlled (P3) fuel control unit.

On the other hand, the Woodward FCU is full of fuel, and therein lies a potential storage issue. While the Woodward FCU is also regulated by P3 (Compressor Discharge Air), the vast majority of moving parts within the Woodward FCU are working while submerged in fuel.

I used the PT6A-60AG maintenance manual for the data I gathered, but you will find the same type of information in all of the PT6A maintenance manuals. In section 72-00-00, around pgs. 306-310, Pratt & Whitney Canada provides the preservation guidelines operators are expected to follow, complete with logbook entries. Failure to follow these guidelines gives the manufacturer all the ammunition they need to walk away from you, with a very firm "Warranty Denied." Given the large investment operators have made in their turbine engines, it's only smart to follow the recommended guidelines spelled out in the maintenance manual.

There are several preservation schedules: Engines inactive for 0-7 days, 8-28 days, 29-90 days and engines expected to be inactive for

more than 90 days. P&WC provides some easy options to keep your engine in good conditions as well as some not-so-easy options, depending upon *your* choice.

The simplest solution? Move the aircraft to an area where it can be run safely, start it up and let it run until you have good, solid indication of oil temperature. Cycle the prop several times, including some beta and minor reverse checks, and just prior to shutdown, run the engine in feather at high idle for 3-5 minutes to ensure all of the oil that was in the propeller dome was scavenged back to the oil tank. Select low/ground idle and once the ITT is at the lowest stabilized temperature, shut the engine down and make a logbook entry.

If running the engine is not going to be possible, you can follow the other options in the P&WC maintenance manuals, but notice that for engines *inactive for 29-90 days* the FCU will need to be drained of all fuel. Then a Pratt & Whitney approved preservation oil has to be run through the fuel system up to, but not including, the fuel nozzles. This procedure fills the FCU with a preservative oil in place of the fuel that was originally inside the FCU. It's important to exercise caution and take great care. You don't want to allow any of the preservation oil to reach the



There's Gold in Your PT6 Maintenance Manual, Pure Gold!

From time to time, during a 100-hour inspection, your maintenance shop may find some shiny bits of metal in the oil filter, without knowing exactly what they are comprised of.

In section 70-00-00 of the PT6A-60AG maintenance manual, around pgs. 225-233, there's a list of Materiel Specifications. Once an oil analysis facility has clearly identified the material, this list will tell you which parts in the engine are made from those materials. After these specifications, there are also several pages of P&WC qualified/recommended oil analysis facilities from around the world. This is where you would send your samples of metal contamination for identification.

Pg. 501 through approximately 535-540 of section 71-00-00 contains charts that relate to what to do if there's an overtemp, or overtorque, plus lots of neat, nice-to-know stuff about how your engine is built, including information on drive pads, the ratios they spin at and more. —F.S.

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Failure to properly preserve your engine during offseason aircraft storage could invalidate your warranty. Nobody wants to see that outcome, least of all you.

ITT probes because the preservative oil will contaminate the probes and render them unserviceable!

Engines expected to be inactive for more than 90 days require all of the previous maintenance checks, plus draining the oil system, tagging the oil cap and installing humidity indicators to notify you when the relative humidity in the engine has become moist enough to require replacement desiccant bags. Desiccant bags attract moisture and can be purchased from several local vendors as well as P&WC.

For engines stored for 29–90 days or longer, the maintenance manual has

specific procedures for depreservation of the engine prior to going back to work. Make a logbook entry for whatever long-term preservation maintenance you do.

The penalty for ignoring these maintenance provisions is steep! I am aware of an operator who did NOTHING! After almost five months of offseason shutdown, he noticed some fuel puddled on the hangar floor under his fuel control unit. Upon further investigation after removing the FCU and sending it back to Woodward/P&WC for repair under warranty, it was discovered that moisture had collected on a daily

basis inside the FCU, which was full of fuel. The water at the bottom of the FCU corroded through the body, causing the small leak the operator found. After an \$18,000 repair, where warranty was denied, the operator was back in the air. If he had done the long-term storage specified in the manufacturer's manual instructions and documented the work with logbook entries, the operator would have had documentation showing he had followed P&WC's guidelines. It is a lot easier to pursue warranty coverage then. Warranty denial is something we don't want happening to anyone else. ■

Fletcher Sharp is a PT6A Technical Support technician with Covington Turbines, a division of Covington Aircraft Engines Inc. He may be reached at fletcherssharp@verizon.net or fletchers@covingtonaircraft.com.



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Seeking New Ways to Enhance the Customer Experience

Pratt & Whitney Canada's (P&WC) storied PT6 engines currently power thousands of aircraft used for agricultural purposes in the United States and abroad. For many years, P&WC has been designing and manufacturing aircraft engines specifically for the ag market, acting on the input of both operators and OEMs to create engines that meet the exacting standards required of aerial applicators.

"From the beginning we viewed the ag market as having its own distinctive dynamic within the General Aviation industry," said Denis Parisien, Vice President, General Aviation. "We have long maintained an ongoing dialogue with its industry players and have been active participants at events such as NAAA's annual convention in order to tap in to the latest trends in the industry. Some of our most popular ag engines—such as the PT6A-34AG

and PT6A-67AG—stem from the excellent relationships we have built within this sector."

Parisien said the company decided in 2011 to launch a new initiative tailored for the ag industry by creating an internal Ag Advisory Board. Members of the advisory board are drawn from virtually every department within P&WC—Engineering, Marketing, Customer Service, Leaseco, Communications, Field Operations, etc. "The primary purpose of the advisory board is to enrich the customer experience for the ag industry," Parisien said. "Obviously, delivering dependable engines that meet operator needs is the team's modus operandi. To achieve that, board members take a highly customer-centric approach with the goal of creating solutions that simplify customers' business operations."

Operator benefits achieved through the work of the Ag Advisory Board have involved process improvements dealing with engine accessories (also known as Line Replaceable Units). "We wanted to introduce changes that made it faster

and more convenient for customers dealing with accessories replacement," said Yves Houde, Service Engineering, PT6, Customer Service, P&WC. "For example, we opened the exchange pool for overhauled components to the ag market, meaning they now have greater options when replacing accessories."

Knowing that most ag operations are small businesses for whom the bottom line is always a critical focus, P&WC introduced a program to keep upfront costs to a minimum for operators dealing with replacement accessories. Operators with an engine under first-run warranty can now receive accessory replacements at no initial charge. P&WC then examines the replaced accessory and only bills for the replacement if it is deemed not covered under warranty, thus ensuring that the operator conserves precious cash.

"We also maintain significant inventories for ag engines parts and accessories within our Parts Distribution Centers," said Houde. "We target to provide 12-hour parts delivery anywhere in North America, which helps ensure minimal downtime



"P&WC attends dozens of shows and conventions around the world every year, but we always view the NAAA Convention as a unique opportunity to take the pulse of the industry, to learn from those who are setting new standards for safety, training and environmental innovation, and to reunite with so many friends and acquaintances who continue to help shape our ag program."

—Denis Parisien, Pratt & Whitney Canada Vice President, General Aviation

for operators.” To assist in achieving this target, P&WC positioned material at a forward stocking location in Memphis, Tenn., to extend the company’s carrier pickup time by an additional six hours (from 6 p.m. EST to 12 a.m. EST).

The Ag Advisory Board has made progress in a number of other areas as well, such as reducing paperwork for

operators. “Operators told us that our engine rental contracts, for example, were too complicated,” Parisien said. “So we did a complete overhaul of the contract format to make it shorter and simpler.” Parisien noted that P&WC has increased the number of ag engines in its rental pool helping to ensure operators have quick and reliable access to engines whenever and wherever they need them.

As Parisien noted, P&WC has been an active and enthusiastic participant at the NAAA Annual Convention for many years. The company has donated engines in the past to support the excellent work of the Association and has also been a strong supporter of the PAASS Program (Professional Aerial Applicators’ Support System), which provides continuing education to agricultural pilots on safety, security and drift mitigation.

“NAAA members are passionate about their profession and about the aircraft that are the tools of that profession,” Parisien said. “P&WC attends dozens of shows and conventions around the world every year, but we always view the NAAA Convention as a unique opportunity to take the pulse of the industry, to learn from those who are setting new standards for safety, training and environmental innovation and to reunite with so many friends and acquaintances who continue to help shape our ag program. It’s a relationship that forms the very foundation of our efforts to serve a market that’s integral to our PT6 engine program. As we celebrate the 50th anniversary of the first PT6 engine, we can reflect on how the ag industry and the PT6 engine essentially grew together. And we’re committed to strengthening our relationship in the future as we work with operators to serve their emerging needs.”

Two P&WC events are planned at this year’s 47th Annual NAAA Convention & Exposition—the day-long PT6 engine seminar and the company’s evening reception. They have both long been popular with the NAAA community. This year, the seminar will be held on Sunday, Dec. 8, from 9 a.m. until 4 p.m., and the reception will be held at 7:30 p.m., Tuesday, Dec. 10. ■

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P&WC Launches Mobile App

Over the summer, Pratt & Whitney Canada introduced an app designed to give its 10,000 operators around the world instant access to a host of services from all makes and models of wireless handheld, tablet and laptop devices. The app uses geographic positioning technology to identify the location of the user. It then provides contact information for the closest Maintenance, Repair & Overhaul (MRO) facility in P&WC's global Service Centre Network of both owned and designated facilities. The app gives direct telephone access to P&WC's Customer First Center (CFirst), which offers 24-7 service, providing operators with real-time personalized assistance. P&WC polled a large number of operators, including those in the ag industry, to explore potential situations that operators might find themselves in while in the field. The app's functionality was then based on those scenarios.



Pratt & Whitney Canada has released a customer service app for mobile devices.

Users of the app can “pre-fill” convenient forms and send them to CFirst for tasks such as reporting an Aircraft on Ground (AOG), requesting a technical consultation, scheduling maintenance or making a general inquiry. In addition, the app offers a collection of useful contacts for other P&WC services, including leasing, warranty programs, customer training and technical publications. The app is available at <http://app.pwc.ca>.

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Transland Acquires CP Products Company

Transland has acquired The CP Products Company Inc. The nozzle and check valve manufacturer became a wholly owned subsidiary of Transland effective Sept. 1. CP Products was formed by G.O. "Chris" Christopher and R.R. "Bob" Evans. Christopher and Evans are now retired and Evans' daughter Carolyn Baecker took over as president of the company.



James Frank, Owner of Transland, said, "CP Products has been a successful and innovative part of the aerial and ground application industry for the past 22 years. It is our intent and responsibility to build

on the product development heritage that they have left for us. The CP nozzles are a critical product line that we are excited to be able to offer our customers. We are fortunate that Carolyn felt that we were a great fit to continue the legacy that she, her father and Chris have established in the industry. It is not just the great products that have set CP Products apart, but its people. We are truly excited about adding these talented people to our team."

According to Carolyn Baecker, "When the decision was made to seek a buyer for CP Products Company, the primary concern was finding an industry-respected firm which would continue producing innovative products for both aerial and ground spraying. Transland is the perfect fit. Transland's familiarity with and commitment to the aerial application industry is just as strong as CP's has been. The CP brand is in good hands."

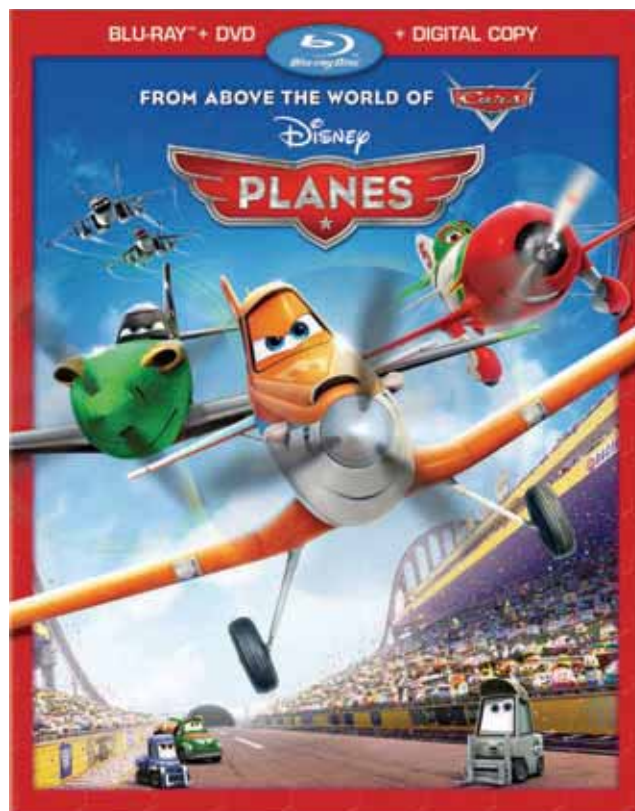
Anthonie York, who will be temporarily locating to Tempe, Ariz., to assist in the transition of CP Products stated, "In an effort to focus on serving our customers and our industry to the best of our ability, it makes perfect sense to have Transland and CP Products team up. From my time at fly-ins, conventions, NAAA Board Meetings and becoming an Operation S.A.F.E. analyst, my path has crossed Carolyn's many times. That is because we have the same focus and goal, and that is to better serve the customer and industry. Carolyn and her team have done a great job over the past 22 years. We are excited, humbled and grateful to serve and look forward to the opportunity before us."

NAAA congratulates both Transland and CP Products on this acquisition. CP Products and Carolyn Baecker have been a longtime NAAA member, an active board member, exhibitor and a huge supporter of the aerial application industry. We wish her and her family the best of luck. ■

Ho, Ho, Ho! *Planes* DVD Due in Stores Nov. 19

Disney's *Planes* is coming to a store near you. After a solid theatrical run in which it has earned nearly \$90 million at the box office domestically, the heartwarming comedy adventure starring Dusty Crophopper and friends takes flight on DVD and on-demand Nov. 19—right in time for the holiday shopping season. The DVD and Blu-ray editions will feature never-before-seen bonus features, including the musical number "Franz's Song," deleted scenes, a behind-the-scenes featurette about director and aviation buff Klay Hall's personal journey during the making of the film and a look at the 10 greatest aviators in history hosted by ESPN's Colin Cowherd.

Disney's *Planes* debuted in theaters on Aug. 9 and proceeded to captivate audiences across the country. The film finished as the No. 1 family movie in America four weekends in a row. Now Dusty, Leadbottom and the full cast of aviation characters should find their way into even more homes and children's hearts this holiday season. ■



Disney's Planes was the No. 1 family movie in America four weekends in a row.

Farmer's Wife Hits Aerial Application Pre-Notification Letter Out of the Park

As the old adage goes, “An ounce of prevention is worth a pound of cure.” To head off potential complaints from unsuspecting neighbors about a low-flying ag plane showing up in the area, a farmer's wife in Maryland recently took a smart, proactive approach by notifying public officials, local law enforcement, schools and other members of the community a week ahead of the scheduled aerial application work. She did so by crafting a well-written letter that explained not only what kind of work would be taking place but why it was important. The Mid-Atlantic operator hired for the job—NAAA Operator Member Matt Crabbe of Crabbe Aviation LLC in Mechanicsville, Va.—was so impressed with the letter that he shared it with NAAA. Going forward, he intends to make notifications in the same vein a standard practice in his business. It's a proactive and positive approach that could pay off in your area too. Here's the pre-notification letter she sent to her neighbors:

Good morning –

I wanted to get in touch with you and your agency to let you know that an aerial applicator or “crop dusting” plane will be visiting the southern part of Carroll County beginning Thursday Sept. 19—weather permitting. Depending on weather and other conditions, the plane should be in the area for about five days—through Tuesday Sept. 24. Some of you may be familiar with this operation since it has been done for several years now in this same area.

The farmers who have hired the plane want to be sure all local law enforcement agencies, municipalities and schools are made aware of the operation so that there are no security concerns for either the pilot or their neighbors. In these tense times and especially in light of yesterday's tragic shooting at the Washington Navy Yard, the farmers do not want anyone mistaking the plane for a terrorist or other attack.

The plane will be seeding about 5,000 acres of small grains (rye and barley) across the southern part of the county from Eldersburg to Woodbine and Mt. Airy. These grains are being planted under the Maryland Department of Agriculture's “Cover Crop” program. Cover crops are used to reduce soil erosion and further the state's efforts to “Save The Bay.” The plane is being used to plant these crops because it is a quicker way for the farmers to plant a large area of ground. Though planting by plane is more expensive, it can be very cost effective when farmers can pool their funds to get it done.

The plane—likely a small yellow aircraft that does not bear any logos or insignias—will fly low over farm fields to broadcast the seed. In cases where the land has been rented by the farmers, the landowners have been made aware of the operation. All of their neighbors, however, may not be informed. The pilot will be using a private airstrip on a farm in Woodbine as his base. The plane and pilot are part of a licensed aerial application company out of Virginia. The farmers have been using this same company for some years now.

Should you receive any calls about the low-flying plane, the farmers would appreciate it if you would reassure the public that what the plane is doing is legal and that they are not in any danger.

We would appreciate you forwarding this email to any and all local agencies that you feel should be informed about this effort. The farmers want to do their best to be good neighbors. As you can imagine, it is difficult to contact each and every person in such a far-reaching area.

If you have any questions about the operation, please do not hesitate to contact me.

You may also call [Name of Farmer], one of the farmers whose crops are being planted, at XXX-XXX-XXXX.

Thanking you in advance for your assistance –
[Name of Letter Writer] ■

If You're Not Reading the eNewsletter, You Should Be

If you're an NAAA member and you have not been reading the NAAA eNewsletter, you are missing out on a key element of your membership. The NAAA eNewsletter keeps members up to date on important issues happening in the industry, including breaking news alerts, FAA aircraft maintenance notices and other items of interest. If you are a member and have not been receiving the NAAA eNewsletter, contact NAAA at (202) 546-5722 to verify that we have a valid email address on file. If you aren't an NAAA member, we invite you to become one by completing the membership application on pg. 65 or joining online at www.agaviation.org. ■



NAAA eNewsletter
National Agricultural Aviation Association
Voice of the Aerial Application Industry

October 4, 2013

Government Shutdown Brings FAA Services to a Halt, Affects Ag Aviators
As the U.S. government enters its fourth day in a partial shutdown, a number of FAA services have been brought to a halt, including the agency's aeromedical, safety and certification branches. [Read More](#)

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NAAA Presents Ag Aviation Concerns at House Small Business Committee GA Roundtable
The U.S. House of Representatives Small Business Committee, chaired by Rep. Sam Graves (R-Mo.), held a general aviation small business roundtable on Oct. 3 in Washington, D.C. Leaders from across the GA spectrum, including NAAA Executive Director Andrew Moore, joined the committee members and their staff to share some of the unique concerns shared by general aviation small businesses. [Read More](#)

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IN THIS ISSUE

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- NAAA Presents Ag Aviation Concerns at House Small Business Committee GA Roundtable
- Did You Receive Your Membership Renewal?
- The Chemical Division Wants to Hear From You

CALENDAR OF EVENTS
Oct. 11-12
Fall NAAA, NAAREF, WNAAB Board Meetings

Date	City	State	Aircraft Type	N #	Injury	Description of Accident
06/10/13	Farnsworth	TX	AT-301	4421S	None	Power loss—damaged on forced landing
06/16/13	Minot	ND	AT-802A	8522S	Serious	Hit trees—force landed
06/28/13	Heth	AR	S2R-T34	455JM	None	Suspect failure of right main gear on landing
06/28/13	Salisbury	MO	PA-25-235	4812Y	None	Lost control while landing on road with crosswind
06/29/13	Jackson	TN	G-164B	3633S	None	Right main gear wheel broke on landing
06/30/13	Boonville	MO	PA-25-235	7064Z	None	Hit high vegetation along road used as airstrip
07/03/13	Caldwell	ID	M-18A	7643J	None	Unable to get airborne on takeoff
07/15/13	Navoo	IL	AT-502B	6113C	None	Power loss—internal engine failure
07/17/13	Elmira	MI	G-164A	8719H	Serious	Hit trees—burned on impact with ground
07/19/13	Huntingburg	IN	AT-802A	86BM	Serious	Crashed after hitting power lines
07/19/13	Steward	IL	AT-400	155HF	Serious	Impacted tower guy wires
07/19/13	Tamaroa	IL	Bell 206B	23L	None	Hit ground for unknown reason
07/20/13	Shannon	IL	AT-502	502MH	None	Settled to ground after takeoff
07/24/13	Champaign	IL	OH-13E/M74	176MR	None	Settled to ground during application
07/28/13	Capron	IL	R-44	9681R	Serious	Settled to ground during turn
07/29/13	Streator	IL	OH-13H/M74A	10009	None	Hit high vegetation and terrain
07/29/13	Monte Vista	CO	G-164A	5324	None	Power loss—hit irrigation ditch on forced landing
07/29/13	Lombardville	IL	AT-400A	36612	Minor	Lost control on takeoff
07/29/13	Eagle Lake	MN	Eagle DW-1	8803Z	None	Hit tree during application
08/04/13	Chualar	CA	Bell 206B/III	90146	Minor	Forced landing due to low rotor rpm
08/04/13	Simmesport	LA	AT-301	3655G	Serious	Hit terrain during application
08/06/13	Vinton	IA	Bell 47G-3B	83702	None	Total power loss
08/06/13	Santa Teresa	NM	PA-36-300	3789E	None	Hit tree during application
08/09/13	Dumas	AR	AT-400	36538	None	Ran off runway on landing
08/12/13	Larchwood	IA	S-2R	5610X	None	Forced landed on road
08/22/13	Walnut Ridge	AR	G-164B	8402K	None	Settled to ground on takeoff—improper power setting
09/06/13	Atlantic	IA	G-164A	7843	Minor	Hit trees for unknown reason

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Welcome to New Members

As of Sept. 20, 2013



OPERATOR

Rodney Erickson
Wild Rice Air Ag Inc.
Rutland, ND

PILOT

John Flatt
O'Brien's Flying Service
Leesville, LA

Brian Henson
Fresno, CA

Tony Meyer
Steier Ag Aviation
Whittemore, IA

William Roberts
Cleveland, MS

Justin Rudd
Paragould, AR

ALLIED INDUSTRY
AI-Airframe #1
Francisco Pocaterra
Laviasa USA/
Eagle Vistas LLC
Port St. Lucie, FL

AI-Support #1
Allen Summers
Asmark Institute
Owensboro, KY

AI-Support #2
Kevin Sherman
Freedom Aero Service Inc.
McClellan, CA

INTERNATIONAL
Lindsay Keenan
Rural Air Work Pty Ltd.
Moree, Australia

WNAAA
Patricia Bruton
Trade Wind Ag Service
El Campo, TX

Rose Saffer
Flagler Aerial Spraying Inc.
Flagler, CO

ASSOCIATE
Kenton Kiaser
Meadow Vista, CA

Donald Kidd
Perdue & Kidd LLP
Houston, TX

Thomas Little
National Transportation
Safety Board
Lynnwood, WA

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Cell Phone: _____ Fax: _____

E-mail: _____ Web site: _____

Spouse: _____

OPERATORS/PILOTS: List State Associations you belong to OTHER THAN YOUR HOME STATE ASSOCIATION: _____

PILOTS, AFFILIATED OPERATORS/AFFILIATED ALLIED:

List member companies you work for: _____

ALLIED INDUSTRY: Indicate your division: Airframe Application Technology Chemical Dealer/Parts Insurance Propulsion Support

MEMBERSHIP CATEGORIES: (please select one)

National Agricultural Aviation Association Bylaws require Operator and Pilot members to be members of a state/regional agricultural aviation association or to pay the additional dues for the Participating Operator or Participating Pilot categories.

<input type="checkbox"/> Operator	\$500, plus \$100 per aircraft for every aircraft over one	Operator of Aerial Application Business (must belong to state/regional Association)
<input type="checkbox"/> Extra Aircraft Over One	\$_____	\$100 per aircraft for every aircraft over one (per Operator)
<input type="checkbox"/> Affiliated Operator	\$200	Operator Partner, Stockholder, or Non-Pilot Employee
<input type="checkbox"/> Participating Operator	\$1,000, plus \$100 per aircraft for every aircraft over one	Operator not belonging to any State/Regional Association
<input type="checkbox"/> Extra Aircraft Over One	\$_____	\$100 per aircraft for every aircraft over one (per Participating Operator)
<input type="checkbox"/> Pilot	\$200	Pilot employed by Aerial Application Business (must belong to state/reg. Association)
<input type="checkbox"/> Participating Pilot	\$380	Pilot not belonging to any State/Regional Association
<input type="checkbox"/> Allied (1–10 employees)	\$500	Any Industrial Organization or Firm closely allied to the Agricultural Aviation Industry
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