

Agricultural Aviation



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National Agricultural Aviation Association
1440 Duke Street, Alexandria, VA 22314
(202) 546-5722 • Fax (202) 546-5726
information@agaviation.org
www.agaviation.org

NAAA Staff

Executive Director/Executive Editor Andrew Moore	Manager of Communications/ Managing Editor Jay Calleja
Assistant Executive Director Peggy Knizner	Manager of Government & Public Relations Danna Kelemen
Director of Education & Safety Kenneth Degg	Administrative Assistant Marisa Beam
Office Affairs Coordinator Margaret Dea	

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ON THE COVER

Get ready for some good old Southern hospitality as we return to Savannah, Ga., for NAAA's 2012 Convention & Exposition

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A new survey on the effects of the drought finds business down for more than half of NAAA Operators



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Test Your Knowledge is on hiatus but will return


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President's Message

Mark Hartz

Looking Back on an Exceptional Year

Can it be that my term of office as President of NAAA is nearly over? Well, it is and it has gone by so fast! While I was highly honored to become your president I did also view the job with some trepidation. I need not have feared because many before me have helped lay a firm foundation for this Association to rest on. A more than capable staff led by Executive Director Andrew Moore makes the job of president a much easier task than it might otherwise be and a very meaningful experience to boot.

While having been involved with NAAA at the board level for a number of years, I thought I had a grasp of what all our staff did on behalf of the membership and the industry, but I was sorely mistaken. This year as president has been an eye-opening experience. The level of activity at NAAA headquarters stays at a fever pitch year round. And then around board meeting and convention times, it really gets busy! But through it all our dedicated staff does whatever it takes to make things happen. My thanks to each and every one of them for all the assistance they provided me during my term of office.

I would also like to thank my officers and the executive committee for their support and wise counsel throughout year, including Vice President Leif Isaacson (Idaho), Secretary Gaylon Stamps (Texas), Treasurer Kyle Scott (Colorado), as well as my committee members and their chairpersons who provided me with great input to deal with the issues confronting our industry. It's easy to be out in front when you know somebody has your back, and they certainly had my back this year.

More Highs Than Lows

There were many high points and a few disappointments throughout the year. Certainly each of the state conventions I visited was a high point. Those visits demonstrated to me that by a wide majority our industry is filled with conscientious professionals who want to provide precise aerial application services while adhering to good stewardship practices. But

as the saying goes, "It only takes one bad apple to spoil the whole barrel." I hope as an industry we can become more proactive and bring peer pressure to bear when there are those bad apples out there who portray our industry in a bad light. The hospitality shown by each state was overwhelming and much appreciated.

Another high point would be when someone would come up to me and tell me what a great job NAAA was doing for our industry or how the Association had helped them deal with a particular situation. That is very gratifying indeed.

Perhaps the highest point of all, especially for the Association, is the fact that NAAA has purchased, renovated and moved into its new headquarters at 1440 Duke Street, Alexandria, Va. While a goal of the Association for many years has been to acquire a new headquarters, that goal has now been realized. The new office is 40% larger than our old office and will allow for future growth in terms of staff to address the increasing responsibilities and needs of the NAAA membership. The new office is outfitted with state-of-the-art infrastructure with a view towards future upgrades as technology advances. The new location has close Metro access, and is very close to the EPA's Office of Pesticide Programs and other federal agencies the Association lobbies in comparison to the old Washington, D.C., office. With ample parking and an easier commute for our staff, the new location offers many benefits. While our old office served the Association well for the past 25 years, itself being nearly 100 years old, our new office will certainly increase NAAA's stature in regards to how it is viewed by those to whom we are advocating the aims and goals of the agricultural aviation industry.

Perhaps the biggest disappointment for NAAA this year was not being able to resolve the NPDES PGP issue. H.R. 872, which would have removed agricultural aviation from the jurisdiction and requirements of an NPDES permit, was attached to several pieces of legislation including the farm bill. But due to the stalemate that exists in Congress, none of

these pieces of legislation are yet public law. But rest assured that NAAA will continue to work to have this unnecessary and duplicative regulation rescinded for agricultural aviation if at all possible.

Your NAAA did accomplish a number of initiatives that will help preserve the existence of agricultural aviation for years to come. Let me mention a few of them. Earlier this year NAAA completed an industry survey that quantifies the many aspects of our industry. The survey was distributed to members and stakeholders involved in aerial application, such as crop protection product manufacturers and the EPA. NAAA conducts these surveys to help our efforts to maintain aerial uses on a number of crop protection product labels.

On a number of occasions EPA has considered dropping the aerial use of a crop protection product based on theoretical overestimates of risk. NAAA has been able to reference its industry survey, which includes actual, not theoretical, data about drift mitigation technologies used by the industry and acres treated by a single aircraft per day for a particular crop. Having valid data has resulted in saving products for aerial use because they have pointed to less actual risk compared to EPA's theoretical risk assumptions. The data also provides an excellent biographical sketch of the industry that guides NAAA on how to focus and prioritize programs to benefit the agricultural aviation industry.

Another initiative completed was an updated media relations kit, which is available online and will be provided in hard copy form to all 2013 members. I urge you to familiarize yourself with the content in the kit and if an opportunity presents itself, step up and be an ambassador for your industry. Volunteer to speak at your local civic clubs. They are always looking for speakers. Host a scout troop visit to your operation. Explaining to those who are not acquainted with what we do about the value and service we provide to help feed, fuel and clothe our nation will hopefully promote a more understanding attitude regarding our operations. The NAAA Media Relations Kit can provide you with the information you can use to refute false information about what we do and help you promote the positive aspects of agricultural aviation.

To see other initiatives NAAA works for on your behalf visit www.agaviation.org and make sure you are signed up to receive the eNewsletter, which presents timely information about what is going on within NAAA.

I would encourage anyone interested in seeing what goes on within NAAA to attend a fall or spring board meeting.

That is where many of the issues regarding our industry are debated and plans of action are formulated. While you are ably represented by your appointed state or regional representative, if you have a desire to participate, speak to your representative or the NAAA President about the possibility of being appointed to one of the numerous committees. While committee appointments are at the president's discretion, I can assure you we are always looking for those who want to participate and give of their time to keep both agricultural aviation and NAAA strong and at the forefront of the fight for our existence.

Another way to contribute is to become a PAASS presenter. The PAASS Program, administered by our sister organization NAAREF, is always looking to maintain a strong cadre of PAASS presenters. If you think you have what it takes to be a good presenter, volunteer! Remember, these are your organizations and you too can be one of the many people who volunteer their time to keep our industry alive.

See You in Savannah

We are back in Savannah, Ga., again for our 46th Annual Convention & Exposition. At the time of this writing we are well on the way to a complete sellout of booth space, and the convention will likely set another attendance record. Savannah went all out to welcome us back and proved it by adding doors to the convention center that will allow aircraft to be moved directly into the exhibit hall. Be sure to sign up for the AgAv PAC Golf Tournament which helps NAAA further its agenda in the political realm. No golfing ability required (trust me on this), but you will have a great time! And don't miss the Kickoff Breakfast. Astronaut Story Musgrave will give a thrilling account of his experiences as an astronaut and all-around Renaissance man!

It has truly been an honor to serve as your president this year and has certainly been one of the highlights of my professional career. I have made many new friends and acquaintances, renewed old friendships and had many stimulating conversations. The takeaway from all of this is I am very proud to be a professional aerial applicator, and I am especially proud to have served you as NAAA President for 2012. For all those who helped me or gave advice to me, I appreciate very much your support. I also must express my gratitude to my business partner, Scott Goetz. He kept the business running on all pistons back home while I traveled on behalf of NAAA. For that I am in his debt.

I look forward to seeing all of you in Savannah where there will be great food, great friends and a great time will be had by all! ■



Executive Director's Message

Andrew Moore

No Drought of Positive Economic Indicators for Agricultural Input Industry

The 2012 drought was quite extensive across the United States. Aerial applicators in non-irrigated farming areas or who relied on migrating to do work in areas dependent on adequate rainfall flew fewer hours, simply because the rain didn't come this summer. Fifty-three percent of operators responding to a recent NAAA survey pertaining to the drought stated that the number of acres they treated this year was down from what they typically do in a normal year, and 61% of those treating fewer acres stated that the drought was partially, significantly or solely the cause of treating fewer acres. More on the drought's effects on our industry this season may be found on pg. 39.

According to the USDA Economic Research Service, almost 80% of agricultural land experienced drought, which made the 2012 drought more extensive than any since the 1950s. Seventy percent of both crop and livestock production were in areas experiencing at least moderate drought, whereas severe or greater drought impacted 65% of cattle production and about 75% of corn and soybean production.

The drought is bad news, but there is good news. International statistics about the crop protection product industry indicate continued growth for agricultural chemicals and other agricultural inputs for the foreseeable future. This information comes from comprehensive statistical data collected from the international firm Phillips McDougall that provides independent, informed data and analysis regarding the global agrochemical industry. For example, Phillips McDougall estimates that the global agrochemical market will grow annually by 2.2% through 2016 to nearly \$50 billion. Continued growth for an industry that went from selling just over \$25 billion of agri-chemicals in 2002 to more than \$44 billion in 2011—a 75% increase! North American markets, consisting of Canada, U.S. and Mexico, rank fourth as a region in terms of the size of their

crop protection product market with \$8 billion in sales. Europe, Asia and Latin America rank one, two and three, respectively. Europe, which was behind North America in sales prior to 2003, has had explosive growth in agricultural production in Russia, Ukraine, Poland and Hungary; Latin America, which ranked behind North America in sales prior to 2009, has had explosive growth in Brazil and Argentina.

One of the most remarkable areas of growth in the global agricultural inputs industry is with genetically modified (GM) seed. The industry did not exist in 1995 or at least registered no sales, whereas in 2011 it recorded nearly \$15 billion in sales globally. This figure is expected to grow to \$20.2 billion by 2016 averaging 5.2% growth per year. Approximately 375 million acres of GM seed were grown globally in 2011. Forty-six percent of all crops planted in the U.S. were with GM seed—97.3% of the soybean crop, 93.1% of the corn crop and 98.5% of the cotton crop were planted with GM seed in the U.S.

GM seed can have its positives and negatives for aerial application. The herbicide tolerant GM seeds, such as the glyphosate tolerant variety have increased aerially flown acres. Two new varieties—Enlist™, a 2,4-D-resistant seed being developed by Dow and a dicamba-resistant seed being developed by BASF and Monsanto—may potentially increase aerially flown acres as well, but the crop protection product manufacturers are not including aerial use on the label once they get product approval initially. Some of the drought-resistant GM varieties of seed being developed by Syngenta and other manufacturers will also very likely be good for aerial applicators.

One negative to GM seed for aerial applicators is that some of the insecticide varieties that include *Bacillus thuringiensis* (Bt), which gum up certain insects' digestive system when consumed, resulting in death, have resulted in a reduction of aerial acres applying insecticides. It has also resulted in

target insects developing a quicker resistance because refuge acre requirements of non-GM plants designed to prolong resistance haven't always been met. Now GM products are being sold as "refuge in a bag" so the conventional and GM seed are mixed together making planting easier and ensuring adequate refuge acres addressing the issue of insects developing a quicker resistance. This coupled with SmartStax™ and other new insecticide GM varieties that will hit the market may continue to decrease aerially applied insecticide acres.

But where some insecticide acres have been lost to aerial application, fungicide acres have increased due to the commodity's yield-bump gained by their use, and the stage of application in which they must be applied for optimal effectiveness favors air. Corn-tasseling is one stage that is optimal for the strobilin-class of fungicides to be applied. This, of course, favors aerial applications because they reach the plant untouched from above not through the rows like other forms of application which risks plant damage. Fungicide use has also grown in terms of global sales from about \$6 billion in 2001 to about \$13 billion in 2011 roughly tying insecticide sales. Insecticide sales were about \$8 billion in 2001. Herbicides are the largest selling agrichemical. In 2011 herbicide sales were \$21 billion.

Another piece of good news coming from the Phillips McDougall analysis is that five of the six largest crop protection product manufacturers in terms of annual sales—Syngenta, Bayer, BASF, Dow and DuPont, respectively—have herbicides, insecticides and fungicides in either early research and development (R&D) stages or commercialization stages. So a growing inventory of crop protection products is expected. Unfortunately, the average cost of bringing an agrochemical to market today is \$256 million and roughly 9.8 years. This may be one reason why there are fewer agrochemical active ingredients in R&D today—30 in 2010 compared with 70 in 2000. It costs \$136 million to bring a plant biotechnology trait to the market; much less than an agrochemical but the range of time to bring it to market is between 8–16 years. In 2009 crop protection product manufacturers began to spend more on seed and trait R&D compared with agrochemical R&D. In 2011 approximately \$2.9 billion was spent on agrochemical R&D, compared with \$3.3 billion for seed and trait R&D.

Probably the greatest positive factor about the crop protection product market is the overall global population and the middle class global population are growing, which will continue to keep demand strong for agricultural products. As I've stated in this column before, as the middle

class grows in the two most densely populated countries—China and India—they are eating more, particularly meat. China's population is 1.336 billion and growing annually by 0.49%. India's population is 1.189 billion and growing annually by 1.34%. According to statistics from Phillips McDougall, between 2006–2010 India's beef, chicken, wheat, rice and corn consumption has grown 6.1%, 7.3%, 2.9%, 1.2% and 6.7%, respectively. Between 2006–2010 China's pork, chicken, wheat, rice and corn consumption has grown 2.1%, 4.8%, 1.8%, 1.7% and 3.1%, respectively.

China is a net importer of food because it does not have the ability to feed its population. When you consider that it takes 7 pounds of corn to produce 1 pound of beef, 6.5 pounds of corn to produce 1 pound of pork, and 2.6 pounds of corn to produce 1 pound of chicken it's easy to see how demand for agricultural products are on an upward slope, and these countries are likely to turn to America and other ag-exporting nations to obtain a greater portion of their agricultural products.

So the demand equation continues to look good for us for the next several years. Now it is up to Mother Nature to deliver to make the good times complete and not repeat 2012. Weather is harder to predict, but the National Oceanic and Atmospheric Administration has predicted an El Niño weather effect may be making a return this winter. Generally speaking an El Niño brings cooler and wetter weather to the southern United States, drier weather to the Pacific Northwest and wetter weather to California and the Southeast. Areas that are typically subject to above average moisture during an El Niño have suffered drought over the past few years, so if the forecasts are accurate this would be positive to replenish aquifers and have better farming years in non-irrigated areas in the Southern Plains and South.

So here's to positive economic indicators to agricultural production and aerial application. Now we just need the good Mother to cooperate. ■



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WNAAA President's Message

Kathy Diehl

The Heart of a Volunteer

“There is nothing stronger than the heart of a volunteer.” While many of us will recognize these words from the movie *Pearl Harbor*, some may know that they were spoken by Lt. Col. James H. Doolittle, leader of the first air raid on Japan in World War II. He used these words to describe the men who volunteered for a mission to boost American morale after the attack on Pearl Harbor. As I write my final message as President of the WNAAA, these words describe for me the men and women of this organization that without question help support the agricultural aviation industry. They are truly some of the most dedicated and committed volunteers with whom I have had the opportunity to work. Their commitment to the success of this organization is inspiring.

It is hard to believe my term is almost up. First and foremost, I would like to say it has been a privilege for me to serve as the WNAAA President and how proud I am to be associated with this organization. My role as President has been an easy one thanks to the officer team of Vice President Pat Stamps, Secretary Leslie Craft and Treasurer Erin Morse. Their support has kept me on task and made the year go smoothly.

“You make a living by what you get, but you make a life by what you give.”

—Winston Churchill

I also want to thank each of the state/regional representatives and directors who worked on the committees that support the objectives and goals of the WNAAA. As a group we worked hard this year at making sure the WNAAA was on track with its objectives. A new committee has been formed to develop a long range plan, help grow the membership and determine the goals of the WNAAA. The dedication of the members of the WNAAA is unsurpassed and contributes to the strength of our industry. Many of these women not only work hard for the WNAAA, but with their own state/regional

organizations as well. I know that on a daily basis they give much more of themselves and their talents than can ever be repaid.

Many thanks go out to the NAAA staff for their hard work and support on our behalf. They are always willing and able to help out as needed, and are truly committed to our industry.

I want to thank the members of the WNAAA for the confidence you placed in me to serve as your president for this year. It has been an honor and a very rewarding experience which I will not soon forget. I look forward to undertaking new tasks in the next year and to help with the role the WNAAA plays in the agricultural aviation industry. For me the strength and heart of both the WNAAA and NAAA comes from its volunteers, and I am proud to play a part in their commitment to our industry.

As always, I encourage each of you to be active members of both your state organization and the NAAA/WNAAA. There is strength in numbers, and only by working together will we ensure the future of our industry for the generations to come. In our Association, the backbone of the WNAAA's volunteer structure is formed by the state and regional association representatives who, along with an Allied Industry director, serve on the WNAAA board and committees. Three of our more popular committees are the WNAAA Convention, Scholarship and Ways & Means committees. While the purpose of the first two is obvious, Ways & Means is responsible for the souvenir T-shirts and merchandise sold at the WNAAA booth at each convention.

Speaking of which, by the time you receive this issue, I hope many of you will have already made your plans to attend the NAAA Convention in Savannah, Ga. It has been a long, hot summer and what a beautiful place to go for some much needed rest and relaxation. Be sure to look at the convention schedule in this issue for all the details. I look forward to seeing you there. ■



Washington Report

John Thorne

Activists vs. Applicators: NPDES Permits Bringing Its Share of Challenges

As the first anniversary approaches of the nationwide Clean Water Act (CWA) regulatory permits for applications of aquatic pesticides, we are starting to see a glimpse of the adverse impacts this landmark change in public policy can cause. Federal and state officials agree the court-ordered permits add nothing to environmental protection but add significant, time-consuming duplication of existing requirements. Most concerning, they also offer anti-pesticide advocates a powerful tool to second-guess officials and intimidate agencies, communities, landowners and applicators with the threat of citizen suits and other challenges.

The Environmental Protection Agency (EPA) developed its pesticide National Pollutant Discharge Elimination System (NPDES) general permit (PGP) following a 2009 decision by the 6th Circuit Court of Appeals in *National Cotton Council v. EPA*. The PGP was implemented on Oct. 31, 2011, but EPA delayed enforcement well into 2012 to allow newly regulated entities time to become familiar with the many details and responsibilities of the permit.

EPA's PGP is applicable in Massachusetts, New Hampshire, Idaho, New Mexico, Alaska, Oklahoma and most territories and federal lands across the country. Forty-four other states also developed their own PGPs, most quite similar to EPA's although about a dozen states developed PGPs that are unique in many ways. In general, they regulate pesticide applications into, over or near jurisdictional water bodies for the control of mosquitoes and other flying insect pests, aquatic weeds and algae, forest canopy pests and aquatic

invasive animals. State permits often add other uses, such as control of weeds in utility rights-of-way corridors and alongside railroads, roadways or buildings.

Although less than a year in place, PGPs issued by EPA and states are already causing increased costs, delays and creating conflicts in public policy priorities. Particularly acute are the impacts the permit requirements are causing on timely control of mosquito-borne diseases. For example, states are reporting explosive levels of West Nile virus. In the span of two weeks in August, the number of cases nationwide jumped from 390 to 1,221, and the number of deaths from 8 to 43. By Sept. 4, nearly 2,000 cases were reported, with 87 deaths. This year, 38 states have reported human West Nile virus disease, with approximately 75% of the cases from Texas, Mississippi, Louisiana, South Dakota and Oklahoma. As bad as this is, this number pales by comparison to other years, such as the two-year period of 2002–2003 when there were about 14,000 cases and 584 deaths reported.

Aerial spraying of insecticide is critical to reduce the population of mosquitoes that carry the virus, but in many areas spraying cannot keep up with the rate of adult mosquito population growth. There are more than 1,100 mosquito control districts in the nation, and almost all "are getting hit," Joe Conlon of the American Mosquito Control Association told *USA Today*. The number of human cases is expected to rise through October because of the lag time between infection and reporting of the illness, *The Washington Post* reported.

Aerial applicators are becoming more and more reluctant to spray for mosquitoes and other pests because of fears the NPDES permits will interfere with and threaten their businesses through frivolous claims and performance failures that bureaucratic quagmires can create.

Texas is getting the worst of it by far, with 723 cases and 30 deaths by Aug. 28. "The number of West Nile cases in people has risen dramatically in the last few weeks and indicates that we are in one of the biggest West Nile virus outbreaks we have ever seen in this country," Lyle Petersen, director of the Centers for Disease Control and Prevention's Division of Vector-Borne Diseases, said in *USA Today*. A mild winter and ample spring rains allowed the mosquito population to build up early, followed by long bouts of heat and scant rainfall, resulting in accumulated pools of stagnant water.

In addition to West Nile virus, public health workers are worried about mosquito-borne diseases such as yellow fever, malaria and dengue fever. For more information about mosquito-borne diseases cropping up across the country and the work aerial applicators are conducting to combat them, see the September/October cover story of *Agricultural Aviation* in print or online at www.agaviation.org/content/agricultural-aviation-magazine.

Massachusetts also has reported a major outbreak of Eastern equine encephalitis (EEE), which is fatal to between a third and a half of all people affected. There is no treatment for EEE and people who survive it often experience permanent disabilities. State officials and academics point to climate change leading to warmer winters, milder springs and hotter summers for creating a longer season for mosquitoes to breed and ideal conditions for them to survive. If indeed that is the case, it will likely only get worse in coming years.

Mosquito-control agencies and other decision makers responsible for control of aquatic pests are coming face to face with the delays, costs and legal implications of the new Clean Water Act PGPs. In addition to complying with all state pesticide and clean water laws for application and recordkeeping, and label requirements under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), now they have the duplicative requirements of the PGPs that consume precious time, manpower and financial resources. Instead of spraying pests in a timely manner when pest populations are most controllable, pest-control decision makers must wait as they monitor, accumulate data on vector



Discussing DriftWatch In the Windy City

NAAA Executive Director Andrew Moore and Dennis Dixon, NAAA's president in 1981, met recently in Chicago at a meeting of crop protection product stakeholders to provide guidance on the future of DriftWatch, an online tool that provides information on nearby crops and sensitive areas to applicators. Dixon, from Wisconsin, is currently working in Madison, Wis., for Hartung Brothers Inc., a family owned and operated agribusiness developing a wide range of solutions for agricultural producers and processors.

levels and attack rates, consider non-pesticide solutions, keep copious records and seek permission for treatment. Often the answers come too late for effective treatment.

Aerial applicators are becoming more and more reluctant to spray for mosquitoes and other pests because of fears the NPDES permits will interfere with and threaten their businesses through frivolous claims and performance failures that bureaucratic quagmires can create. In places where aerial application is the choice for mosquito control because of the large acreages of irrigated farmland, coastal salt marshes or large quantities of lakes and prairie potholes where mosquitoes multiply to large numbers, these delays and bureaucratic requirements are creating havoc among those responsible for pest control. For example, in some communities of Colorado, Idaho, Michigan and Minnesota, fears of legal liability and business-threatening delays have caused many aerial applicators to discontinue spraying of

adulticides for mosquito control, even where they have found land-based application and larvicides to be marginally effective and cost prohibitive.

California mosquito control officials have appealed to the State Water Resources Control Board to remove from state PGPs the requirements for time-consuming visual and physical monitoring, claiming their technicians are spending too much time on training, monitoring and completing paperwork. They point to the delays caused by these PGP requirements as having prevented timely larvicide applications, allowing more disease-carrying adults to emerge. Earlier this year, California modified its mosquito control PGP to remove another impediment—a statement that any chemical linked to water impairment *and all other chemicals in that class or type of chemicals* would not be authorized for use in mosquito control under the state PGP.

Health and emergency management officials in some states faced with significant outbreaks and deaths from mosquito-borne diseases are declaring pest emergencies, which allow them to bypass many of the time-consuming PGP requirements and treat the mosquitoes immediately. Emergency provisions in the PGPs of EPA and states generally allow pest-control entities and agencies to skip the Integrated Pest Management options consideration altogether and delay the otherwise mandatory monitoring, planning, recordkeeping and reporting requirements for up to 30 days. In Texas, hardest hit by the nationwide epidemic of West Nile virus, a judge recently declared a state of public health emergency, allowing health officials to immediately begin aerial spraying. While individual city councils can vote to opt out of the state-sponsored spraying, the rising death toll from West Nile virus in Texas makes it unlikely that many will.

“Aerial spraying is like superstition—people are afraid to stop even though they know there is no rational basis for it.”

—Kyla Bennett, director of New England PEER, an arm of the activist group Public Employees for Environmental Responsibility

Of course, anti-pesticide organizations are up in arms about such emergency declarations. In Massachusetts, when the state undertook spraying of nearly 400,000 acres and 21 communities under a state of public health emergency because of an outbreak of EEE, the activist group Public Employees for Environmental Responsibility (PEER) reacted immediately. PEER charged that the state was

improperly evading CWA environmental protections by spraying under a declared emergency instead of going through the time-consuming processes required by EPA's PGP. Their perspective is that under the Integrated Pest Management (IPM) evaluation of alternatives, pesticide use is a last resort only if other non-chemical methods don't work. “Aerial spraying is like superstition—people are afraid to stop even though they know there is no rational basis for it,” declared New England PEER Director Kyla Bennett.

PEER asked the EPA Office of Inspector General (OIG) to examine whether Massachusetts is skirting federal law. PEER charges that the state knew for months that it would need to treat the mosquitoes aerially, and that it is “... lurching from emergency to emergency” and inappropriately using an emergency declaration to avoid PGP compliance. “We should be looking at more efficient and less environmentally damaging methods of preventing outbreaks of mosquito-borne diseases, including elimination of suspected carcinogenic chemicals in the ingredients of pesticides,” Bennett added. OIG sent a letter to PEER Aug. 23 denying the group's request for a review of EPA Region I's waiver of the PGP requirements.

As the ag aviation industry works to comply with federal and state PGP requirements, we likely can expect continued legal challenges from anti-pesticide activists. For example, Oregon's Northwest Environmental Advocates recently petitioned the state Environmental Quality Commission for new rules to implement Endangered Species Act (ESA) biological opinions (BiOps) to better protect salmon and steelhead species in Oregon rivers. They charged the state's water and pesticide policies don't properly address pesticide threats to ESA-protected species. They want broad changes to the state's water and pesticide laws to incorporate greater safeguards. They also want the state to mandate that a pesticide application that could affect these fish species would be a violation of the CWA, ESA and FIFRA.

Such challenges are similar to those faced by mosquito-control agencies charged with protecting public health and a society that wants to remain safe and protect its property. This conundrum likely will continue unless Congress completes its efforts to repeal the 6th Circuit's 2009 ruling. As has been previously reported in the NAAA eNewsletter and in this space, H.R. 872 passed successfully out of the House but legislators were unsuccessful in bringing it to the floor in the Senate. NAAA will continue to work with a coalition of agricultural organizations for a legislative exemption from Clean Water Act NPDES permits, and this

effort will most likely be tied to passage of other legislation. As such, NAAA will closely monitor all efforts on the farm bill and any other measures that language similar to H.R. 872 could potentially be attached to in a germane manner. If indeed efforts are successful in including NPDES exemption language in legislation within the 112th Congress, any measures must still be conferenced between the House and Senate before becoming law.

A wealth of information regarding the overall NPDES permits, including compliance guidance, can be found at www.agaviation.org under the headline on the homepage titled "EPA Implements Final Pesticide NPDES General Permit." The Association encourages members to utilize the many resources available to them. NAAA will continue to keep you informed of these legislative efforts and other emerging issues related to PGP's via the NAAA eNewsletter and *Agricultural Aviation*. ■

John Thorne, Ph.D., recently joined the public policy practice of Bergeson & Campbell, PC as Senior Government Affairs Counsel. Dr. Thorne is a leader in the areas of agricultural and pesticide industries and brings extensive experience with related regulatory,

legislative and policy issues. His areas of expertise include water and air environmental policy; pesticide and fertilizer use policy; food production and processing; biomass crop and bioenergy policy; livestock regulatory issues; toxic science and regulatory issues; sustainable agriculture policy; and nonprofit and coalition management. Dr. Thorne holds an undergraduate degree in agronomy from Washington State University and an M.S. and Ph.D. from Purdue University. Most recently, Dr. Thorne was a senior policy advisor in the Washington, D.C., office of Crowell & Moring LLP, and from 1993 to 2004 was managing director of Capitolink LLC.



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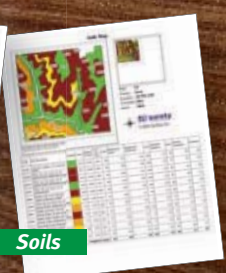
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GREEN ICONS -
OBSTACLES 199-250 FEET



The AG-NAV INC. team invites you to visit us at **Booth # 845** during the 46th NAAA convention in Savannah, GA. FREE navigation demo software and GIS post-processing software will be available to all visitors. Visitors to our booth will also have the opportunity to see our new products and will be able to speak with our staff, on-site training provided.

Our customer loyalty speaks volumes for the quality of products we have delivered in the past and the experience obtained during these years will guarantee that every product manufactured by AG-NAV INC. will have 100% satisfaction. When you purchase from AG-NAV, we offer you reliable factory service and support as well as FREE software updates for the life of your product.

This year, AG-NAV INC. is pleased to introduce the new and improved **TRACKERNAV** system. This system is designed like no other tracking system without operational costs. TRACKERNAV is an advanced Automated Vehicle Location (AVL) system designed with fleet management in mind. GPS technology and airwave communication technology provide for a robust, scalable system with no upfront telemetry costs. TRACKERNAV consists of an in-vehicle GPS receiver coupled with a modem. Combined with TRACKERNAV software on your PC, TRACKERNAV puts you in control of your data from anywhere in the world and when you want to see it. Other AVL systems store data off site which can lead to costly monthly data hosting fees. When deployed as part of a fleet management system, TRACKERNAV delivers accurate real-time information enabling route planners to compare where the vehicle should be and where the vehicle actually is.

The **SPRAYVIEWWW** software has been very successful with helping our clients interface applied data to Google Earth. During the 2012 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.

Many of our clients have asked for the automatic booms on/off technology to be able to use geo-referenced maps with exclusion zones and such. 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 system fully automatic along with our automatic AG-FLOW control and our navigation system.

The **SMART BAR (L-S), BRIGHT BAR (L-S), 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 # 845.

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 port 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; thus, there are no attacks from viruses most common 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** navigation system has been designed to meet Mosquito Control Aerial Application specific requirements in the battle against field infestation. This system carries an on-board weather station (AIMMS20) and provides 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 provides the pilot with swath, directional guidance and other navigational information required to carry out precise aerial applications. The **FORESTMASTER** works in similar fashion, but with features geared for forestry application.

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.

Looking into the future, we wonder if there is a need for a full autopilot AG-NAV system.

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 # 845 or contact us today at 1-800-99 AGNAV (24628). You can also visit our website at www.agnav.com.

SEE YA AT THE **46th NAAA CONVENTION**

CONVENTION COUNTDOWN:

SET YOUR COORDINATES FOR SAVANNAH!

With the 2012 Convention & Exposition poised for takeoff, NAAA has prepared a series of flight plans to help aerial applicators chart a confident course for 2013 and beyond

BY JAY CALLEJA
Manager of Communications

In the cockpit, aerial applicators rely on GPS to make the best applications possible. In the real world, aerial applicators seek clarity, not crop positions, from an equally adept guidance system: NAAA and the 2012 NAAA Convention & Exposition.

Next month, set your coordinates for NAAA's 46th Annual Convention & Exposition in Savannah, Ga., featuring the world's largest trade show for agricultural aviation, great opportunities for networking and a dynamic lineup of speakers and events—all in the beautiful heart of Coastal Georgia's Low Country!

Whether you plan on staying the course or are in need of a course correction, the 2012 Convention & Exposition provides the perfect launching pad to propel yourself and your business to new heights. It doesn't matter if you are a veteran operator or a fledgling ag pilot, you won't find a better outlet to help you achieve your personal goals and business objectives. To maximize the amount of acres

you cover in Savannah, *Agricultural Aviation* has prepared several flight plans. Use them to chart a confident course at the NAAA Convention and beyond as you prepare for the new year and a new season.

BLAST OFF WITH AN ASTRO-NAUTICAL KICKOFF SPEAKER!

This year's Kickoff Speaker personifies NAAA's convention theme, "Charting a Confident Course," in the extreme. **Story Musgrave** has charted a remarkable course throughout his life and career—so much so that *Dos Equis* ought to seriously consider patterning its Most Interesting Man in the World commercials after *him*.

An astronaut with agricultural roots, Musgrave is a true renaissance man. He spent more than 30 years as a NASA astronaut and flew on six spaceflights. He performed the first shuttle spacewalk on the Challenger's first flight, conducted two classified DOD missions and served as the lead spacewalker on the Hubble Telescope repair mission.



Musgrave morphed from a young man who quit school to join the Marines to a person in need of a double-sided business card to account for all his academic accolades. Some students graduate with a double major—Musgrave has *seven* graduate degrees in math, computers, chemistry, medicine, physiology, literature and psychology, as well as 20 honorary doctorates.

Today, he operates a palm farm in Orlando, Fla., a production company in Sydney, Australia, and a sculpture company in Burbank, Calif. As if that weren't enough, Musgrave is also a landscape architect, a concept artist with Walt Disney Imagineering, an



46TH ANNUAL NAAA CONVENTION & EXPOSITION

December 3–6, 2012
Savannah, Ga.

46th Annual NAAA Convention & Exposition
NAAA FLIGHT PLAN



Savannah International Trade & Convention Center

1. Route of Flight

NAAA Kickoff Breakfast—featuring Story Musgrave

2. Aircraft Identification

N2012AG

3. True Airspeed

**As fast as feet
will carry me.**

4. Departure Time

8:00 a.m.

5. Cruising Altitude

Ground Level

5. Remarks

So many sessions, so little time! NAAA has lined up another quality slate of educational programming, including sessions covering chemicals, application technology, security, airframe, helicopters, engine manufacturing and more. The challenge will be deciding which ones to pass up since I can't be everywhere at once! 😞

6. Est. Time Enroute

1 hr 45 mins

7. Pilot's Name, Address & Telephone Number

**Naaate Learner, 2013 Success Road,
Blue Skies, USA, 555-555-1234**

8. Number Aboard

Full House

innovator with Applied Minds Inc. and a professor of design at Art Center College of Design in Pasadena, Calif.

Between the breakfast buffet and stories from Musgrave's astronomical life and career, NAAA's Kickoff Breakfast is sure to satisfy your physical and intellectual appetite. There are two ways to register for this event. 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 à la carte.

GENERAL SESSION: AERIAL APPLICATION ON TRIAL!

This year's General Session features two stellar seminars brimming with legal and technical advice from four of America's leading legal and environmental regulation authorities.

Audience members will leave feeling more secure in their ability to navigate the murky Clean Water Act permit requirements for applications of aquatic pesticides and insulate themselves from legal jeopardy.

NPDES Permit Update: Sifting through the details of each applicable NPDES permit, in an effort to understand what is required by whom, has certainly been a trying

46th Annual NAAA Convention & Exposition
NAAA FLIGHT PLAN



Savannah International Trade & Convention Center

1. Route of Flight
NAAA General Session

2. Aircraft Identification
N2012AG

3. True Airspeed
As fast as feet will carry me.

4. Departure Time
9:45 a.m.

5. Cruising Altitude
Ground Level

5. Remarks
A can't-miss event! Mock trial sounds very intriguing and John Thorne's NPDES updates are always on point. There's still so much to sort out about these state and federal regulations.

6. Est. Time Enroute
2 hrs 15 mins

7. Pilot's Name, Address & Telephone Number
**Naaate Learner, 2013 Success Road,
 Blue Skies, USA, 555-555-1234**

8. Number Aboard
150+

experience for aerial applicators this year. Forty-five state and federal NPDES Pesticide General Permits (PGP) went into enforcement in 2012. The new regulations affect anyone who applies pesticides into, over or near waters of the U.S. or helps make decisions about applying such pesticides. To help attendees protect themselves to the fullest extent possible, longtime NAAA consultant **Dr. John Thorne** will be on hand to offer guidance on what you need to do to stay in compliance and avoid subjecting yourself to enforcement actions or worse—citizen action suits. His presentation will include the latest information on the NPDES PGPs

and apprise attendees of industry efforts to simultaneously mitigate and eliminate the duplicative regulations.

Dr. Thorne is a leader in the areas of agricultural and pesticide issues and brings extensive experience with related regulatory, legislative and policy issues. His areas of expertise include water and air environmental policy; pesticide and fertilizer use policy; food production and processing; biomass crop and bioenergy policy; livestock regulatory issues; toxic science and regulatory issues; sustainable agriculture policy; and nonprofit and coalition management.

Mock Trial: Following the NPDES update, aerial applicators will get their day in court without having to endure the stress of actually being there. The law firm of Anderson, Riddle & Kuehler LLP (ARK) will present a mock trial with actual jurors from the community during the General Session's featured segment.

The attorneys in ARK have been representing aerial applicators in all types of matters for nearly 20 years. Geff Anderson handled his first drift claim in 1993. The firm has supported NAAA and several other aerial applicator professional organizations for more than 10 years.

GENERAL SESSION SPEAKERS



John Thorne



Geff Anderson



Guy Riddle



Raven Atchinson

The firm has successfully tried and appealed aerial application cases in the State and Federal Courts across the nation. Both Anderson and Guy Riddle are recognized as "Super Lawyers" by *Texas Monthly* magazine. Other members of the firm have been recognized as Rising Stars by *Texas Monthly* and as Top Attorneys in Fort Worth by the *Fort Worth, Texas* magazine. The firm is based in Fort Worth, Texas.

Geoffrey W. Anderson and **Guy H. Riddle**, partners in ARK, along with **Raven Atchison**, an ARK associate attorney, will try an actual case in front of the NAAA membership. Unlike other mock trial demonstrations, this mock trial will, in fact, be real. The facts of this trial will be taken directly from a case that ARK tried for one of NAAA's members in 2009. Over the 75-minute presentation, NAAA members will observe opening statements, direct and cross examinations of the key witnesses and the closing arguments that were given in the case. At the conclusion of the evidence, the NAAA membership will then watch actual jurors deliberate on the facts and come to a verdict through closed circuit observation. The juror deliberations will have already been taped at a previous presentation of the facts.

The case that will be presented involved an application of 2,4-D within two miles of a large cotton field, making the potential loss almost \$1,000,000, a number far in excess of the applicator's policy limit. As a result of the loss of yield, one of the farming entities filed for bankruptcy.

In this case, the presence of 2,4-D on the cotton was indisputable. The only real, undecided matter was the source of the 2,4-D contamination. The applicator's records did not provide the exact time when two of its aircraft made the application on an



The Savannah International Trade & Convention Center installed hangar doors earlier this year to accommodate NAAA and its aircraft exhibitors. Thanks to this significant facility improvement, 10 airplanes and three helicopters will be on the trade show floor, including the recently FAA-certified Thrush 510G, the Thrush 510P, AT-502B, 602 and 802 Air Tractors, and a new entry to the ag market, the PA-25 from Laviasa.

extremely large amount of acreage. Instead, the records indicated that the application occurred at two different times with different weather conditions. One record indicated that the application had been made in the morning with a wind blowing away from the cotton fields. The other record indicated that the application occurred in the afternoon with a wind blowing directly toward the cotton fields. The conflict in the records arose from a lack of attention to detail.

When presented with these facts, which version will the jury believe?

The format selected by ARK for this mock trial will provide convention attendees with an actual look into the real world of a lawsuit and should generate some consideration into exactly how the public views aerial applicators and their role in the stewardship of agriculture. The facts will demonstrate how small mistakes may create the appearance of



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unprofessional conduct on the part of the applicator in the eyes of the public.

Actual mock trials such as the one that will be presented are used by plaintiff's attorneys, defense attorneys and insurers to gauge the value of a case and to examine what types of presentations may be persuasive to a jury. This tool usually costs in excess of \$100,000. Through the generosity of ARK, several members of NAAA and a jury research consulting firm, NAAA will provide the presentation to attendees at a far lower cost. The lessons learned during the mock trial will assist each applicator in avoiding

the costs associated with having to finance a similar mock trial based upon his own conduct and reduce the risk of drift litigation.

CASE CLOSED!

Now that we have made our opening statements, it's up to you to decide whether the General Session is worth investing two hours of your time. That would seem to be a small price to pay for some of the best legal and regulatory compliance advice around. Don't dismiss this invaluable opportunity to protect yourself and your business!

NAAA'S LEARNING OPPORTUNITIES TAKE MANY PATHS

Several educational sessions are on tap throughout the week, including programming focused on application technology, chemicals, engine performance and maintenance, security and FAA regulations, helicopters and airframe sessions with Air Tractor and Thrush.

Looking for direction and guidance? If you're new to agricultural aviation, begin charting a course of your own in the industry by attending the *Compaass* Rose session. The PAASS presenters—the National Agricultural Aviation Research & Education Foundation's roving safety instructors—moderate *Compaass* Rose, an information-sharing session which offers professional support and direction to low-time and prospective ag pilots. Audience members will have an opportunity to discuss ideas and philosophies about the aerial application business and interact with some of the industry's top operators.

To accommodate travel schedules, NAAA is offering two *Compaass* Rose sessions at opposite ends of the convention. The first session is Sunday, Dec. 2, the day before the convention officially begins; the second session is Dec. 6, the final day of the convention.

The opening *Compaass* Rose session isn't the only pre-convention concurrent session. Two full-day engine sessions will also take place Dec. 2. For pilots and operators looking to learn more about the TPE 331 engine or the PT6 engine, both CD Aviation and Pratt & Whitney Canada will be hosting training sessions at the Savannah International Trade & Convention Center. CD Aviation will host its training session from 8 a.m. to 5 p.m., and Pratt & Whitney will host its session from 8 a.m. to 4 p.m.

WHERE TO STAY IN SAVANNAH

All hotel housing arrangements must be made directly with the **Savannah Housing Bureau** by calling **(912) 644-6465** or booking online at NAAA's **official hotel registration website**. Please note NAAA has not arranged for any company to contact you to offer hotel rooms, and attendees cannot call the hotels directly to reserve a room in NAAA's housing block or receive the group rate. **Reserve your room today!**

- For questions about NAAA's hotel accommodations, contact the Housing Bureau at 912-644-6465.
- Book online at NAAA's hotel-registration website: <https://resweb.passkey.com/go/46thNAAA>
- NAAA Room Rates: \$114 per day + tax



NAAA's official hotels are conveniently located near the convention center and Savannah's entertainment district. Despite being on opposite sides of the Savannah River, getting to and fro is easy. The Westin, Hyatt and Marriott each have their own ferry docks, and a free ferry service will shuttle attendees across the river throughout the day and evening. Free shuttle bus service will also be available.

46TH ANNUAL NAAA CONVENTION & EXPOSITION SCHEDULE OF EVENTS

Saturday, Dec. 1

6:30 p.m. **AgAv PAC Golf Tournament**
Players Reception & Calcutta

Sunday, Dec. 2

7:30 a.m.–1:45 p.m. **AgAv PAC Golf Tournament**
7:30 a.m. Players Continental Breakfast
8 a.m. Tee Times Begin
1 p.m. Players Lunch & Awards
8 a.m.–4 p.m. **CD Aviation – TPE331 Engine Maintenance Training**
9 a.m.–4 p.m. **Pratt & Whitney Canada PT6 Seminar**
12 p.m.–6 p.m. **Registration Open – Convention Center**
12 p.m.–4 p.m. **PAASS PDC Committee**
4 p.m.–6 p.m. **Compass Rose Concurrent Session**
4:30 p.m.–6 p.m. **NAAA Board Meeting**
4:30 p.m.–6 p.m. **WNAAA Board Meeting**

Monday, Dec. 3

7:30 a.m.–6:30 p.m. **Registration Open – Convention Center**
8 a.m.–8 p.m. **Exhibitor Setup**
8 a.m.–9:45 a.m. **Kickoff Breakfast – Story Musgrave**
10 a.m.–12 p.m. **WNAAA Event – Rise and Shine Savannah**
10 a.m.–12 p.m. **ASABE Technical Session**
10 a.m.–5 p.m. **Canadian AAA Board Meeting**
1:30 p.m.–2:30 p.m. **Concurrent/Company Sessions**
Chemical • Hemisphere GPS
2:45 p.m.–4:15 p.m. **Concurrent/Company Sessions**
FAA/Security • Piston Engines • AgSync
4:30 p.m.–6 p.m. **Concurrent/Company Sessions**
DuPont Crop Protection • Scott's – Bell 47 Inc. • AgSync
6:30 p.m.–7:30 p.m. **Welcome Reception**

Tuesday, Dec. 4

7 a.m.–8:30 a.m. **CP Products Breakfast**
7:30 a.m.–5:30 p.m. **Registration Open – Convention Center**
8 a.m.–11:30 a.m. **Exhibitor Setup**
8:30 a.m.–9:30 a.m. **NAAA Business Meeting**
10 a.m.–12 p.m. **NAAA General Session**
NPDES Permit Update • Mock Trial
12 p.m.–6 p.m. **Trade Show Hours**
1 p.m.–3 p.m. **WNAAA President's Open House**
3 p.m.–5 p.m. **NAAREF Board of Directors**
5:30 p.m.–7 p.m. **Live Auction & Reception**
7:30 p.m. **Pratt & Whitney Canada Reception**

Wednesday, Dec. 5

7:30 a.m.–4 p.m. **Registration Open – Convention Center**
8:15 a.m.–9:45 a.m. **Concurrent/Company Sessions**
Laviasa Aircraft • Honeywell Engines
8:30 a.m.–9:30 a.m. **Allied Industry Meeting**
9:30 a.m.–11:30 a.m. **WNAAA Athena Program – The Burden of Stress**
10 a.m.–4 p.m. **Trade Show Hours**
12 p.m.–1:30 p.m. **WNAAA Offsite Event – Lunch at The Olde Pink House (RSVP required)**
3 p.m.–4 p.m. **Silent Auction Closes**
4 p.m.–5:30 p.m. **Turbine Engine Concurrent Session**
7 p.m.–11 p.m. **GE Aviation Boot Scootin' Party (Offsite Event)**

Thursday, Dec. 8

8 a.m.–6 p.m. **Registration Open**
8 a.m.–9:30 a.m. **Thrush Aircraft Concurrent Session**
9:45 a.m.–11:15 a.m. **Air Tractor Inc. Concurrent Session**
1 p.m.–2:30 p.m. **Concurrent Sessions**
Compass Rose • Helicopter
5:30 p.m.–6 p.m. **Farewell Reception**
6 p.m. **Farewell/Awards Banquet**

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46th Annual NAAA Convention & Exposition
NAAA FLIGHT PLAN



Savannah International Trade & Convention Center

1. Route of Flight
NAAA Concurrent & Company Sessions

2. Aircraft Identification N2012AG	3. True Airspeed Stop & Go	4. Departure Time 8:00 a.m.	5. Cruising Altitude Ground Level
--	--	---------------------------------------	---

5. Remarks
So many sessions, so little time! NAAA has lined up another quality slate of educational programming, including sessions covering chemicals, application technology, security, airframe, helicopters, engine manufacturing and more. The challenge will be deciding which ones to pass up since I can't be everywhere at once! ☹️

6. Est. Time Enroute 120 hrs 0 mins	7. Pilot's Name, Address & Telephone Number Naaate Learner, 2013 Success Road, Blue Skies, USA, 555-555-1234	8. Number Aboard Will vary (multiple legs)
---	--	--

The following states have agreed to grant CEU credits for attending educational sessions at the 2012 NAAA Convention: Delaware, Maryland, Pennsylvania, Oklahoma, West Virginia, Wyoming, Nevada and Kentucky. For the latest on which states are offering convention CEUs, visit www.agaviation.org/content/ceu-information.

Concurrent sessions are organized by NAAA, with a huge assist from our Allied Division Directors, to provide information of general interest to the aerial application industry. Company sessions are

put on by individual companies to showcase their particular products and services. Check the schedule of events to determine dates and times of the sessions that appeal to you the most.

NAAA TRADE SHOW: YOUR ONE-STOP SOLUTION CENTER

The on-target advice at NAAA's educational programs will undoubtedly be terrific, but for specific solutions for your business look no further than NAAA's two-day exposition. The world's largest agricultural aviation trade show brings buyers and sellers of aerial application-related products, supplies and services together under one roof. Last year, a record-setting 155 exhibitors lined the trade show aisles in Las Vegas. That was an 8% increase over the previous high of 143 exhibitors at NAAA's 2010 Convention in Savannah, which had topped the then-high-water mark of 124 exhibitors set in Reno, Nev., in 2009. As of Oct. 1, 143 exhibitors had signed up for the 2012 Trade Show, putting us on track for another capacity showcase of cutting-edge goods and services (*see pg. 24*).

Between NAAA's 44th and 46th convention the Savannah International Trade & Convention Center installed extra-large hangar doors for the express purpose of appealing to NAAA and its aircraft exhibitors. Thanks to this significant facility improvement, this year's convention

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46th Annual NAAA Convention & Exposition
NAAA FLIGHT PLAN



Savannah International Trade & Convention Center

1. Route of Flight
NAAA Trade Show

2. Aircraft Identification
N2012AG

3. True Airspeed
Stop & go. Go & stop. Repeat.

4. Departure Time
**12:00 p.m., 12/4
 10:00 a.m., 12/5**

5. Cruising Altitude
Ground Level

5. Remarks
When it comes to agricultural aviation trade shows the NAAA Exposition can't be beat. I can connect with the best vendors in the industry and research the latest technologies all in one place at the World's Largest Agricultural Aviation Trade Show!

6. Est. Time Enroute
12 hrs 0 mins

7. Pilot's Name, Address & Telephone Number
**Naaate Learner, 2013 Success Road,
 Blue Skies, USA, 555-555-1234**

8. Number Aboard
**140+ exhibitors/
 packed exhibit hall**



NAAA's conventions are fun for the whole family. Children under 12 who are registered for the non-banquets package will be admitted for free.

more at the world's largest agricultural aviation trade show.

COME WITH CONFIDENCE!

Between the Kickoff Breakfast, Welcome Reception, Live Auction, Pratt & Whitney Canada Reception, Farewell/Awards Banquet, private functions and informal get-togethers, there will be no shortage of opportunities for socializing and networking with friends and business acquaintances.

Whether you come to Savannah with a specific mission in mind or are more interested in flights of fancy, use the flight plans outlined within these pages to customize your convention experience. For on-target advice and solutions for your business, NAAA and the 2012 NAAA Convention & Exposition are your ultimate navigation device. Register for the convention today! ■

is being billed as the "Aircraft Show" with 10 airplanes and three helicopters scheduled to showcase inside on the trade show floor. In 2010 attendees had to go outside to see the airplanes on display in the oval driveway in front of the convention center. Now the aircraft display will be inside just like every other exhibition.

Whether you plan on upgrading your GPS and GIS hardware and software, are in the market for a new aircraft or simply want to investigate new crop protection products from different chemical companies, you'll find it and

2012 NAAA CONVENTION EXHIBITORS (AS OF 10/15/12)

More than 140 companies are exhibiting at NAAA's 46th Annual Convention & Exposition. The following exhibitors were in as of press time, but prime booth space remains. Visit www.agaviation.org/content/trade-show to secure your booth today!

Company – Booth

ACES Dynamic Instruments – #714	DuPont Crop Protection – #503	Precision Accessories and Instruments – #611
Action Aero Inc. – #451	DynaNav Systems Inc. – #540	Precision Laboratories Inc. – #706
Aero-Engines, Inc. – #606	Eagle Vistas/Laviasa USA – #707	Premier Turbines – #346
AeroFlow Systems Inc. – #647	Electronics International – #846	Prime Turbines Inc. – #609
Ag Air Turbines Inc. – #551	Executive Aircraft Maintenance – #553	Queen Bee Air Specialties Inc. – #525
Ag Container Recycling Council – #324	Falcon Insurance Agency Inc. – #506	Reabe Spraying Service – #649
Ag-Nav Inc. – #845	Farm Air Inc. – #645	Red River Specialties Inc. – #249
AgAir Update – #311	Fireboss – #753	Rocky Mountain Propellers Inc. – #819
AgLasers LLC – #409	First Priority Bank – #404	RT Turbines – #538
AgriData Inc. – #710	Flight Grip LLC – #612	S & T Aircraft Accessories Inc. – #424
AgriNavics Inc. – #426	Flock Buster – #355	Scott's Bell 47 – #100
AgriSmart Information Systems LLC – #301	FMC Corporation – #529	Serv-Aero Engineering Inc. – #357
AgSync Inc. – #545	Frost Flying – #534	SIFCO Minneapolis – #608
Agtelligent – #556	Garco Products Inc. – #628	Simplex Aerospace – #419
Air Plains Services – #909	GE Aviation – #345	Sky-Tractor Supply – #601
Air Repair Inc. – #410	Gibson & Barnes – #348	Southeastern Aircraft Sales & Service – #747
Air Tractor – #732	Hammonds Fuel Additives/Biobor JF – #749	Souther Field Aviation Inc. – #354
Allianz Global Corporate & Specialty – #459	Hardy Aviation Insurance Inc. – #701	Southwest Turbine Inc. – #550
AmSafe Inc. – #225	Hartzell Propeller Inc. – #344	Spectrum Electrostatic Sprayers Inc. – #323
Application Management LLC – #312	Hatfield/Turbine Conversions – #117	Starr Aviation – #508
APS Brakes – #523	Helicopter Savannah City – #351	StollerUSA – #306
ASI Jet AG Division – #350	Hemisphere GPS – #429	Sutton James Inc. – #750
Auger Dan LLC – #253	Heupel Farms Inc. – #515	Syngenta – #406
Auto Cal – #513	Huffy's Airport Windsocks Inc. – #619	Teledyne Battery Products—
Av-DEC – #507	Hunter Agri-Sales Inc. – #305	Gill Aircraft Batteries – #610
Aventech Research Inc. – #329	Intercontinental Jet Service Corp. – #555	Tennessee Aircraft Company Inc. – #607
Aviation Specialties – #559	Isolair – #207	The Trend Group – #527
BASF – # – #717	J & C EnterprisesAviation Inc. – #910	Thrush Aircraft – #233
Battlefords Airspray – #844	Johnston Aircraft Service Inc. – #116	Timken Bearing Inspection – #400
Bayer CropScience – #201	Kansas Aviation – #407	TracMap Aviation – #308
BrightPortal Resources LLC – #153	Kawak Aviation Technologies – #422	Trade-A-Plane – #213
CapMan Inc. – #252	Kimmel Aviation Insurance Agency Inc. – #509	Transland – #439
Cascade Aircraft Conversions – #417	Kugler Company – #316	Tulsa Aircraft Engines Inc. – #247
CD Aviation Services – #652	Lane Aviation Inc. – #744	Turbine Engine Consultants Inc. (TECI) – #650
Chartis Aerospace Insurance Services – #402	Leading Edge Associates – #428	Turbine Installation LLC – #413
Compton's Flying Service – #514	Loveland Products – #314	Turbines Inc. – #445
Covington Aircraft – #423	Merit Apparel Co. Inc. – #617	United Turbine Corp. – #756
CP Products Company Inc. – #511	Micronair Sales & Service Inc. – #435	USAg Recycling – #712
Curtis Dyna-Fog – #604	Mid-Continent Aircraft Corp. – #325	Valley Air Crafts – #518
Dallas Airmotive, Inc. – #219, 218	Midwest Turbine Service – #624	Vector Aerospace – #211
Davidon Inc. – #616	Millennium Enterprises Inc. – #307	Weber Aviation Insurance – #450
Davidson Solid Rock Insurance – #245	NAAA – #401	Western Skyways – #501
Davis Aviation – #614	NationAir Aviation Insurance – #215	Wilbur-Ellis Company – #209
Desser Tire & Rubber Co. Inc. – #615	National Flight Services – #309	Winfield – #718
Dow AgroSciences LLC – #655	Octaflex – #746	Wings Insurance – #437
Dromader USA LLC – #512	PARMA – #724	WNAAA – #244
DTC Duat Service – #453	Pickett Equipment Co. Inc. – #517	World Fuel Services – #411
	PIM Aviation Insurance – #600	
	Pratt & Whitney Canada – #315	

NEW-LOOK ASABE SESSION TO DELIVER ON-TARGET TECHNICAL ADVICE IN LESS TIME

By Brad Fritz

USDA-ARS Aerial Application Technology Group

This year, the ASABE/NAAA Technical session is being rebooted. While past years' sessions were full of the latest and greatest aerial application related scientific research, this year's session looks to provide a more focused and application-driven experience. To that end, the speakers have identified four main topic areas on which to focus: 1) AGDISP spray dispersion modeling, 2) active product and adjuvant effects on spray atomization, 3) details of a new swath patterning system, and 4) a review of research and guidance for low rate aerial applications.

The goal of this year's session is still to present a science-based overview of recent and state-of-the-art aerial application research, but to focus more on practical use and application of the information presented. While this year's session will also be somewhat shorter than past years (the two hours before lunch), we hope the more focused program will enable us to present more information in a more effective manner. Below is a brief preview of the topics we will cover.

BASICS OF AGDISP AND PRACTICAL GUIDANCE FROM RESULTS

- How to get up and running with AGDISP in a few minutes.
- How to input your application setups and predict swath deposition and movement
- Where is your spray going?
- What happens if you change Drop-let size? Height? Wind speed? Etc.

NAAA/ASABE TECHNICAL SESSION

Monday, Dec. 3
10 .am.-12 p.m.

Presented by the American Society of
Agricultural and Biological Engineers

ACTIVE PRODUCT AND ADJUVANT EFFECTS ON SPRAY DROPLET SIZE

- How do active products compare to water only?
- What happens when other adjuvants are added?
- At what airspeeds is air shear the dominate effect?

A NEW SYSTEM FOR SWATH PATTERN TESTING

- Overview of new system and software user interface
- Using the new system
- Examples of spray patterns and analyzing the data

LOW RATE AERIAL APPLICATIONS

- What does the literature say about low rate applications?
- Recent research findings for low rate aerial applications
- If you apply low rate, what are practical recommendations for best application?

During this time, you will also have an opportunity to provide us with your input regarding future research projects that you would like to see us address. We look forward to seeing you there. ■



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46th Annual NAAA Convention & Exposition
NAAA FLIGHT PLAN



Savannah International Trade & Convention Center

1. Route of Flight

NAAA Farewell Reception and Farewell/Awards Banquet

2. Aircraft Identification

N2012AG

3. True Airspeed

Leisurely

4. Departure Time

5:30 p.m.

5. Cruising Altitude

Ground Level

5. Remarks

NAAA always closes out its convention in style. The elegant Farewell Banquet & Awards Ceremony is a real treat for Naaancy and I, and a wonderful way to honor the recipients of the 2012 NAAA Awards for their special achievements. We wouldn't miss it!

6. Est. Time Enroute

3 hrs 30 mins

7. Pilot's Name, Address & Telephone Number

**Naaate and Naaancy Learner,
 2013 Success Road, Blue Skies, USA**

8. Number Aboard

Full House

AND THE WINNER IS...

NAAA is proud to announce the winners of the Association's 2012 Annual Awards. The award recipients will be honored Dec. 6 at the Farewell/Awards Banquet, the closing ceremony of NAAA's 2012 Convention & Exposition. Without further ado, the 2012 honorees are as follows:

- **Agrinaut Award:**
Leonard Felix Jr. (Colorado)
- **Allied Industry Individual Award:**
Bob Bailey (Texas)
- **Evans-Christopher Operation S.A.F.E. Award:**
Dr. Richard Whitney (Oklahoma)
- **John Robert Horne Memorial Award:**
Luke Johnson (Nebraska)
- **John Robert Horne Memorial Award:**
Van Lucas (Iowa)
- **Larsen-Miller Community Service Award:**
Eric Klindt (Minnesota)
- **Most Active Woman Award:**
Jane (Barber) Pitlick (South Dakota)
- **Opal & Bill Binnion Memorial Award:**
Chip Kemper (Idaho)
- **Outstanding Service Award:**
Gaylon Stamps (Texas)
- **William O. Marsh Safety Award:**
John J. "Dusty" Dowd Jr. (Kansas)

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. 6 at the Westin Savannah Harbor.



NAAA's 2012 officers will bid adieu at the Farewell Banquet. Handing the reigns over to the incoming 2013 officers are 2012 Treasurer Kyle Scott, Vice President Leif Isaacson, President Mark Hartz and Secretary Gaylon Stamps.



NAAA presented its 2011 Awards to 10 deserving recipients. The National Agricultural Aviation Hall of Fame also inducted the late John E. Dorr. Join NAAA for this year's awards banquet as we honor 10 new award recipients.

NAAA would like to thank the following sponsors for their generous support of NAAA's 2012 Convention & Exposition!

2012 CONVENTION SPONSOR	COMMITMENT
DIAMOND SPONSORS (\$20,000+)	
 BASF The Chemical Company	Kickoff Breakfast, Program Guide (Inside Ad), Embroidered Patches
 Bayer CropScience	Internet Cafe and Wi-Fi Sponsor, Hotel Key Cards, Beer in the Booth
PLATINUM SPONSORS (\$12,000–\$19,999)	
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	Live Auction Reception, General Session Co-Sponsor
GOLD SPONSORS (\$7,500–\$11,999)	
	Conference Registration Bags, Program Guide (Back Cover)
SILVER SPONSORS (\$3,000–\$7,499)	
	Corridor Signs, Floor Graphics and Window Cling
	Convention Lanyards
	Aisle Signs (Exclusive), Convention Passport
 <i>The miracles of science™</i>	Farewell/Awards Banquet
	Program Guide (Inside Ad)
BRONZE SPONSORS (\$1,200–\$2,999)	
Ag Container Recycling Council	General Session Co-Sponsor
	General Session Co-Sponsor
Kimmel Aviation Insurance Agency Inc.	Auction Paddles
	TBD
Queen Bee Air Specialties Inc.	Tuesday Coffee Breaks
Southeastern Aircraft Sales and Service	Window Clings, Beer in the Booth
EMERALD SPONSORS (\$500–\$1,199)	
Frost Flying Inc.	Beer in the Booth
Simplex Manufacturing	Registration Bag Item
Texas AAA	Compass Rose Concurrent Session Co-Sponsor
Torell Aviation Insurance Agency Inc.	Compass Rose Concurrent Session Co-Sponsor

According to an NAAA Industry Survey, 70% 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. For more information about sponsorship opportunities, contact Marshall Boomer, NAAA Sponsor/Exhibit Sales Consultant, at 717-505-9701, Ext. 123.

TEE UP FOR THE 2012 AGAV PAC GOLF TOURNAMENT

The 46th Annual NAAA Convention & Exposition in Savannah, Ga., is just around the corner, and that means it's time for the NAAA AgAv PAC Golf Tournament. With 2012 poised as one of the most significant presidential and congressional election years in recent history, your donation to help strengthen NAAA's influence in Washington, D.C., and support candidates friendly to our industry is more important now than ever. What better way to do this than by having fun on the links with your fellow aerial applicators? So dust off your clubs and help support the ag aviation industry!

This year's tournament will again be held at the legendary 18-hole championship Club at Savannah Harbor which is part of the Westin Hotel and on its grounds. The Westin is one of the host hotels for the NAAA Convention. The lush course was designed by renowned architect Robert Cupp and golf legend Sam Snead. It features unparalleled views of pristine wetlands, the river and downtown Savannah, and in 2010 also provided AgAv PAC players with the unique perspective of ag planes landing adjacent to the course during play. The Club is the host site of the PGA Tour's Champions Tour Liberty Mutual Insurance Legends of Golf and listed as one of the top 100 golf courses in America by *Conde Nast Traveler* magazine.



The Westin Savannah Harbor Golf Resort & Spa is home to the 18-hole Robert Cupp/Sam Snead Championship Golf Course.

The 2012 NAAA Golf Tournament will consist of a four-member team scramble on Sunday, Dec. 2, with an 8 a.m. shotgun start. NAAA recommends players plan to arrive in Savannah in time to attend the Calcutta on Saturday, Dec. 1, at 6:30 p.m. The Club at Westin Savannah Harbor has clubs for rent (brand-new Callaway Razrs + 6 looged balls) for \$50. If you will need to rent clubs, please contact the pro shop at (912) 201-2240.

The NAAA Golf Tournament Registration Form below is required for each entrant.

NAAA AgAv PAC Golf Tournament Registration Form

Golf Package:

Name: _____

Phone: _____ Email: _____

Golf Handicap* (your golf score on a 72-par golf course): _____

*Required for registration

*Please register in advance and no later than **Nov. 21, 2012**. Advance registration is required to set the 4-member teams. Teams will be matched according to handicaps, and players cannot register as a foursome.

Meal Package:

Name: _____

Payment:

Amount: _____ Chose one: Check _____ Credit Card: _____

Card #: _____ Exp. Date: _____

Name on Card: _____

(signature gives permission to bill)

Please Make Checks Payable to AgAv PAC

All proceeds go directly to the AgAv PAC. Federal law requires all donations to be personal contributions. Corporate contributions are prohibited. PAC donations are not tax deductible. Payment can only be made by personal check or personal credit card only.

Tournament Schedule:

Saturday, Dec. 1

6:30 p.m. – Reception & Calcutta

Sunday, Dec. 2

7:15 a.m. – Continental Breakfast

8 a.m. – Tee Times Begin

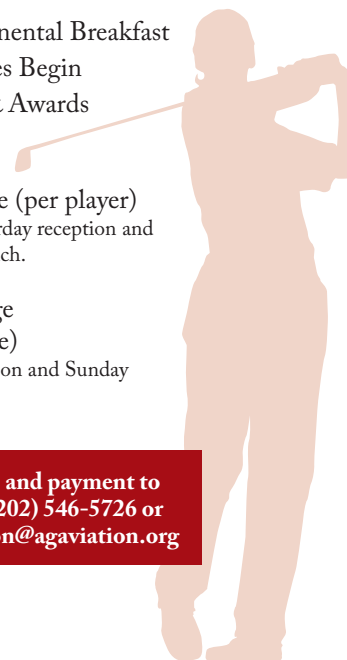
1 p.m. – Lunch & Awards

Package Costs

\$220 – Golf Package (per player)
Includes greens fee, Saturday reception and Sunday breakfast and lunch.

\$110 – Meal Package
(non-player/attendee)
Includes Saturday reception and Sunday breakfast and lunch.

Send entry forms and payment to
NAAA by fax at (202) 546-5726 or
email at information@agaviation.org





46th Annual NAAA Convention & Expo

Savannah, Ga. ♦ Dec. 3–6, 2012

Pre-registration must be received by Wednesday, Nov. 21, 2012. Use this form and register today!

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 an NAAA member to qualify for member rates.

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

NAAA Members	Registration With Banquets	Registration Without Banquets
Member	\$335	\$230
Spouse	\$280	\$170
Child (under 12)	\$115	Free

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

Banquets: Kickoff Breakfast and Farewell/Awards Banquet

EXTRA BANQUET/RECEPTION TICKET FEES:

NOTE: 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 a "without banquets" package. Purchase extra Welcome Reception and Farewell Reception tickets only for guests with no registration package.

Monday, Dec. 3	Kickoff Breakfast	\$45/each	# needed ____
Monday, Dec. 3	Welcome Reception	\$45/each	# needed ____
Thursday, Dec. 6	Farewell Reception	\$30/each	# needed ____
Thursday, Dec. 6	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.)

Company _____ Phone _____

Address _____ City _____ State _____ Zip _____

Country _____ Fax _____ Email _____

SPOUSE REGISTRANT:

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

ADDITIONAL REGISTRANTS:

First _____ MI _____ Last _____

First _____ MI _____ Last _____

First _____ MI _____ Last _____

First _____ MI _____ Last _____

PAYMENT:

Registrant Fee \$ _____ Credit Card _____ or Check # _____

Spouse Fee \$ _____ Card# _____

Add'l Registrants \$ _____ Exp Date: _____ Phone _____

NAAA Dues \$ _____ Address _____

Banquet Tickets \$ _____ City _____ State _____ Zip _____

TOTAL DUE \$ _____

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

"Signature is permission to bill Credit Card."

Mail payment and registration form to: NAAA – 1440 Duke Street – Alexandria, VA 22314
Print registration form at www.agaviation.org – Fax 202-546-5726 – Questions? Call 202-546-5722
E-mail information@agaviation.org. Online registration opens July 9 at www.agaviation.org.

SAVOR SOMETHING OLDE AND SOMETHING NEW AT THE 2012 WNAAA CONVENTION

Attention, women of the agricultural aviation industry! You're invited to Savannah, Ga., for a heaping serving of Southern hospitality. All women, including spouses and employees who work in the ag aviation industry, are welcome at the WNAAA Convention Dec. 3-6. Far from being a good old boys club, NAAA's 2012 convention will be replete with events tailored to the

women of the industry. A Meet & Greet on Dec. 3 and the WNAAA President's Open House Dec. 4 offer food and fellowship for all, but space is limited for one sold-out engagement: a free lunch at one of Savannah's finest restaurants, The Olde Pink House. To sign up for the waiting list, email Phyllis Howard at iflyag@bellsouth.net or Nancy Turnquist at nturnquist@yahoo.com.

DON'T STRESS, BUT THE WNAAA WANTS YOU TO BRING YOUR BURDENS TO SAVANNAH

We all know what a "high stress" industry we live and work in. That's why the WNAAA would like to invite the spouses, significant others and office personnel of the agricultural aviation industry to the Athena Project presentation, "The Burden of Stress." The Athena Project is a time when we can share our ideas, concerns and solutions to the issues that come along with life and work in the agricultural aviation industry. The Athena Committee feels strongly that we have a positive, informative and upbeat presentation for those of us in this complicated industry. Please join us Dec. 5 at 9:30 a.m.

And those burdens you've been carrying? Bring them along. There's no need to shoulder the load alone. At the Athena presentation, we'll unpack them together in a safe, stress-free environment with the aim of helping you become stress-free. We all have so much to share and contribute to the aerial application industry, particularly when we shoulder the load together.

—Jayne Rucker, WNAAA Athena Committee Chairwoman



Stop by the WNAAA's booth to pick up 2012 convention T-shirts for the whole family. Nothing says "I love you" better than a commemorative NAAA Convention T-shirt.

46th Annual NAAA Convention & Exposition
NAAA FLIGHT PLAN

Savannah International Trade & Convention Center

1. Route of Flight 2012 WNAA Convention			
2. Aircraft Identification N2012AG	3. True Airspeed Leisurely	4. Departure Time 8:00 a.m.	5. Cruising Altitude Ground Level
5. Remarks I look forward to the WNAAA Convention every year. Not only do I get to swap ideas with the most experienced women in the biz, some of my best friendships were forged through the WNAAA!			
6. Est. Time Enroute 96 hrs 0 mins	7. Pilot's Name, Address & Telephone Number Naaancy Learner, 2013 Success Road, Blue Skies, USA, 555-555-1234		8. Number Aboard 75+

WNAAA CONVENTION SCHEDULE

Monday, Dec. 3

Kickoff Breakfast 8 a.m.–9:45 a.m.
 Rise and Shine Savannah ... 10 a.m.–12 p.m.
 Welcome Reception 6:30 p.m.–7:30 p.m.

Tuesday, Dec. 4

General Session:
 Mock Trial 10 a.m.–12 p.m.
 President's Open House 1 p.m.–3 p.m.
 (Theme: Sunflowers & Tumbleweed)

Wednesday, Dec. 5

Athena Program 9:30 a.m.–11:30 a.m.
 Lunch at The Olde Pink House 12 p.m.
 GE Aviation
 Boot Scootin' Party 7 p.m.–11 p.m.

Thursday, Dec. 6

Farewell Reception 5:30 p.m.–6 p.m.
 Farewell/Awards Banquet 6 p.m.



SOLD OUT

Southern Cooking!

The WNAAA Convention Committee cordially invites you to a special luncheon engagement at The Olde Pink House December 5 at 12 p.m.

Lunch provided courtesy of the WNAAA, but space is limited to the first 75 women who sign up.

This event is sold out!

To sign up for the waiting list, please contact:

Phyllis Howard at iflyag@bellsouth.net,

—or—

Nancy Turnquist at nturnquist@yahoo.com

THAT'S THE TICKET! After a year off, the WNAAA returns to this year's convention with a new raffle aimed at all you gadget enthusiasts. Tickets are \$10 and three prizes will be awarded during the drawing. First prize is a MacBook Pro, second prize is an iPad and third prize is a Nintendo Wii game system.

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GETTING DOWN TO BID-BESS: NAAA SEEKS AUCTION ITEMS BIG AND SMALL



fundraising from within the industry is critically important since federal funding for programs vital to the aerial application industry is no longer assured.

All auction donations, big or small, are greatly appreciated. As the list of items available for bid grows, we will continue to highlight the companies and individuals who contribute to this important fundraising endeavor in *Agricultural Aviation*, the NAAA eNewsletter and on the website.

To make a donation or inquire about the auction, please contact NAAA at (202) 546-5722 or convention co-chair Randy Hardy at 1-800-721-6733 or Randy@HardyAviationIns.com. An Auction Donation Form is available at www.agaviation.org/content/auction-donation-form. ■

With preparations for the 46th Annual NAAA Convention & Exposition ramping up, several Allied Industry members have stepped forward with generous donations to NAAA's Live Auction. The always entertaining Live Auction continues to be one of the Association's most popular and successful fundraisers, but NAAA could not accomplish this without the support of our many friends and allies.

Last year's Live Auction raised more than \$372,000, nearly \$200,000 of

which came from auctioning a couple of Hot Section Inspection credits from Pratt & Whitney Canada (P&WC). Al and Mike Schiffer of Al's Aerial Spraying in Ovid, Mich., came out on top in the bidding for the credits for OEM parts and maintenance services associated with one small and one large PT6A AG engine. Pratt & Whitney Canada was so pleased with the response from the Schiffers and other bidders that it has decided to make the same auction pledge again this year! (*See pg. 34 for more details.*)

NAAA is very appreciative of the generosity shown by Pratt & Whitney Canada and likeminded Allied Industry companies, our State Associations and aerial applicator backers. Their contributions support the aerial application industry's long-term livelihood by providing income for association projects and programs.

With 2012 being an election year resources are needed to ensure support of aerial application issues and educate new government officials about the important role our industry plays in agricultural production and public health protection. Furthermore, in light of recent and continued budget-cutting efforts by the federal government,



Rick Reed and Stan Jones perform some aerobatics with a pedal plane donated by Devil Dusters Inc.

2012 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 HSI's

Potential buyers must provide a letter of credit from a financial institution to NAAA and place 10% down as an initial deposit. The retail value is \$70,000 for the small PT6 Hot Section Inspection and \$125,000 for the large PT6 HSI.

Auction Shipping Arrangements

NAAA is not responsible for shipping auction items. You can make arrangements with T3 (booth in back of trade show) to ship your auction purchases for you. T3 can pack and ship anything you purchase.

SAMPLING OF AVAILABLE AUCTION ITEMS

COMPANY	AUCTION ITEM
	Two (2) certificates of credit of OEM parts and labor related to Hot Section Inspection parts (HSIs) applicable at either an HSI, repair or overhaul shop visit—one (1) for small PT6 AG Engine; one (1) for large PT6 AG Engine. Includes parts (e.g., new OEM CT blades, new OEM CT shroud segments and new OEM CT shroud housing) and labor. HIS parts valid for five-year period and transferrable upon sale of aircraft. For more details, see sidebar on pg. XX.
Ag-Nav Inc.	Two (2) \$1,000 gift certificates for any repair or Ag-Nav product; one (1) Ag-Nav Guia GOLD complete, for helicopter or fixed-wing certificate/display
AgAir Update	Lifetime subscription to AgAir Update; one (1) pen & ink drawing by Richard DeSpain
AgriSmart Information Systems	Nexus 7 Tablet (166 B) by Google
AIG	Two (2) Christine Alexander black blouses with airplanes (L and XL sizes)
AmSafe Inc.	Certificates for two (2) AmSafe seatbelt airbag systems—one (1) kit for Air Tractor product line, and one (1) for the Thrush S2R product line.
Bayer CropScience	To-scale model Air Tractor 502
CP® Distributor Family	50 CP - 11TT Flat Fan Nozzles and 50 CP-06 Swivels
John “JT” Helms, Phoenix Aviation Managers Inc.	Framed, signed, numbered print of “Leland’s Legacy,” by aviation artist San Lyons
Kristina Orcutt, Chartis Aerospace Insurance Services	One (1) Diane von Furstenberg designer tote
Mary Beth Schwaegel, Chartis Aerospace Insurance Services	Airplane-shaped cutting board
Southwest Turbine	One (1) Part Number 3103496-1 Turbo Maxx Crossover Duct
StandardAero	TPE331 engine maintenance discount. 10% discount up to \$10,000 on any future TPE331 scheduled or unscheduled maintenance event. (Valid for one year after date of auction)
Tennessee Aircraft	Orvis Fly/Spin Rod Combo Rod—interchangeable fly & spin reels with travel case
Trade-A-Plane	Two (2) subscription vouchers for one-year subscription to Trade-A-Plane magazine
Tulsa Aircraft Engines	R-1340 radial engine outright (no exchange required), zero time since overhaul, new pistons, newly reconditioned cylinders with new barrels including a 1,200-hour warranty against skirt failure, new brass magneto gears and corrosion-resisting cylinder barrel and head sealer

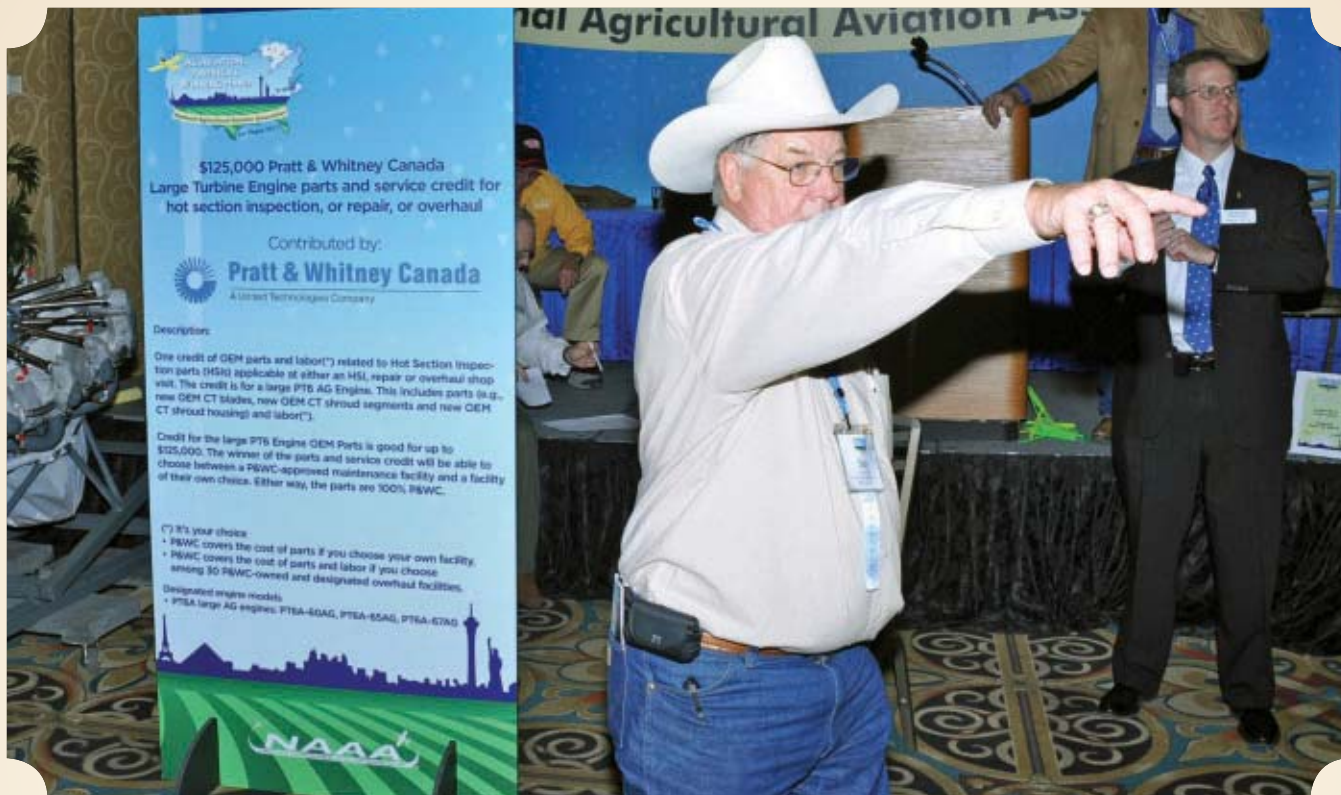
Thank you to our contributors! If your company has something of value to add, consider contributing it to the NAAA/WNAAA auctions. For additional information, contact NAAA at (202) 546-5722. To donate an auction item, complete the Auction Donation Form at www.agaviation.org/content/auction-donation-form.



Auctioneer Kevin Palmer urges the crowd on with his rapid-fire cadence. NAAA and the WNAAA netted \$372,000 from the Live Auction at the 2011 NAAA Convention.

A CONTRIBUTION SO NICE THEY'RE GIVING IT TWICE

PRATT & WHITNEY CANADA OFFERS TWO MORE PT6 MAINTENANCE CREDITS TO NAAA'S AUCTION



ENCORE, ENCORE! After auctioning two PT6 engine maintenance certificates of credit in 2011, Pratt & Whitney Canada has generously agreed to contribute two more Hot Section Inspection credits this year.

Pratt & Whitney Canada (P&WC) has done it again. After contributing a new PT6 engine that sold for \$350,000 in 2010 and two Hot Section Inspection certificates of credit that collectively sold for nearly \$200,000 in 2011, the engine manufacturer has stepped up with an identical offer for this year's Live Auction. P&WC once again will be auctioning two certificates of credit of OEM parts and labor* related to Hot Section Inspection parts (HSIs) that can be applied at either an HSI, repair or overhaul shop visit. One certificate of credit is for a small PT6 AG Engine; the other one is for a large PT6 AG Engine. The certificate of credit includes parts (e.g., new OEM CT blades, new OEM CT shroud segments and new OEM CT shroud housing) and, if a P&WC-designated facility is used, labor. These HSI parts are valid for a five-year period and transferable upon sale of your aircraft.

The certificate of credit for the small PT6 engine OEM parts is good for up to \$70,000. The credit for the large PT6 engine is good for up to \$125,000. Winners of either will be able to choose between a P&WC-approved maintenance facility and a facility of their own choice. Either way, the parts are 100% P&WC.

* It's your choice

- P&WC covers the cost of parts, if you choose your own facility.
- P&WC covers the cost of parts and labor, if you choose among 30 P&WC-owned and -designated overhaul facilities.

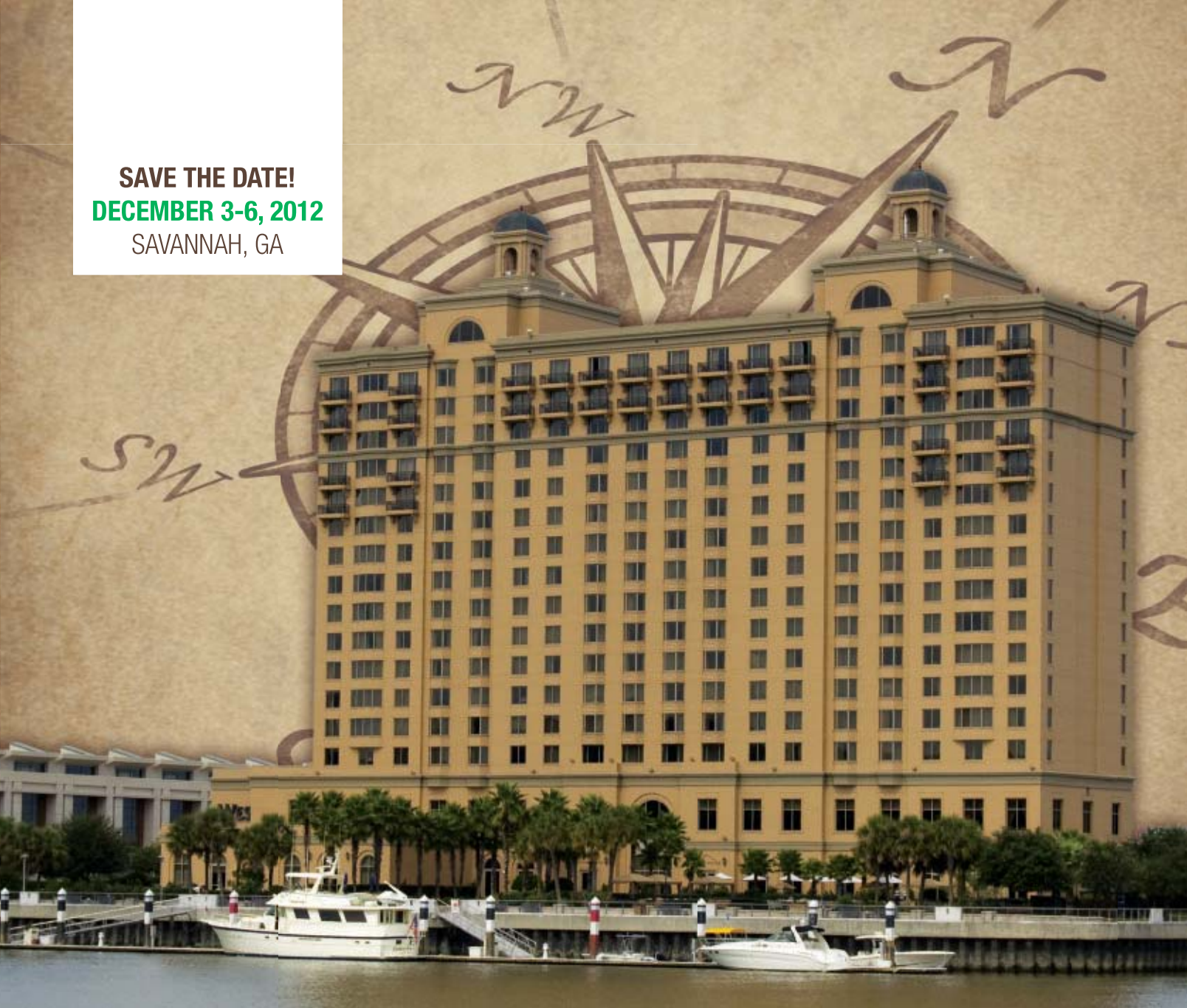
Designated engine models

- PT6A small AG engines: PT6A-11AG, PT6A-15AG, PT6A-34AG
- PT6A large AG engines: PT6A-60AG, PT6A-65AG, PT6A-67AG

Al and Mike Schiffer of Al's Aerial Spraying, LLC, in Ovid, Mich., were the top bidders for both PT6 HSI credits last year. The Schiffer brothers have a fleet of Air Tractor 400s and 502s, and all six planes are powered by a PT6 engine. That's a selling point in the Congested Area Plans Mike has to write for the mosquito abatement work Al's Aerial Spraying does.

"The Air Tractor, coupled with Pratt & Whitney's PT6, is a great, great combination for the kind of work we do," Mike Schiffer said. "What I base the bulk of our safety on in my Congested Area Plans is the airplane and the power plant that we have. They're really tremendously well-designed and time-proven pieces of equipment, and I'm not sure I would want to do what I do without them."

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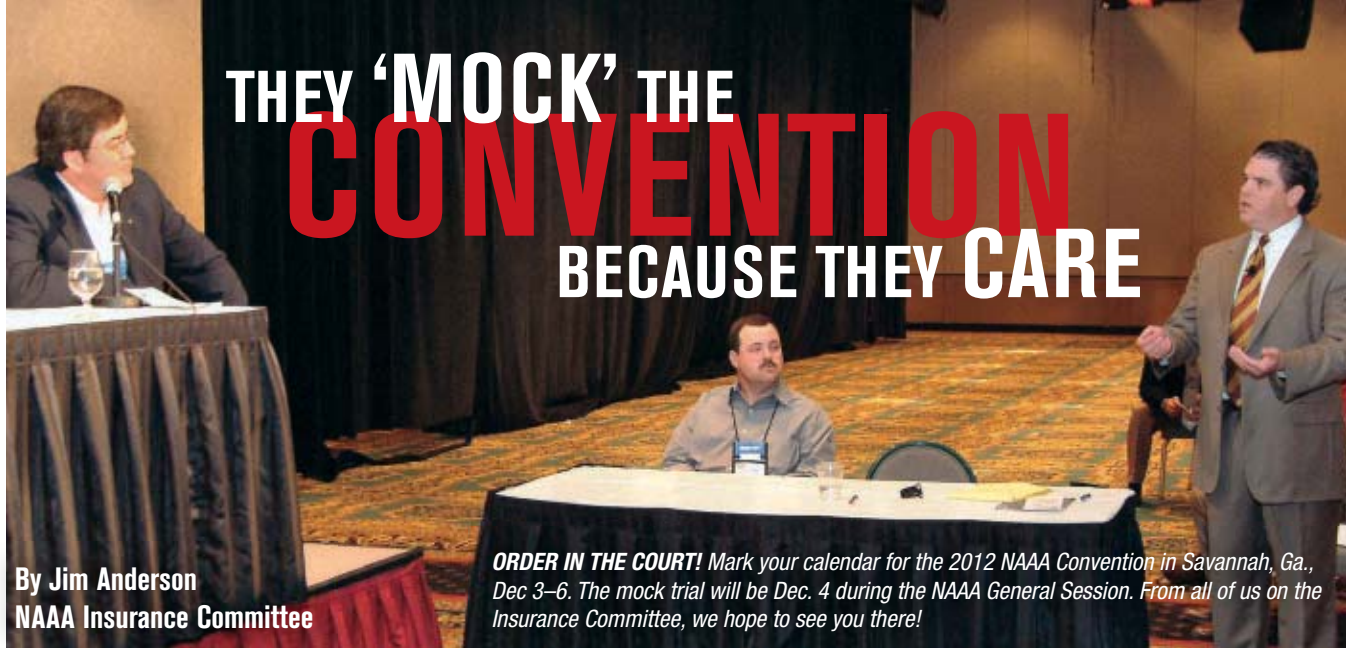
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THEY 'MOCK' THE CONVENTION BECAUSE THEY CARE



By Jim Anderson
NAAA Insurance Committee

ORDER IN THE COURT! Mark your calendar for the 2012 NAAA Convention in Savannah, Ga., Dec 3-6. The mock trial will be Dec. 4 during the NAAA General Session. From all of us on the Insurance Committee, we hope to see you there!

When the NAAA Insurance Committee meets at NAAA's board meetings in the spring and fall, one of the frequent requests submitted by membership is, "When are you going to put on another mock trial at the annual convention?"

Well, you spoke and we listened. During the 2012 NAAA Convention, held in beautiful Savannah, Ga., the Insurance Committee will sponsor a mock trial during the General Session with the help of some great friends and allies to NAAA. Geff Anderson, Guy Riddle and Raven Atchison have

put together what will certainly be a very unique look at our legal processes via this mock trial, which is based on an actual case recently tried by their firm, Anderson, Riddle and Kuehler (ARK) based in Fort Worth, Texas.


Without giving away all the details of what is in store for you, the "mock" case involves an aerial applicator who has been accused of causing substantial property damage from chemical drift. What will be eye-opening will not only be the inside look at the courtroom procedure, expert witness testimony, cross examination and so forth, but also the unique perspective

into how a jury decides the fate of the aerial applicator whose future hangs in the balance based on the decision.

Geff Anderson and Guy Riddle have been trying cases for the agricultural industry for many years, so they understand your environment and also the complex legal aspects of these cases. Geff and Guy have provided litigation and appellate representation in state and federal courts in various types of cases within and outside of the aviation industry. The firm's litigation experience allow Geff and Guy to represent clients in cases ranging from relatively simple two-party disputes to the trial and appeal of complex matters involving multiple parties and complex damages in various jurisdictions and venues across several states, including Texas, Arkansas, Missouri, Oklahoma and Tennessee. Raven Atchison is an associate attorney at ARK. Needless to say, we are in for a treat by recognized experts in their field.

Does the name Geff Anderson sound familiar? If you were in attendance at the 2005 NAAA Convention, Geff was the one of the orchestrators behind the mock trial at the General Session in Reno, Nev. We are certainly glad he is back for the Savannah Convention this year! ■

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*Simplex nozzles, AG engines only.

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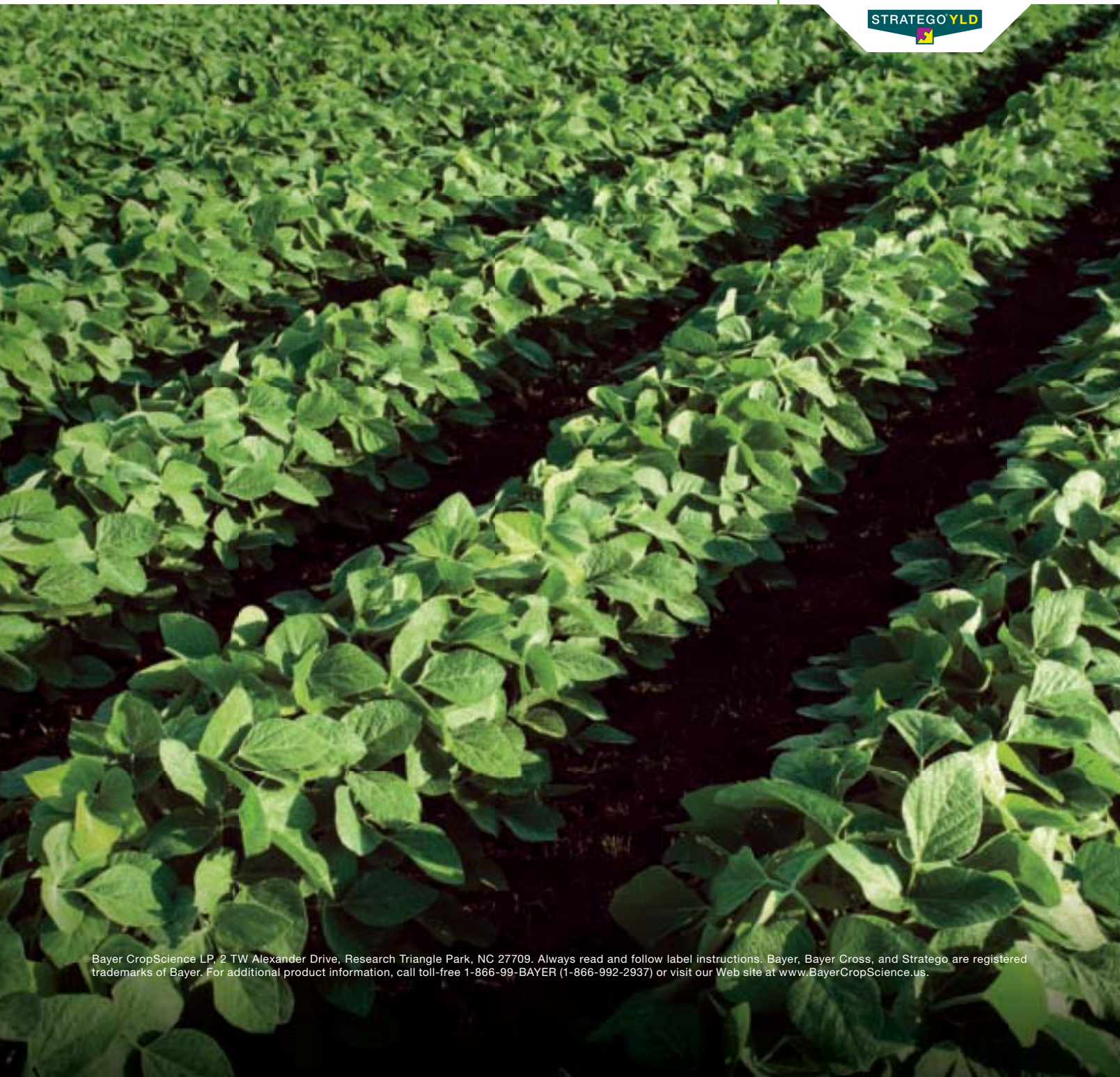
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UNINTENTIONAL GROUNDING

Aerial Applicators have had to weather the withering effects of the Great Drought of 2012

By Jay Calleja
Manager of Communications

Until this year, the aerial application industry had been riding high for the past half-decade or so, accomplishing more with less as fewer aircraft covered more acres. But the pendulum began to swing in the other direction in 2011 when aerial applicators in the Southwest and Southern Plains

sputtered through a debilitating drought, and accelerated this year when high heat and bone-dry conditions morphed into the worst drought the United States has seen in half a century. The National Oceanic and Atmospheric Administration determined this year's drought has been the most extensive to hit the U.S. since 1956.

If acres are tantamount to dollars, by that economic indicator, more than half of the nation's aerial applicators have been trending downward over the last 12 months. The results of a new survey NAAA conducted to measure the impact of the drought found that 53% of aerial application operations treated slightly or significantly fewer acres in 2012 than normal, including

Fig. 1: NAAA Operators' responses by region to question of 2012 drought's effect on acres treated

	National	Southeast	Southwest	Midwest	Great Plains	Pacific Northwest	Northeast*	California*
Fewer acres treated entirely due to the drought	31%	20%	30%	44%	36%	13%	22%	0%
Significant effect, but drought wasn't the sole factor	15%	12%	15%	15%	20%	0%	11%	57%
Some effect, but other factors were at play too	15%	15%	18%	13%	11%	25%	22%	14%
Little effect, other factors played a more significant role	9%	15%	6%	2%	11%	21%	11%	0%
My acres were up, not down, in 2012	30%	38%	30%	26%	22%	42%	33%	29%

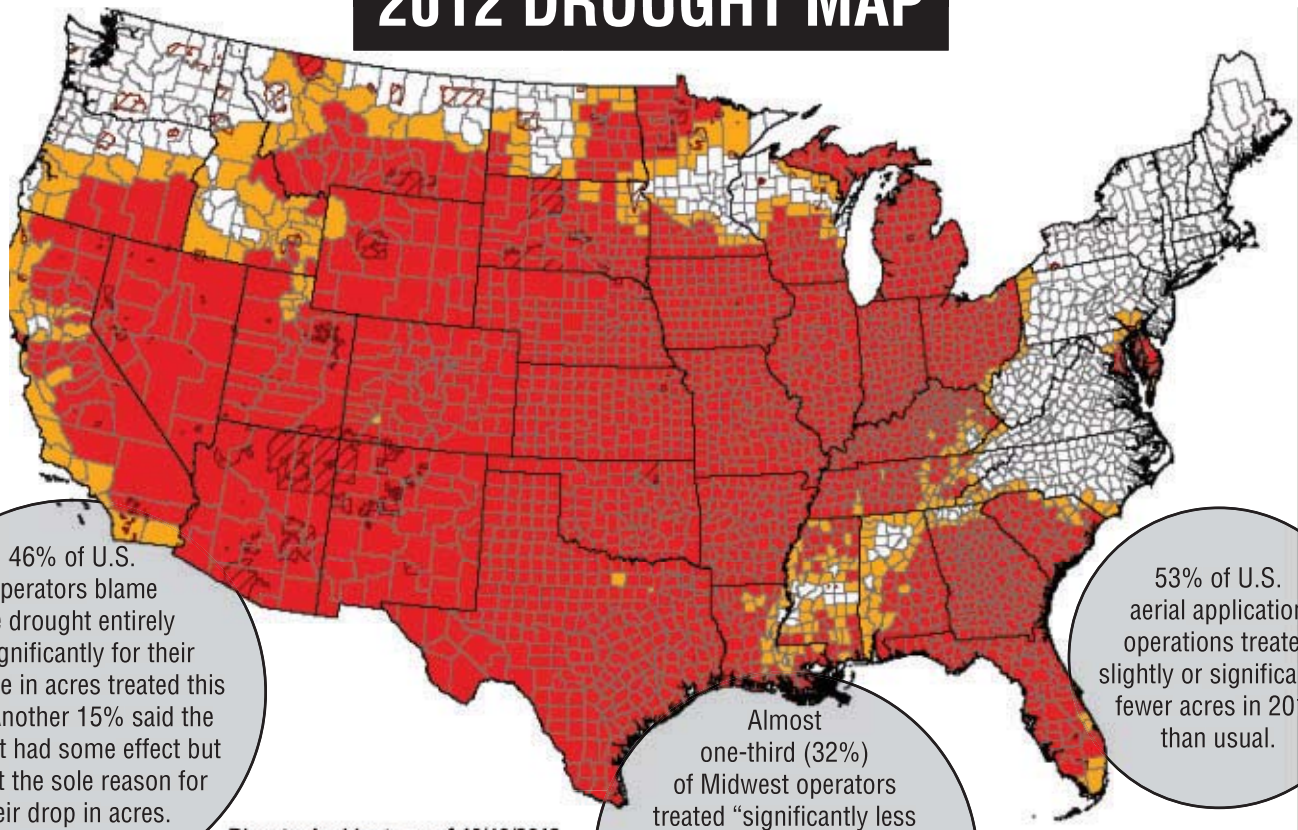
* Due to small sample sizes for California and the Northeast, the percentages specified in each of the response categories may be under or overinflated.

Fig. 2. Twenty-two percent of operators were able to recover some of the acres they lost due to the drought by picking up extra work through some combination of the following:

More insecticide work	48%
More fungicide work	28%
Cover crop acreage increased	28%
Picked up work in another region of the country	21%
More aerial seeding	17%
More herbicide work	16%
More forestry work	8%
More fertilizer work	5%
More aerial firefighting	5%
Other	3%

2012 DROUGHT MAP

1:23,520,203



46% of U.S. operators blame the drought entirely or significantly for their decrease in acres treated this year. Another 15% said the drought had some effect but wasn't the sole reason for their drop in acres.

53% of U.S. aerial application operations treated slightly or significantly fewer acres in 2012 than usual.

Almost one-third (32%) of Midwest operators treated "significantly less acres than usual" in 2012. In 2011, 57% of Midwest operators' acres were up significantly and just 7% were down significantly.

Disaster Incidents as of 10/10/2012

- State Boundary
- County Boundary
- Tribal Lands

Total All Drought Approved Designations as of October 10, 2012

- Primary Counties: 2,100
- Contiguous Counties: 323



Source: Based on 302 responses to NAAA's 2012 Drought Survey, which queried Operator Members.

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one-fourth whose acres plummeted. That's in stark contrast to 2011 when 48% of operators said their acres were slightly above average or much higher than usual, compared to 13% who treated significantly fewer acres.

Every sector of agriculture has been impacted by the drought to varying degrees. Approximately 80% of agricultural land has been affected by the drought. In spite of the drought, the USDA Economic Research Service forecast that farm income will grow to \$122.2 billion, an increase of 3.7% over 2011.

While agriculture as a whole remains durable, aerial applicators and other third-party service providers aren't privy to the same safeguards as farmers buoyed by crop insurance and higher crop prices attributable to tighter supply. AIR Worldwide, a catastrophe modeling firm, estimates losses from crop insurance claims in 2012 may exceed \$13 billion and could be as high as \$20 billion. (In 2011, crop insurance payouts in 2011 reached \$10.4 billion.) Aerial application operators have had to weather the withering effects of the 2012 drought on their own.

To find out how the drought has impacted aerial application operations, in September NAAA solicited Operator Members to participate in a short drought survey. Overall, 302 out of 750 operators completed the online survey, a stellar 40% response rate. The highest number of responses came from operators in the Midwest (35%), Southeast (25%), Great Plains (15%) and Southwest (11%).

NAAA's survey revealed the drought grounded a significant number of aerial applicators, making it more of a bummer than bumper crop year (see Fig. 1). However, the drought wasn't a scourge for every applicator. Thirty percent of operators saw their acres

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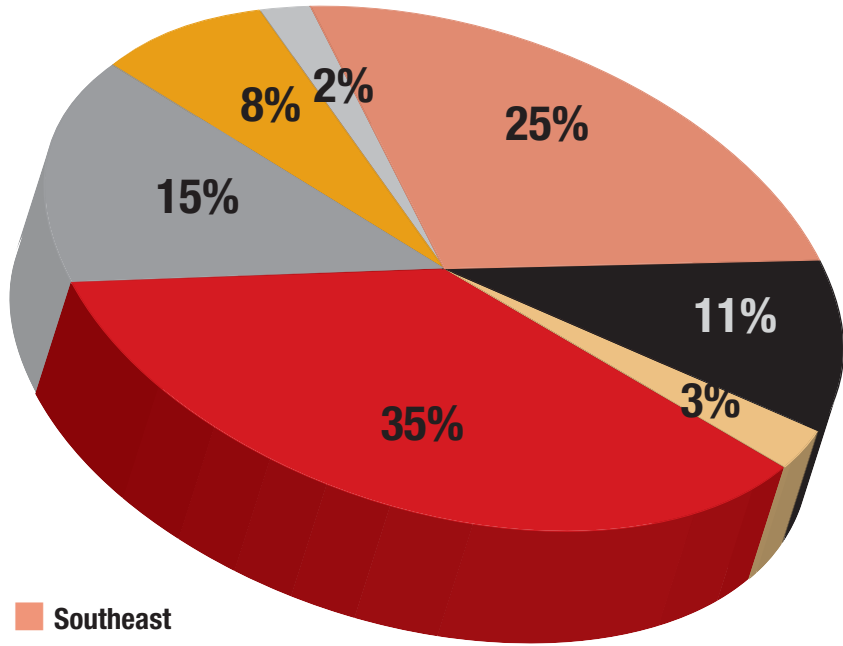
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In which region is your operation based?



- Southeast
- Southwest
- Great Plains
- Northeast
- Pacific Northwest
- Midwest
- California

Results based on survey of 302 NAAA Operators polled in September on the effects of the 2012 drought.

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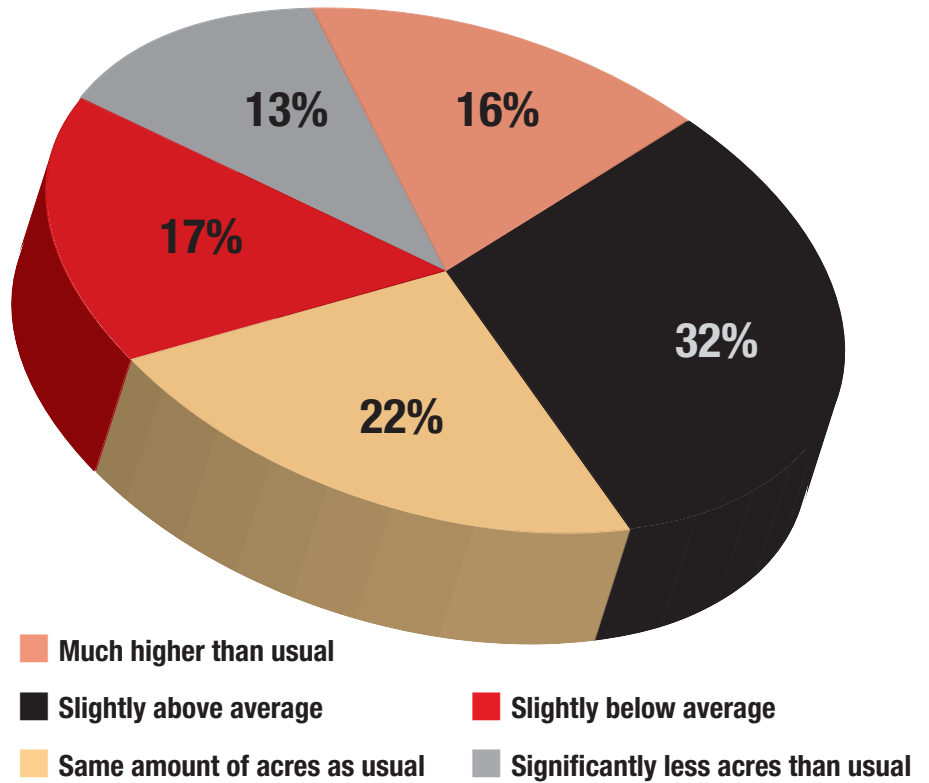


Ideas to Grow With

increase in 2012. Operators in the Pacific Northwest were more insulated from the drought than aerial applicators in other parts of the country. Acres were up for 42% of operators in that region, the highest percentage of any region in the country.

Not surprisingly considering all the fungicide treatments that did not get applied to corn over the summer, the biggest net loss in acres treated occurred in the Midwest. Two summers ago operators in the Midwest couldn't get the planes off the ground fast enough thanks to wet conditions that produced a rash of fungicide disease cases in commodities such as corn and wheat. The demand for aerial application was so great that 57% of Midwest operators surveyed reported the number of acres they treated in 2011 was slightly above average or much higher than usual. Those acres evaporated in 2012, with 64% of Midwest operators reporting

In relation to what you consider to be a normal year, how did the number of acres you treated in 2011 compare to a typical year?



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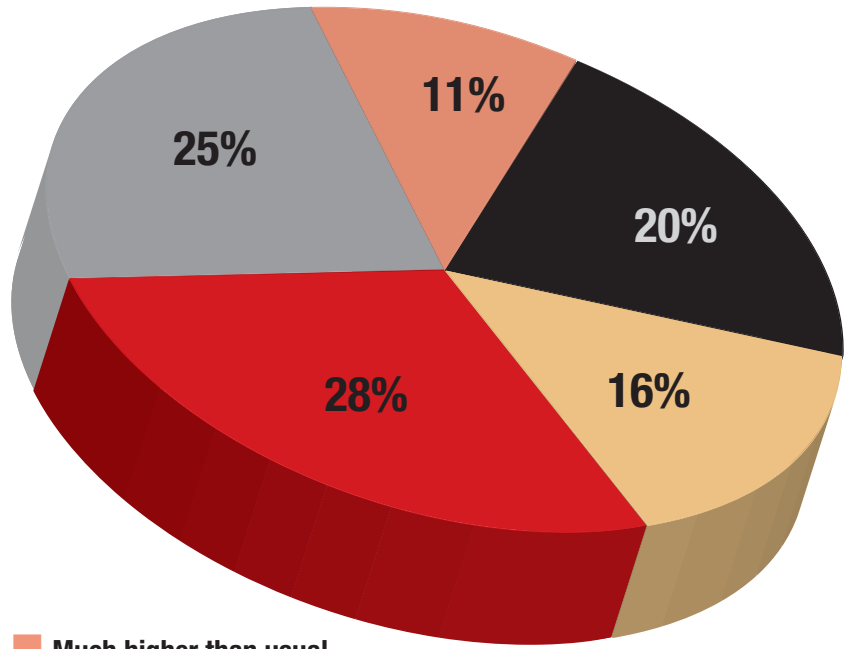
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In relation to what you consider to be a normal year, how do the number of acres you treated in 2012 compare to a typical year?



■ Much higher than usual

■ Slightly above average

■ Slightly below average

■ Same amount of acres as usual

■ Significantly less acres than usual



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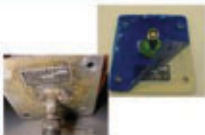
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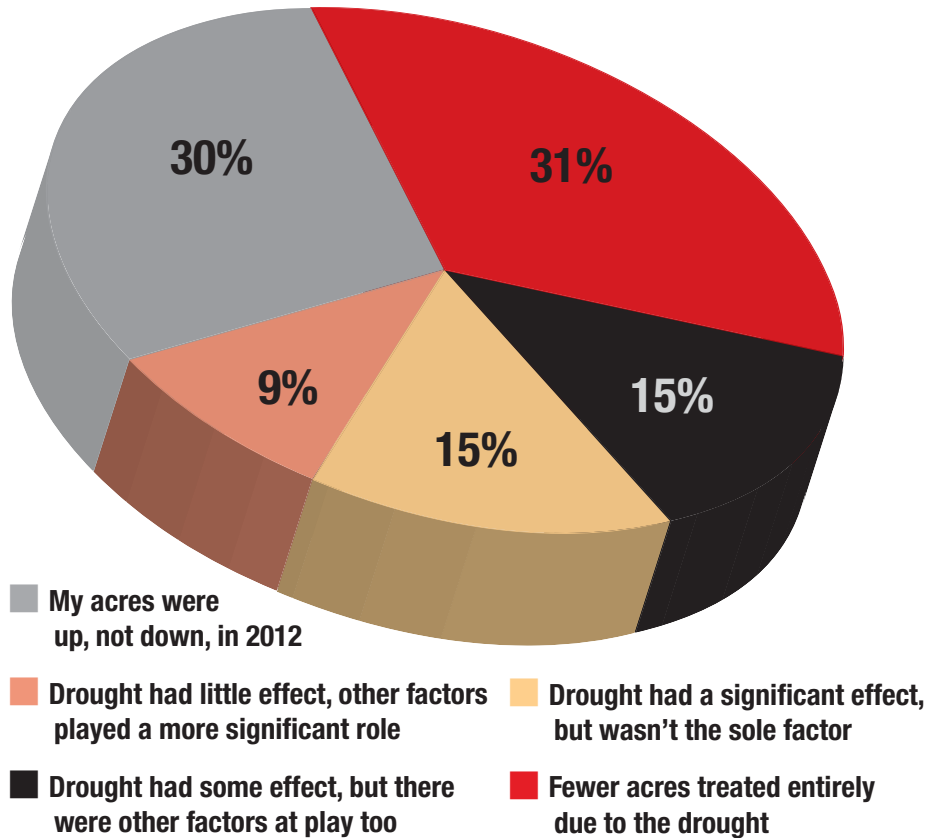
a drop-off in acres that was slightly or significantly less than normal (there was an even split between the two choices).

When asked if they were able to recoup some of the acres they lost in 2012 because of the drought by picking up more acres from other means of aerial application than they normally would for those services, 45% of operators said no and 22% said yes. Thirty-three percent of the respondents to that question did not experience a decrease in acres this year.

Among those who managed to recover some of their lost acres, 48% did more insecticide work, 28% did more fungicide work, 28% did so by doing more cover crop applications than usual and 21% picked up extra work in another region of the country (see Fig. 2).

For a more detailed look at the survey results, please refer to the charts and graphics on the preceding pages. ■

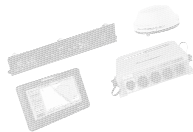
If your acres were down this year, how much did the drought affect that?



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It Was the BEST of Times, It Was the WORST of Times

My First Year as a 137 Operator

By John J. Thomas
Crop Air Support, Shenandoah, Iowa

My first year as a Part 137 operator was exciting, exhausting, rewarding, successful; but in the end, it was also slightly disappointing.

Despite the drought in the Midwest, I had a fairly busy and successful season as a new operator. I say “I” only because one person is named on my 137 certificate, but in reality, my wife Diane and I both had a fairly busy and successful season, as she was integral to the success of the business. Spouses seem to be the unsung heroes of many of these aerial application businesses.

Even though we had planned on purchasing an entire business location (hangar, containment pad, loading equipment and customer list) and airplane from my former boss for the 2012 season, early in the year he agreed to sell only the airplane for the upcoming season and delay the

location purchase until after the season. This arrangement was at my request, as my wife and I decided it would be wise to shore up our financial obligations by either selling or refinancing our home. In addition to the fact that we were having trouble accomplishing this goal, there was some additional financial uncertainty remaining in the aftermath of a family emergency from the previous summer.

For the first time I would be operating the entire season from the location that I would be buying for the business. In past seasons I only flew from this municipal airport occasionally. For the 2012 season we would more or less lease the use of the very hangar and

equipment we would be buying by paying my old employer a small fee per acre flown from this airport. In exchange, he would also supply the ground crew. I felt this was a good deal for both of us; he continued to make some money off of the location, and Diane and I could ease into the ownership.

As the Iowa season rapidly approached, Diane and I set up a small office at the Shenandoah Municipal



John and Diane Thomas had an eventful summer. While John was busy flying, Diane gamely handled Crop Air Support's scheduling and bookkeeping duties even though she had never worked in an aerial application business before.

Airport, one we amicably shared with my former employer. Diane's primary job was to run the job scheduling computer program, print maps, take care of bookkeeping and answer the phone. Since this was completely new to her she was apprehensive but in the end she did a great job which allowed me to focus on flying, talk to farmers and form relationships with local co-ops (also known as agricultural cooperatives where farmers pool their resources in certain areas of activity).

About a week before the season started we decided to advertise our new business on a local AM radio station. My wife wrote a one-minute radio ad and we requested that it play somewhere near the ag market updates in the morning. Shortly after it aired for only the second time, we had a walk-in customer (a co-op) who had just heard the ad on the radio. They became our best customer of the season. In this case a simple radio ad garnered a huge return on a small investment.

We primarily worked for two co-ops in the area. We knew these co-ops had several choices in aerial applicators so we chose to focus on customer service and prompt attention at a competitive price. One major concern I had was not seeking or accepting more work than I could reasonably accomplish in a timely manner. Although I could have probably flown more acres this year, I am satisfied our customers received prompt service with no fields left unsprayed; we are proud of that.

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One major concern I had was not seeking or accepting more work than I could reasonably accomplish in a timely manner. Although I could have probably flown more acres this year, I am satisfied our customers received prompt service with no fields left unsprayed.

Being a small operator we were able to provide flexibility in customer service. For example, when it made sense, I offered to meet one of the co-ops at an intermediate rural intersection to pick up or return their chemicals, saving them the 25-mile trip to the airport. I know this was greatly appreciated.

I also had my first introduction to hot loads. Hot loads are pre-mixed loads where the chemicals and water are mixed together ahead of time and held in a storage tank, often mounted on a truck. After an initially slightly confusing lesson, hot loads became my preferred way of operating because they cut my ground time in half.

What happened was that a co-op had delivered a hot-loaded truck with 625 acres of product on board. This was

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to cover eight fields in eight loads. Between the time it dropped off the truck and when I began printing maps the next morning, another field was ordered. It specified the same chemical mix but was intended for another truck. I just saw what I thought was the original eight fields on the scheduling page of the software and began printing maps. Without noticing the error I printed out nine maps totaling about 715 acres. Needless to say, the truck load did not treat all of the fields and I had to figure out why. To avoid this in the future, I insisted when the pre-mix truck was dropped

off that they also drop off maps for each field on the truck. Then we cross-checked those maps with what we had on the work order.

After implementing this and some other minor corrective measures I never had another problem with hot loads. Obviously, if more than one plane/pilot is pulling loads off of the truck it will complicate things, but as a one-plane operation it worked well for me. If more than one plane is going to use a single premix truck then perhaps having a ground "crew chief" that is responsible for tracking the truck's

load as well as exactly what goes on each aircraft would be beneficial.

As expected, there were many long days. I often arrived at work before the sun came up and left long after the sun went down. I remember Mike Wade from Mississippi giving me advice as a new operator. He said, "If there's work on the books, that plane has got to be in the air. Let someone else answer the phone or talk to customers." As a one-plane operation I heeded his advice and relied on my wife to take care of administrative things on the ground, the "contract" ground crew to refuel and load me and

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Thomas and his 1982 Cessna Ag Husky.

Randy Wagner, the airport manager/A&P mechanic, to provide assistance when maintenance issues popped up. This arrangement worked out well for

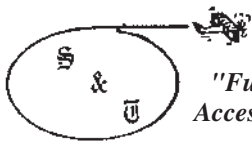
us. We were able to fly enough acres to meet our financial obligations for the year and have some left over to invest in the airplane in addition to having some initial operating funds for next year.

To our disappointment, toward the end of the season the deal to purchase the business location fell through. In hindsight, a written and signed document should have been produced agreeing to the terms and timeline of the future transaction. This would have prevented any misunderstandings as to the previously agreed upon business deal.

In the end, it was a fulfilling year. Diane and I were able to realize a long-term goal, and by any measure it was a success. We gained some invaluable experience and learned some lessons, both good and bad, yet we both know we have a lot more to learn, especially if we want to grow as a business. ■

John Thomas is a regular contributor to Agricultural Aviation. He wrote about transitioning from employee pilot to independent operator in the September/October 2012 issue.

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WHERE ARE YOUR DROPLETS GOING?

FURTHER USES OF THE AGDISP MODEL



The two miniature tornados behind the aircraft's wing tips in this old photo are examples of vortices. Vortices are bad for a number of application reasons but are easy to prevent when careful applications are administered.

For the past couple of issues we have been discussing the value of the Agricultural Dispersion (AGDISP) Model. In the July/August 2012 issue we introduced readers to AGDISP and illustrated how it can be used to calculate swath offsets for reducing spray drift. The origins and history of AGDISP were explained in greater detail in the September/October 2012 issue. This article will spotlight another component of the AGDISP toolbox, the ability to evaluate the effects of spray boom width on spray droplet movement from both a helicopter and fixed-wing aircraft.

When someone talks about droplet uptake in aircraft vortices or vortices decay downwind of an aircraft, it is

difficult for most people to envision what this really means. The old saying that “a picture is worth a thousand words” still holds true, and the AGDISP model has the ability to paint a picture for you. In the Toolbox menu within the AGDISP model, there is a feature called Trajectory Details. This allows you to “see” the path that a droplet of a specific size (200 μm^1 droplets for these examples) travels as it leaves an individual spray nozzle on the boom and travels downwind. Each individual line in Figures 1 and 2 represent the path that a 200 μm droplet ejected from each nozzle travels until it either deposits on the ground or drifts past the distance shown on the horizontal (Distance) axis in the graph.

¹ μm = micrometer, commonly referred to as a micron

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

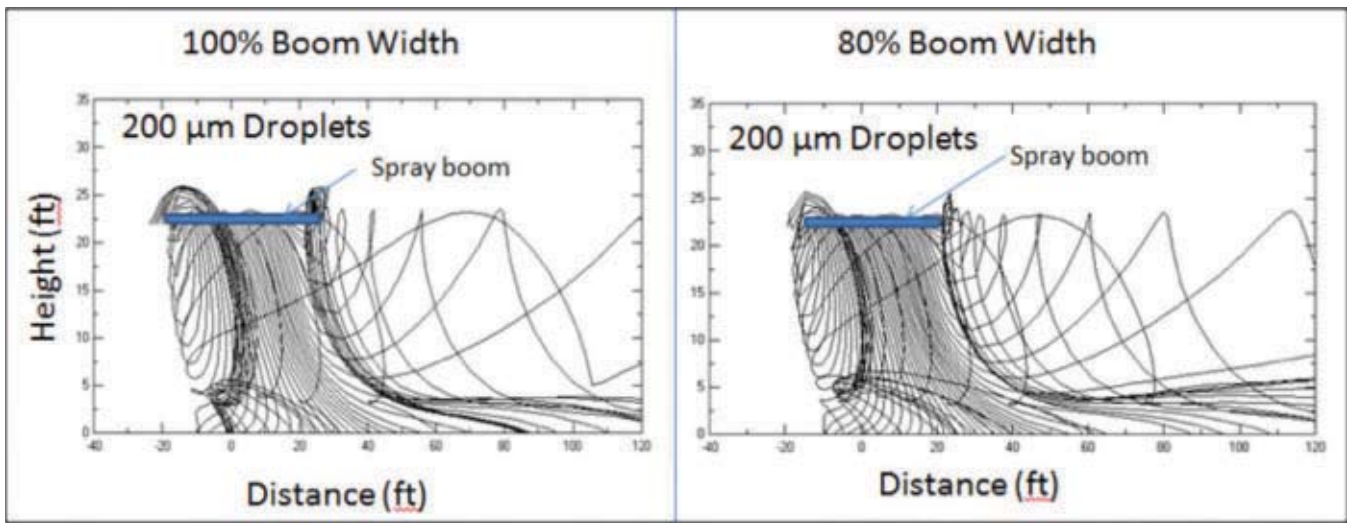


Fig. 1. Droplet trajectories from the AGDISP model for 200 µm droplets released from a Bell 204B helicopter (22-foot release height, 60 mph airspeed) with the spray booms at 100% and 80% rotor width, respectively. In these simulations, a 5 mph wind is coming from the left side of the aircraft as the helicopter flies into the page. In other words, imagine that you are viewing the helicopter from behind as it flies away from you.

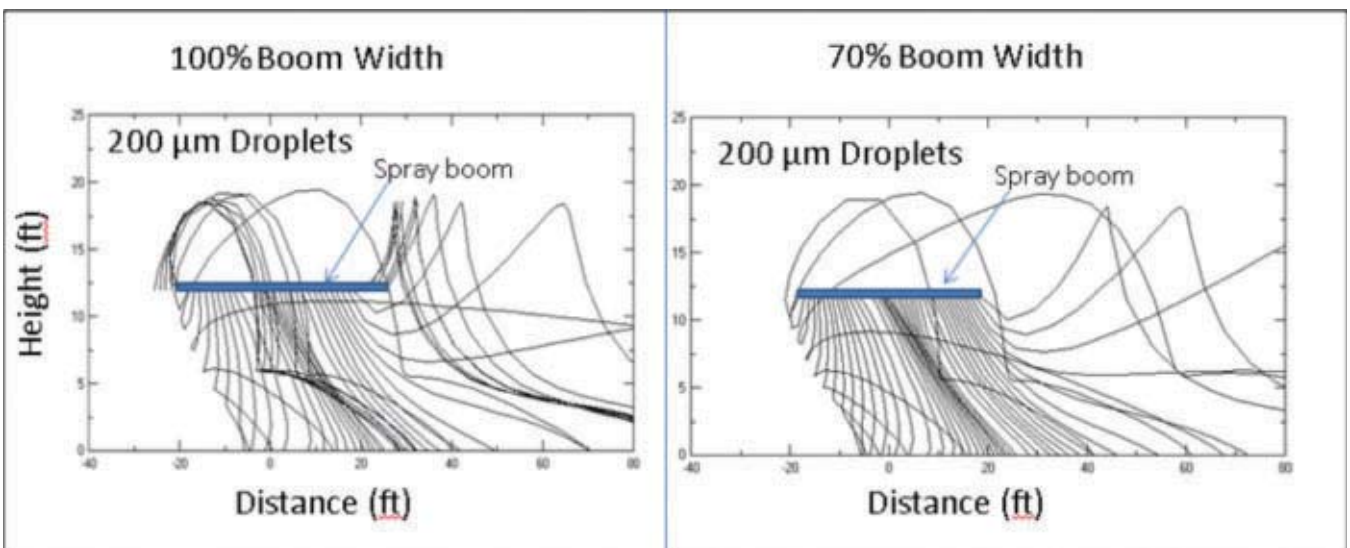


Fig. 2. Droplet trajectories from the AGDISP model for 200 µm droplets released from an Air Tractor 402B aircraft (12-foot release height, 130 mph airspeed) with the spray booms at 100% and 70% wing span, respectively. In these simulations, the aircraft is flying away from you and a 5 mph wind is coming from the left side of the aircraft.

Before exploring the details shown in the two figures, we need to recap setting up the model in order to generate these types of graphs. The opening screen of the AGDISP software will guide you through the process of providing the input needed to run a model. The first step in the setup is to select the type of aircraft, within the Application Method box, that you are interested in modeling as this defines the physical features of the aircraft (weight, rotor/wing width, etc.) needed by AGDISP to calculate

wake forces and vortice strengths. Secondly, the number and location of the nozzles, as well as the targeted spray droplet size, must be specified within the Application Technique box. There are several other boxes of information required (Meteorology, Spray Material, etc.) but for this demonstration all of the default values were used.

Now let's look at the effects of boom width on spray droplet trajectories for a spray application made with a

Bell 204B helicopter (Fig. 1) and an Air Tractor 402B (Fig. 2). In each of the figures, the boom width was set to 100% and 80% of rotor width for the helicopter and to 100% and 70% for the fixed-wing aircraft. Fifty-five nozzles were used on the helicopter and 42 on the aircraft. Imagine that you are viewing each aircraft from behind as it flies away from you and there is a 5 mph wind coming from the left side. Please take a minute to look at each

graph to draw your own conclusions about what you see before proceeding.

Helicopter: The spray droplet trajectories for the 200 μm droplets for the 100 and 80% boom widths look nearly identical. While we can see the slight lifting of the spray droplets above the spray boom caused by the rotor wash, the droplet very quickly returns to the general spray pattern and travels toward the ground. The trajectories for both boom widths also show about

the same number of droplets moving past the 120-foot downwind distance. These simulations support the common practice of having the spray boom be about 100% in length of the rotor width.

Aircraft: With the aircraft simulations, the effect of boom width is significantly more pronounced. When the spray boom is 100% of the wingspan, a greater number of droplets are lifted by the wingtip vortices and become concentrated in the lower right corner of

the 100% boom width graph (Figure 2). This would result in heavy dose of spray depositing outside of the intended swath area and could lead to a drift claim. In the 70% Boom Width graph, one sees fewer droplets being lifted up by the vortices and no concentrated area of droplets downwind of the aircraft.

We can also see in the fixed-wing trajectory plots a concentration of spray droplets in the center of the spray cloud for both boom widths. In the AGDISP setup, the default is to evenly space nozzles across the spray boom. Anyone who has been involved in pattern testing knows that you need adjust your spray nozzle locations to compensate for prop wash, wheels and the unique characteristics of your aircraft. Hopefully, these graphs help everyone “see” the importance of pattern testing to ensure even spray distribution across the spray swath.

Adjusting nozzle locations to account for the effects of boom width on spray deposition pattern and off-target movement as a result of droplet entrainment in wingtip vortices is a common industry practice. Even so, the ability of a model like AGDISP to illustrate the magnitude of these effects for different droplet sizes within the spray cloud is a powerful tool in helping us to better understand the behavior of sprays as they are released from the aircraft. This very basic set of simulations support and demonstrate the benefit of the 100% and 70% boom widths for rotary and fixed-wing aircraft. ■

The Agricultural DISPersion (AGDISP) Model is a product of the USDA Forest Service and is open and available to the public. Currently, the AGDISP model is available on CD by request, but web-based distribution is anticipated in the near future. To request a copy of AGDISP, please email Dr. Harold Thistle of the USDA Forest Service at hthistle@fs.fed.us and provide a mailing address.



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NAAREF's new training video, "First Response: Responding to a Pesticide-Related Aircraft Accident," was produced to educate emergency first responders about what to expect if they are called to an agricultural aircraft accident or other accident involving the possible release of a hazardous material. The DVDs were mailed to all operators on NAAA's mailing list last spring.

Now it is our responsibility to get it into the hands of our local fire, law enforcement and emergency medical technician (EMT) personnel. It is

easy enough to drop the video off at their offices, but if that's all you do, how many people will watch it and remember what's in the video? The new "First Response" DVD is an excellent training tool, but I would argue it works best when combined with an in-person training session and live demonstration. In the unlikely event you are unable to present the training in person, be sure to let them know the DVD also includes training materials they can print out and study (see box).

If this sounds like a daunting task, don't worry. There are several different approaches you can take to make it a great training session for anyone who attends. For starters, work off of the DVD and print out a copy of the study materials for each attendee so they can take it home and look it over periodically. In the past, whenever I showed the old pilot rescue video to EMTs and local fire and law enforcement agencies, it was well received. I have held two more training sessions using the new DVD.

The content is about the same, but the information is more up to date. The video doesn't cover all the things we may be doing, but it is a great tool to use when talking to groups. That's why it's important for you to be there to put a face to the plane.

I like to conduct separate pilot rescue training sessions for the fire department apart from the other first responders. Usually there are a lot of members in a fire department, regardless of whether it's public or volunteer. The other group sessions consist of law enforcement (police, sheriff and highway patrol) and EMTs (ambulance).

Typically each group has a training officer who lines up training for the group. I always contact the training officers and let them know what I would like to do and what I would need from them. I use an hour of classroom and an hour of hands-on time at the airport. Now, you may already be saying "I can't fill that much time," but believe me, it goes



WING MAN Eric Klindt takes questions from members of the Wahpeton (N.D.) Fire Department inside Wilbur-Ellis's hangar.

fast. I usually get to the fire hall and use their community room or someplace where they can all sit down and watch the video.

It is important to anyone who does this to get all the applicators in your area together for this event. I always introduce myself and everyone who is with me—managers, loaders, other pilots and so forth. Make it personal. I always introduce my wife and kids, whether they are there or not. Then state why you are doing this training. “If I am in an accident, I don’t want you to be scared to come up to the plane and get me out.,” I tell groups. I use the analogy of a semi in an accident. It has fuel and cargo; you don’t know what the cargo is, if it’s even carrying any, but you know it has fuel. Basically, the fuel is the same for turbine planes. Most of the time our cargo is gone, and I explain how we can get rid of a load.

First responders are usually very interested in airplanes, so you will find that you have their attention from the start. Tell them you are going to show the video and will answer any

questions once it’s over. The video takes 20 minutes. The participants will probably have a bunch of questions after it, but if no one has a question, ask them if they disagree with anything in the video or if there was anything they would do differently. Believe me, they will have comments.

Whenever I speak to a group of first responders, I always tell myself, “Be as honest as you can.” Do not sugarcoat anything about what we do and how we do it. Explain the dangers involved with the pesticides we carry. Most of the time the fuel I have on board is more dangerous than the pesticides, but I tell them the different times of the year when they can expect more

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Eric Klindt likes to combine classroom and field training when he works with first responders.

dangerous pesticides when dealing with insecticides and some fungicides.

Once the questions have slowed down, then we move to the airport to show them the planes. This hands-on time is the part I most love. Show them what you do and how you do it, from filling the plane to starting and flying.

The first time I did this many years ago, I learned a lot. I'm around the plane all the time and think everyone should know where the engine is, where the hopper is, where the fuel is. Those were some of the first questions people had. I thought they weren't very smart people, but then I realized they have never seen a plane up close before and I had to explain everything about the plane, which is fun to do.

After my aircraft orientation, I talk about how to get into the cockpit, unbuckle the pilot and shut the fuel and electric off. I also show them where to jack on the plane if they have to get the pilot out or where to cut metal. Don't forget to tell them what the prop at the bottom of the plane is for! They will ask about it. It's also a good idea to take a side panel off to show them the inside.

If you are really looking for a good time as a pilot, let them extract you from the cockpit. I did this a few years ago and couldn't believe it! I asked the EMTs if they wanted to try and get me out without cutting my plane apart. They took me up on my offer. They brought in a half board to support my back and neck while I was sitting in the seat with my helmet on. They then twisted me over and out of the side door strapped to the half board with several other hands holding my legs and feet. Down the wing I went to the stretcher. I know they enjoyed doing the training, but after being strapped to that board, I didn't want to do it again. That feeling



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of not being able to move was not my idea of fun. Especially when there was nothing wrong with me, other than being a big dummy!

The only reason I like to separate fire crews from law enforcement is because of the size and type of crowd. Firefighters have all their gear on when they arrive, which is usually more protection than they would need to approach the scene. Typically a sheriff's deputy or highway

Supplemental Training Material Available on "First Response" DVD

NAAREF's new "First Response" DVD contains supplemental training material to augment the viewing experience. Besides viewing the presentation on a DVD player, the disk can be inserted into a computer and played in Windows Media Audio/Visual format. The disk also contains computer-accessible PDF documents that can be used as handouts during and after your presentation. The supplemental documents include a training guide written to accompany the video program, copies of a typical chemical label and an MSDS for the same product, and a first responder's guide to handling an undeployed AmSafe air restraint system if the aircraft is so equipped. Additional copies of the video are available for purchase from NAAREF by calling (202) 546-5722 or emailing information@agaviation.org. The single copy price is \$15, shipping included. Multiple copies are \$10 each.

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First responders are usually very interested in airplanes, so you will find that you have their attention from the start.

patrol person arrives at the scene of an aircraft accident first. When it comes to protecting themselves before approaching the scene of the accident, I talk about Tyvek suits. I recommend having a couple of packs of Tyvek suits with shoe covers and gloves on hand

to give to law enforcement if they don't have one in their vehicle already.

Final Tips

You don't have to be a good speaker or someone who likes to get up in front of crowds to do this type of training.

First responders are required to complete a certain amount of training each year anyway, and they will really enjoy the video and looking at planes. Each group is different, so just do what works for you and them. One time I may fly and do a water drop to show what the plane can do. The next time might be a mock crash landing on the taxiway so they can come to the plane and get the pilot out.

I plan on doing more training with the rural fire departments. Since they are not near a landing strip, the plan is to land on a remote road [once approval is granted] and have someone stay with the plane while I go in for the video and then have them drive out in the country where the plane is.

If anyone has questions about conducting your own training session, you can call me. The more you are involved with planning the training, the better it will be and the higher your attendance will be.

It's also good publicity for our industry if you want to invite the media. NAAA Treasurer Kyle Scott recently conducted a training session for firefighters that was publicized in the *Fort Morgan (Colo.) Times* newspaper (see pg. 64). Scott owns and operates Scott Aviation in Fort Morgan, Colo.

I really hope you go out and show how high-tech and interested we are in helping the farmers feed the world. More importantly, someday the information you pass on could save your life or the life on someone else in the industry. ■

Eric Klindt is a PAASS presenter. He flies for Wilbur-Ellis and has been an ag pilot for 15 years. He may be reached at (701) 403-3343.



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Firefighter Training Days Can Serve Dual Purposes

By Kyle Scott, Scott Aviation Inc.
Fort Morgan, Colo.



Kyle Scott demonstrates a fire-bombing water drop at Scott Aviation Inc.'s training day for area fire departments from Fort Morgan, Colo., and surrounding jurisdictions.

Editor's Note: *As the following article demonstrates, hosting a training session for firefighters is an excellent way to promote aerial application's efficiency in combating wildfires. In addition, it provides a forum for passing along vital crash rescue techniques that can ensure aerial applicators' safety in the event of an accident.*

On Sept. 22, Scott Aviation Inc. hosted a firefighter training day at Fort Morgan Municipal Airport in Fort Morgan, Colo. Fifty firefighters from nine different fire departments attended.

This training day was brought on by our experience during the Last Chance Fire on June 25, which Scott Aviation assisted with five drops. The fire was 36 miles southeast from Fort

Morgan Municipal Airport and 15 fire departments were dispatched. It burned an estimated 45,000 acres and 11 structures including at least two homes. The same day we made one drop on another fire four miles northwest of Fort Morgan Municipal Airport. In August we also made one drop on a grass fire in the Sand Hills of Colorado.

In August I attended the Morgan County Firefighters Association monthly meeting to discuss how we

can help and what improvements could be made to our efforts. Two of the biggest things that came from that meeting were a need for firefighters to communicate directly with pilots and the need for additional training. The last time we had a training day was in 2003. That got the ball rolling for our Sept. 22 training day.

Starting at 10 a.m., three training modules were presented starting with four fire-bombing water drop demos—two on the concrete runway with one at half door opening and one at full door to demonstrate volume of water released, then two drops in tall grass repeating one at half door opening and one drop at

(Right) A representative from North Colorado Med Evac briefs local firefighters on medevac landing zone requirements, patient loading and helicopter safety.

full door to demonstrate how much we can “wet” the grass. This was done to demonstrate the options available when we assist fire departments on grass wildfires in our area.

Discussions included filling aircraft at off airport sites including locally owned farmer airstrips that may be closer to a fire or highway or county roads that could be closed to use as an airstrip. There was also discussion of adding a “wetting agent” to make a water drop more effective.

We then moved onto ag pilot rescue and response to a pesticide related aircraft accident. All attending fire departments had received the NAAREF video with the invitation and had reviewed the video prior to attending. Demonstration and instruction was given on emergency door removal, AmSafe airbag operation, pilot harness operation, location of battery or master switch and aircraft familiarization (i.e., fuel location, hopper location, different fuel types in use, etc.).

At 11:45 a.m., the EMS helicopter from North Colorado Medevac that services this area arrived and did further training concerning landing zone requirements, operations around helicopters, safety, patient loading, and so forth.

Update: On Oct. 3, Scott Aviation was called on again to help on a wildfire by Atwood and Merino, Colo., that was started by a passing train. The fire was burning in and among trees along the river and threatening several homes and farms. We made 11 drops using 5,500 gallons of water and provided a bird’s eye view via radio relay to help direct ground efforts including directing tractors pulling field discs to create a fire break. ■



An advertisement for ASU Inc. The top half shows a night vision image of a pilot flying a small aircraft over a cornfield. The sky is dark blue with a crescent moon. The bottom half is a dark blue background with white text. The text reads: "The Night Time is the Right Time." followed by a quote: "Night Vision Imaging Systems enable pilots to work safely whenever and wherever." Below this, it says "Visit us at NAAA, Booth #559 to find out how night vision can enhance your business." At the bottom, there is a circular logo for NVIS (Night Vision Imaging System) with the words "PRODUCTS", "SERVICE", "TRAINING", and "MODIFICATIONS" around it. To the right of the logo is the ASU Inc. logo, which includes the text "ASU Inc." and "Aviation Specialties Unlimited". The website address "www.asu-nvg.com/ag" is printed at the bottom left of the advertisement.



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BASF

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BASF: An active partner supporting the aerial application industry

After a difficult season, aerial applicators and growers across the country are optimistic that next year will be a success. As they start planning for 2013, one partner they can continue to count on for support is BASF.

BASF remains focused on growing the market for aerial applicators to help increase demand for their business. The company does so by providing crop protection products that are effective, reliable and economical for aerial application, but that's not all.

Below are some highlights of the involvement of BASF in developing and maintaining a healthy aerial application industry.

IMPROVED PLANT HEALTH, FROM THE SKIES

Since the introduction of **Headline**[®] fungicide in 2006, BASF has helped lead the proliferation of aerial application of fungicides.

Through the early 2000s, the main products applied via aerial application had been herbicides and insecticides. Fungicide applications, on the other hand, were much more rare. **Headline** fungicide changed that.

With research highlighting the disease control, Plant Health benefits and resulting yield improvement provided by **Headline** fungicide, it became an attractive product for growers — especially as commodity prices continued to rise.

"All of a sudden, the aerial application companies go from spraying 100,000 acres a year to spraying half a million to a million acres a year," said Clay Rassi, National Sales Manager for AgSync.

Today, BASF offers a number of fungicide products, in addition to **Headline** fungicide, that can be applied aerially. That includes **TwinLine**[®] fungicide and **Caramba**[®] fungicide for cereals, and **Headline AMP**[®] fungicide, a combination fungicide specifically developed for corn growers who want maximum protection from foliar disease, as well as improved Plant Health.

INCREASING ACCURACY, EFFICIENCY

In addition to providing these products, BASF also has supported the development of mapping tools to improve the accuracy and efficiency of aerial applications. This was partly in response to the large increase in business that resulted from the release of **Headline** fungicide.

Many more fields were being sprayed, Rassi said, "but with the same people and the same equipment."

This increased acres-to-applicators ratio was a challenge, especially because of the planning process common to aerial applicators, which, as recently as 2005, still involved the tedious manual mapping of routes and spray areas that resulted in inaccuracies and unreached profit potential for growers. With the number of acres that required application increasing ten-fold, a need developed for a more accurate, efficient way to do business.

A solution hit the market in 2006: AgSync.

AgSync is a complete aerial work order management software system focused specifically on helping aerial applicators cover more acres without having to hire on planning staff. By providing more simple coordination between retailers and applicators, the program has helped reduce the average applicator's annual workload by 40 percent.

David Roth, of Nebraska-based Roth Aerial Spraying Inc., credits AgSync with helping his company become more efficient. It helps Roth's company simply maintain records and easily access them later on.

"It allows us to do things that we were not able to do before," Roth said.

BASF is the exclusive marketing partner for AgSync.

"BASF has been a huge supporter of agricultural aviation, and I really appreciate things like AgSync," said Tom Rongen, of Minnesota-based AgriMax LLC. "To bring that technology forward — I don't know if it would have advanced without BASF."

ADDITIONAL SUPPORT

Support for programs that benefit the aerial application industry is also important to BASF. That's why the company sponsors a number of Operation S.A.F.E. (Self-Regulating Application and Flight Efficiency) fly-ins held throughout the country.

The clinics are meant as an opportunity to boost equipment performance, applicator knowledge and ensure safety. Hands-on sessions put applicators in touch with trained analysts to get aircraft in top working condition, as well as teach applicators about pertinent legal requirements.

In 2012 alone, more than 330 aircraft have been inspected at Operation S.A.F.E. fly-ins, not to mention hundreds more in previous years.



"Operation S.A.F.E. fly-ins are a great opportunity for applicators and one of the best means of evaluating spray patterns, droplet size and application precision," said Gary Fellows, Ph.D.,

BASF Plant Health Technical Services Manager and member of the NAAREF (National Agricultural Aviation Research & Education Foundation) PAASS (Professional Aerial Applicators' Support System) Program Development Committee. "BASF is also working hard to increase participation and NAAA membership for the good of everyone in the industry."

BASF also has an eye on the future of the aerial application industry. Manpower is essential, which is why BASF supports the annual National Agricultural Aviation Association (NAAA) scholarship program. Each year, these scholarships help new and in-training pilots get the education they need to become successful aerial applicators.

"BASF is on the cutting edge of fungicides," Roth said, "but it's also on the cutting edge of agricultural aviation. They have helped promote and maintain a professional image for the industry."

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04/27/12	Hershey	PA	Bell 206B	16EP	Serious	Control friction not set—flew into ground
06/20/12	Okanogan	WA	G-164B	6861K	Serious	Hit power line
06/28/12	Minden	NE	S2R-G10	3299Z	None	Hit crop after encountering wake turbulence
07/09/12	Treynor	IA	Bell 47G-3B	2919W	None	Fuel exhaustion
07/12/12	Mott	ND	PA-25-235	8801L	None	Loss of oil pressure—damaged on forced landing
07/14/12	Red Oak	IA	R-44 II	556MM	None	Blades hit service vehicle on landing
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07/18/12	Wisner	LA	AT-502B	205SK	Serious	Unable to remain airborne after takeoff
07/19/12	Fergus Falls	MN	G-164A	4638	Serious	Power loss—#2 cylinder cracked
07/25/12	Akeley	MN	S-B 47G-2A	73252	Minor	Impacted ground while spraying for unknown reason
07/30/12	Big Springs	NE	G-164B	6676Q	None	Power loss—flipped over on forced landing
08/01/12	Newellton	LA	AT-502B	5128U	None	Unable to get airborne on takeoff
08/03/12	Holcomb	KS	We 620B	2008S	Minor	Power loss on takeoff
08/06/12	Ulysses	KS	S2R-T34	365SM	None	Impacted terrain for unknown reason
08/07/12	Harvey	ND	PA-36-285	204AB	None	Unable to remain airborne after takeoff
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Advertorial provided courtesy of Air Tractor's 2012 Convention Sponsorship.



Rick Turner, V.P. Operations

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Things are humming these days at Air Tractor in Olney, Texas. Rick Turner, Vice President of Operations, reports the company is on track to deliver a record 185 aircraft by year's end.

With this rise in production, some might wonder if it comes at the cost of quality. Not so, says Rick Turner. “Air Tractor quality is better than ever, and we have the stats to back it up,” he says. Air Tractor has implemented several new quality assurance systems throughout its manufacturing process. And it's paying off with better quality, lower costs and higher customer satisfaction, Turner reports.

One such quality assurance initiative is the “Pass Rate Report,” which monitors quality by department. The goal is a 98% pass rate for Air Tractor-fabricated parts, well inside the highest 25th percentile of industry standards. If a part doesn't measure up, it goes no further until it does. “Since April we have inspected 543,822 parts and are currently at a 97.8% pass rate,” says Turner.

Another Air Tractor quality assurance program is the final assembly “Aircraft Score Card.” It tracks squawks, trends, rework man-hours and the total cost of poor quality. As each aircraft rolls off the assembly line, its component systems are meticulously checked and receive a points-based score. All discrepancies are corrected before the airplane is released for delivery. And even after that, every airplane is inspected once again by a Senior Group Leader or Rick Turner himself to assure it checks out as ready for delivery.

Take a virtual tour of Air Tractor's manufacturing facility and learn more about Air Tractor at: www.airtractor.com

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CropLife America Recognizes NAAA Executive Director

NAAA Executive Director Andrew Moore was recently awarded the 2012 Agriculture Ambassador Award by CropLife America (CLA) at its annual meeting in Florida. Moore and NAAA work closely with CLA on a variety of issues affecting custom applicators and farmers.

The CLA Agriculture Ambassador Award honors a member of the media or allied organization who has made a major contribution to the education of the public about pesticides and their contribution to a safe, affordable and abundant food supply. CLA President & CEO Jay Vroom said Moore was deserving of the recognition based on his commitment



CropLife America honored Andrew Moore for his continued support and advocacy for the safe and efficacious use of crop protection products.

to always be out front on the pertinent issues facing agriculture today. "From NPDES permitting to spray drift policy, Andrew is always there with the facts and the passion to get the proper attention," said Vroom. "With government officials, to the media, and helping broaden our essential coalition relationships, no one is more consistent or effective at putting ag out front and [in a] positive [manner]."

"Andrew is respected and influential among his colleagues, the Hill and within federal agencies," Rebeckah Adcock, CLA Senior Director of Government Affairs, added. "His focus, action and thoughtful guidance are invaluable within the pesticide stakeholder community, and, most importantly, he stands up early, often and very, very well for his ag aviation members."

NAAA President Mark Hartz stated Moore's recognition confirms what those in agricultural aviation have known for a long time. "Andrew Moore is a class act and puts his heart and soul into moving not only our industry but agriculture as a whole forward in a responsible manner," Hartz said.

CropLife America is a crop protection association that represents the companies that develop, manufacture, formulate and distribute crop protection chemicals and plant science solutions for agriculture and pest management in the United States. CLA's member companies produce, sell and distribute virtually all the crop protection and biotechnology products used by American farmers.

On behalf of President Hartz, NAAA congratulates Andrew Moore for this noteworthy recognition and extends its appreciation to him for his leadership in the aerial application industry. ■

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