

# Agricultural Aviation



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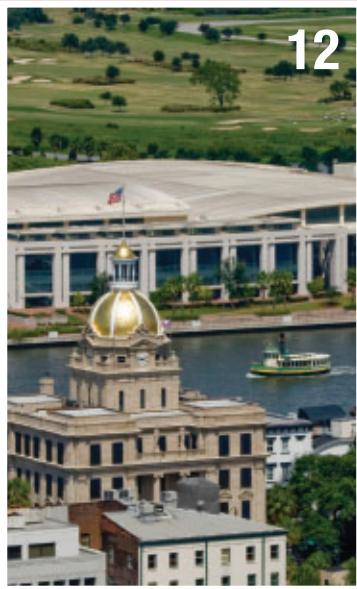
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# President's Message

Brian Rau

## A Good Run

As my term as president of NAAA is winding down, a big thanks to everyone who does so much for NAAA is in order. Thanks to Vice President Drew Keahey, Secretary Tom Harkin and Treasurer Garrett Lindell. Also thanks to NAAA staff, the many loyal board members, WNAAA members, allied members, state/regional officers, those without any particular title who serve on committees, and all of you—it has truly been *a good run*. The issues chronicled in *Agricultural Aviation* and elsewhere have been many and far reaching for the industry. Some have been resolved, but many are ongoing and NAAA will continue to be involved. The new officer team will have many work orders to cover; however, with all of our support, it will be manageable.

Most aerial application operations have completed or are winding down their year. It appears that in general, the industry has had a decent year. There are areas that have not been that busy, and others that have been quite busy. This is a normal scenario for our industry.

There has been both negative and positive PR for the industry this past year. The most powerful weapon we have is the truth. A recent joint study by Stanford University and the Carnegie Institution of Washington supports the fact that conventional high production agriculture (of which aerial application is an important part) produces more with less fossil fuel use, less land converted to farmland and less emissions of so-called greenhouse gases. This is all good for the environment and our industry. *The Keystone Alliance for Sustainable Agriculture* has thoroughly debunked the myth that conventional agriculture is not sustainable. Most of us have known this for some time, what is different now is that some of this information is getting to the general public. The truth can be suppressed for a while, but eventually it wins out.

The case supporting conventional agriculture and aerial application is being made; however, we need to realize that this does not give us license to do whatever we want. Society expects certain things from those of us who apply crop

protection materials. The most important item of concern is that the material we apply needs to end up on the target. Particularly troubling are cases of human exposure to drift. There were some media reports of human exposure this past year. We know that some of the information in the reports was not factual, and as investigations continue, we may find that the exposures were minimal. However, once the report is out, the damage is done, and when it comes to human exposure, even minimal events are of concern.

Most of these negative PR events occur during times of intense/very busy aerial operations. We have to find a way to do our job while limiting drift incidents. I would encourage everyone to look at their business model to see if there is room for improvement. Are pilots properly supervised as needed depending on their experience? Are pilots who are brought in from out of the area educated about local concerns and potential problems? Does the pilot have the time to look the area over thoroughly? Is the pilot paid well enough (and does the work generate enough profit for the business?) that he is not pressured to continue if he observes a potential problem? Are potential problem areas mapped out ahead of time? Are you using the product that is most environmentally friendly, while still performing acceptably? Most importantly, with the current trend in the industry of subcontracting to another entity, do you have enough control over your business to be able to insist on how it is run? Crop consultants do not have the final say regarding when and what goes in and out of your aircraft. I believe that Neils Andrews came up with the PAASS slogan of "*Upon the performance of each rests the fate of all.*" I do realize that even a conscientious operator/pilot may have a drift incident. Unexpected things happen. The goal for the industry needs to be to keep the number of incidents as low as possible.

The year is not over yet. NAAA has a great convention planned. Pre-show buzz has been very encouraging. Play in the AgAv PAC Golf Tournament Dec. 5. Everyone entering is guaranteed to beat at least one participant (the 2010 president). Savannah, Ga., is a great place to combine a convention with a vacation. I hope to see all of you there. ■



# Executive Director's Message

## Andrew Moore



## Understanding the Next Generation of Ag Aviators

A statistic that is brought up often in this industry is that ag pilots, on average, have 25 years of experience according to a 2006 EPA survey. This means that a sizeable portion of the industry will need to start taking seriously their plans for the future as retirement and the golden years approach. Perhaps this will entail selling the business to a younger pilot. Even if retirement isn't in the near future, agricultural aviation operators will need to look to the workforce of younger generations to supply their businesses with pilots, mixer-loaders and office staff. Generation Y (Gen Y) is a sizeable demographic—79.8 million strong—of Americans born between 1977–1996. They are the newest generation entering the workforce. This new generation possesses characteristics that may be foreign to older generations, but they are an important generation to understand because they either are or will be our clients, employees and possibly employers.

I recently attended the American Society of Association Executives (ASAE) annual conference in Los Angeles and participated in an educational session led by Jason Ryan Dorsey, a member of Gen Y himself, best-selling author and an expert on studying generations and their convergence in the workplace and marketplace. His findings, as described below, are interesting and can be quite useful for us as we try to understand and interact with this younger demographic of Generation Y, also known as the Millennials.

First off, let's outline what defines a generation, according to Dorsey. A generation is a group of people born around the same time and raised in roughly the same place. People born in rural versus urban environments might not have exactly the same general characteristics.

The formative events that define Gen Y are that they have Baby Boomers (1946–1964) as parents; they grew up during the age of the Internet and mobile technology and around the historic event of 9/11/01. As the children of the Baby

Boomers—a generation that believed that “one must pay their dues”—members of Gen Y tend to feel more entitled because their Baby Boomer parents gave them everything as a result of not necessarily liking “having to pay their dues” themselves. As a result, they never adequately learned about responsibility and consequences, something Dorsey calls *adultescence*, not adolescence, whereby they want adult privileges but not the responsibility. Gen Y is historic in that no other generation has had such affluence and as many graduates from high school. Because they have been more coddled than previous generations they believe adulthood really begins at 30 and will, on average, start their professions five years later when compared to previous generations.

Gen Y, unlike Baby Boomers, don't attach loyalty with tenure, and are tech dependent. They prefer to be communicated to via text messages. They see phone calls as an invasion of their privacy. Secondary preferred mediums of communication, in order, are social media, for example Facebook, followed by e-mail. But be sure to try to fit all e-mail communication into the Subject line—Gen Y doesn't like to read long paragraphs, rather they prefer to read bullets and catch phrases. If you really want to get them excited about a communication, leave them a video or audio message—this meets their needs for immediate gratification and desire to read less. Their preferred learning mode is watching videos on YouTube.com. With that said, they prefer documentary, unpolished video instructions, not polished works, which they tend not to trust. They do not like to be evaluated for their work over a period of time, but rather desire immediate feedback for a completed task.

When instructing Gen Y on how to fulfill a task, responsibility or project they prefer that specific examples be provided to them. They prefer to have diverse, not monotonous challenges and are completely outcome driven. They view time as a currency, so more days off and flexible schedules are like gold to them.



## The Four Generations

### Generation Y/Millennials—born 1977 to 1996

- 79.8 million members in U.S.
- fastest growing demographic in workforce and marketplace
- Formative events: Baby Boomer parents, Internet, mobile technology, 9/11/2001

### Generation X—born 1965 to 1976

- naturally skeptical having grown up during Watergate
- loyal to people, not institutions

### Baby Boomers—born 1946 to 1964

- believe you must pay your dues

### Matures/Traditionalists—born Pre-1946

- comfortable with delayed gratification

They thrive on being unique and they thrive on having emotional connections. The most important day of the year to them is their birthday. Acknowledging them on their birthday is a good way to reach them.

These characteristics are generalizations of a generation and not universal. Furthermore, there are indications that these characteristics of self-centeredness and entitlement are not permanent, hence Gen Y is malleable. Dorsey stated that

the current economic condition, also known as the Great Recession, would have to last another two years for this to happen. Nevertheless, there are indications that the current economy is stunning this new generation and that they are becoming easier to manage and adopting new workplace attitudes. According to the Bureau of Labor Statistics, the overall unemployment rate was 9.5 percent midway through 2010, but 15.3 percent for Gen Y. According to a recent article published in the Los Angeles Times titled "Recession Changed Generation Y's Work Ethic," employers hiring Gen Y'ers believe that reality is setting in and that Gen Y has discovered that you have to be on the ground and working hard to accomplish great things.

Regardless of the outcome, the generations are going to have to work together and, to do that, understand one another. Baby Boomers will stay in the workplace longer because of lost retirement savings due to declined financial markets and perhaps because they must house their Gen Y offspring until their 30th birthday. Gen X (1965–1976) is sandwiched between Boomers and Gen Y, and a number of Matures (born pre-1946) are still in today's workforce. Dorsey offers some good insight into characteristics shared by our future employees, clients and potentially employers and leaders. The bottom line is that Gen Y workers, along with preceding generations, value meaningful work, opportunities for learning, quality of life and likeable colleagues. ■

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# WNAAA President's Message

Jane Barber



## Building a Stronger Organization Together

Just as things get comfortable and I get my writing groove established, the year comes to an end! As we prepare for a new year and a new slate of officers, it is time to step back and wonder ... *Why didn't I do this before now?* When we get a call to serve on a committee, or a board, why do we initially say no? Maybe we only say it to ourselves, but we are thinking of a fast and gracious way to say it to the caller! "I am not qualified." "I have not been a member long enough." "I only work in the office part time, and I've never been involved before." The list can be lengthy. And what really scares us? The position? The work? The possibility of failure? Maybe is it the fear of the unfamiliar!

I am so thankful for those who have taken the leap before me and laid down some notable ground work as President of the Women of the National Agricultural Aviation Association. They are a class act to follow! Serving on the Executive Committee has been a learning encounter, and one I am grateful to have experienced. Over the course of the last 12 months I have come to know the NAAA staff on a more personal and professional level. Andrew, Peggy,

Margaret, Jay and Ken serve our organization in a proficient, talented manner, with remarkable results in growth, a stronger voice on the "Hill," bigger and better conventions, and this year, the new Web site! There are many talents serving and working together in our national office.

The team of officers the WNAAA elected for the 2010 year to serve alongside me has been a very vital part of our year. Julie Broussard, Pat Stamps and Kathy Diehl worked tirelessly for the WNAAA, along with the committee chairs and members. They have put together a Southern convention for the women to take pleasure in. The talents that each lady has brought to the convention and their respective committees have shown me it takes many types of personalities to make this organization flow! And to each one of them I say, "Thank you for your participation."

Still referencing Romans 12:6-8, God's gifts differ in nature, power and effectiveness according to his wisdom and graciousness, not according to our faith. Look at this list of gifts (in Romans 12) and imagine the kinds of people who would have each gift. Moderators are often bold and articulate. Servers are faithful and loyal. Teachers are clear thinkers. Encouragers know how to motivate others. Givers are generous and trusting. Leaders are good organizers and managers. Those who show mercy are caring people who are happy to give their time to others.

It would be difficult for one person to embody all these gifts. An assertive person would not usually make a good counselor, and a generous giver might fail as a leader. When you identify your own gifts (and this list is far from complete) ask how you can use them to build up the organization. At the same time, your gifts can't build up the organization all alone. Be thankful for those people whose gifts are completely different from yours. Let your strengths balance their weaknesses, and be grateful that their abilities make up for your deficiencies. Together we can build a stronger organization. ■



*Above Left:*  
Julie Broussard  
WNAAA Vice President

*Above:*  
Pat Stamps  
WNAAA Secretary

*Left:*  
Kathy Diehl  
WNAAA Treasurer







## Washington Report

# The Endangered Species Act: Buffering Away Agriculture's Habitat

The Endangered Species Act (ESA) protects species of flora and fauna identified as endangered or threatened with extinction and attempts to protect the habitat on which they depend. Once a species is listed as threatened or endangered, legal tools are available for enforcement officials to aid its recovery and protect its habitat. Land used for agriculture and forestry tends to abut habitat for “threatened and endangered species” (TES). This has resulted in the ESA clashing with farmers, foresters and applicators and had a detrimental effect on how the latter parties are able to do their jobs.

The ESA affects applicators because the Environmental Protection Agency must take into account, as part of a pesticide’s (re)registration process, not only the dietary risks posed by pesticides, but also the risks posed to the environment, including those posed to TES. EPA’s Office of Pesticide Programs’ work in this area includes consultations with either the U.S. Fish & Wildlife Service (FWS), or the National Marine Fisheries Service (NMFS) (collectively known as “the Services”)—both of which have jurisdiction over enforcing the protection of TES habitat.

The way the process is supposed to work for each registration or reregistration decision is that EPA is to complete an initial assessment of potential impacts to TES. Based on the assessment outcome, EPA may then need to “consult” with one or both of the Services to seek their concurrence or advice, so the Services in turn generate an assessment known as a “biological opinion” or BiOp. If the BiOp concludes that EPA’s action may jeopardize survival of a TES in a specific habitat area, the Service may propose mandatory and/or suggested restrictions for EPA to consider. The final decision on implementation of such restrictions is up to EPA, but a failure to take scientifically defensible actions may open EPA up to further legal liability.

For the past 30 years, EPA has paid limited attention to its obligations under the ESA, and it has only been recently that it announced intentions of incorporating TES considerations into the (re)registration program.

### Lawuits and Court Orders

Over the last decade, environmental groups have exploited EPA’s lack of action and attempted to restrict pesticide use via legal wrangling over the ESA. There have been a number of settled cases and there are a number of pending cases in the federal court system that have been filed against the EPA and the Services by environmental groups claiming that federal agencies have not been properly enforcing the Act to protect endangered or threatened species when it comes to the registration of pesticides. Activist groups have filed eight citizen action lawsuits since 2001 claiming that EPA hasn’t properly consulted with the Services. These lawsuits cover more than 100 different pesticide active ingredients and dozens of TES. Each such lawsuit has typically resulted in a settlement agreement whereby EPA admits its failure and agrees to a court-ordered schedule of assessments and subsequent consultation with the Services. In some case, activists have petitioned the court to impose immediate, interim restrictions while awaiting completion of the consultation process by EPA and the Services.

The aforementioned court decisions and resulting settlements have led to hasty consultations based on outdated or insufficient data. ESA law requires that the best available science be used in crafting these BiOps. However, it has been evidenced that the Services do not possess the resources or expertise to properly collect and analyze the facts to develop a reasonable BiOp. The BiOps that have been handed down were rendered without input from stakeholders regarding agricultural management practices and protective measures already in place, input from experts,

analyses of economic impact and consideration of whether proposed label changes could be issued in a timely matter.

Rulings, some of which are currently under appeal, have judges in these cases outlining a long list of deficiencies in EPA's risk assessment process alleged by the Services' technical staff and cited by plaintiffs in their court filings—shortcomings ranging from National Environmental Policy Act violations to inadequate screening models that underestimate pesticide exposure for aquatic species to EPA's single-chemical focus, which ignores the cumulative effects of several pesticides.

The Center for Biological Diversity, an environmental activist group, has filed a notice of intent to sue the federal government citing that federal agencies have not adequately enforced the ESA to protect more than 880 TES being affected by approximately 400 crop protection compounds. The basis for the case is that EPA failed to consult with NMFS and FWS while making pesticide registration and reregistration decisions. It is unclear if the activists will move forward with the case, but the threat posed by such a “mega-lawsuit” and potential negative impacts to the pesticide approval process and existing labeling have government and industry leaders alike concerned.

### **Endangered Salmon Case Study: First BiOp**

In January of 2001, the Washington Toxics Coalition (WTC) in concert with several other environmental activist groups filed a lawsuit against the Agency alleging that EPA violated section 7(a)(2) of the ESA by failing to consult with the Services on its continuing approval of 54 pesticide active ingredients and the effects these ingredients had on listed Pacific salmonoids (which includes salmon and steelhead).

As a result of that lawsuit, EPA agreed to initiate a consultation for these pesticide active ingredients with the Services and began assessments during 2002 and 2003. During 2004 and at the request of the activists, the court ordered implementation of interim spray buffer restrictions around salmon-bearing waters (60 ft ground; 300 ft aerial). In November 2007, the Northwest Coalition for

Alternatives to Pesticides and others filed a legal complaint in U.S. District Court against NMFS for its unreasonable delay in completing the section 7 consultations for EPA's registration of 37 of these pesticides. As a result of this lawsuit, a settlement was reached whereby NMFS was compelled to develop a series of 17 salmon-related BiOps between 2009 and 2012.

NMFS released its first BiOp in November of 2008 pertaining to the impacts of malathion, diazinon and chlorpyrifos on threatened and endangered salmon species in California and the Pacific Northwest. NMFS claimed that continued use of these three products posed jeopardy to salmon survival across more than 100 million acres of land in California, Idaho, Oregon and Washington and required EPA to take corrective steps. These steps included



*California and the Pacific Northwest are being hit with significant court-ordered buffers to protect endangered and threatened species.*



a recommendation for 500 ft ground and 1000 ft aerial no-spray buffers around salmon-bearing waters and ditches and irrigation canals that might eventually empty into such waters. These buffers were to be applied regardless of application rate or wind direction.

There were a number of serious deficiencies in this first BiOp identified by EPA, state agencies, and the pesticide industry. One criticism is that the Services lack familiarity with the pesticide registration process at EPA and did not utilize currently approved labels or the best quality data available to EPA. The Services also appeared to be unfamiliar with how pesticides are actually used in agriculture, forestry or public health protection, and were criticized for not seeking the advice of EPA, state agencies or pesticide users as they completed their BiOp. The Services were also criticized for lacking expertise in risk assessment methodology, misusing EPA's spray drift model and conducting unrealistic analyses of the resulting BiOp, according to experts in the crop protection product industry.

Despite earlier criticism of the BiOp, EPA during September of 2009, announced intentions to implement a slightly modified set of restrictions through its county bulletin process and demanded that registrants of the three insecticides modify their labels to reference the bulletins. EPA proposed its own, more lenient, but by no means ideal, restrictions, which included ground and aerial buffers from 100 to 1000 feet; these buffers were based on a scale that takes application rate, droplet size and water geometry (depth) into account. The Agency believed it was compelled to take action based on the earlier court orders and the threat of further lawsuits. One year later, the new restrictions remain on hold as EPA and the registrants have failed to agree on a plan for their implementation. In fact, the registrants have filed a lawsuit of their own against the Services asking the court to set aside the first BiOp as deficient in scientific quality and not based on best available information. A decision on this case is expected by the end of the year.

## Implementation issues with ESA

- Litigation, infeasible deadlines
- Deficient staff resources and pesticide expertise at NMFS
- Poor EPA-NMFS communication and cooperation
- Lack of transparency and stakeholder involvement
- Development of inflexible mitigations

## Recent and Pending BiOps

NMFS has continued with its court-ordered assessments in development of additional Biological Opinions (BiOps). During April of 2009, a BiOp related to use of three carbamate insecticides, carbaryl, carbofuran and methomyl, was released. This second BiOp reached similar conclusions of jeopardy to salmon as the first one, and NMFS recommended that EPA implement labeling restrictions and no-spray buffers as the Agency had proposed for the first BiOp. EPA earlier this year announced an implementation plan for these restrictions and gave an ultimatum to industry for agreement by early September to begin the process of planning label modifications.

This past June, NMFS issued a draft BiOp relative to 12 organophosphate pesticides (OPs): azinphos methyl, bensulide, dimethoate, disulfoton, ethoprop, fenamiphos, methidathion, methamidophos, methyl parathion, naled, phorate and phosmet. NMFS claims that nine of these 12 OPs are likely to jeopardize the continued existence of 23 endangered or threatened Pacific salmon and steelhead (salmonoid) species. A finalized BiOp is still awaited.

During late July, registrants of products involved with the next three BiOps planned for publication during early 2011 were put on notice that they had less than two weeks to provide any information they considered relevant for the NMFS assessment. This is the first time industry involvement has been invited at this early stage. The BiOps NMFS will develop next include the herbicides 2, 4-D, triclopyr BEE, diuron and linuron, and the fungicides captan and chlorothalonil. The remainder of the 37 pesticides for assessment is scheduled to have BiOps completed during 2012.

## Endangered Species Protection Program (ESPP) County Bulletins

More than five years ago, EPA announced its intention to create a Web-based network of county bulletins to be referenced on product labels as a way of implementing and distributing Endangered Species Protection Program regulations. The bulletins contain detailed maps outlining critical habitat areas that require protection for TES that are present in those habitat areas. Included with the maps are a number of specific restrictions and a complex calculator for determining spray buffer zones. The spray buffer calculator has proven to be particularly ornery, sometimes producing unrealistic buffers and impossible-to-follow instructions.

EPA has moved ahead with the development of these bulletins in a manner that has been neither transparent nor clearly defined. This is of great concern since the implementation of the bulletins could greatly affect the use of crop protection products across millions of acres, which would undoubtedly impact agricultural practices and economies.

In January, several registrants affected by bulletins and the resulting restrictions petitioned the EPA to establish a standardized process for both developing and revising the ESPP county bulletins. The petition requests that the standardized process include notification of all affected registrants when new bulletins are proposed, provision of adequate time for submission of comments of draft bulletins by registrants, potentially affected state governments and pesticide users, and that a fair process be developed for handling disputes that may arise between EPA and the registrant concerning specific bulletin restrictions. EPA accepted public comments on this petition until Sept. 27.

### Economic Impact and Future Outlook

The USDA Office of the Chief Economist in 2003 estimated that the impact of court-ordered buffers in Oregon and Washington related to ESA enforcement on affected industries would be significant. A 60-foot ground buffer would create an economic loss of \$110 million, while a 300-foot aerial buffer would create a loss of \$583 million.

In CropLife America's 2009 analysis of areas affected by the 500 ft and 1000 ft NMFS-proposed buffers, it was found that 25 to 50 percent of agricultural field areas would be off limits.

The EPA continues to expand the integration of the ESA into its routine pesticide review processes, but it will take time. It is expected that the additional ESA reviews will result in more use restrictions and fewer available pesticides if more data collection is required. Furthermore, pesticide use decisions will be delayed and/or there will be additional restrictions on pesticide labels to protect endangered species. This will include significantly expanded buffer zones for applications made by air in the event a treatment is being made near TES habitat.

Clearly these proposed restrictions and those that will be forthcoming could have a detrimental impact on aerial applicators' ability to provide vital services to America's farmers and growers. NAAA will continue to monitor this action and keep its membership abreast as this process continues. ■

## Salmon Case Timeline

**2001** – Washington Toxics Coalition sued EPA for failing to consult with federal wildlife agencies on 54 pesticides' effects on endangered Pacific salmon.

**2002** – EPA settled lawsuit, agreed to complete assessments and consult with the federal wildlife agencies on 37 active ingredients.

**2002–2003** – EPA completed assessment of first active ingredients and requested consultation with NMFS.

**2004** – Court ordered interim protections of 60 ft ground and 300 ft aerial buffers.

**2007/8** – Environmental groups sued NMFS for failing to fulfill ESA consultation obligations, and NMFS settled by agreeing to a schedule of BiOps.

**2008** – NMFS completed first BiOp in November for chlorpyrifos, malathion and diazinon; jeopardy finding issued for nearly all salmon species; recommended six specific actions including 500 ft ground and 1000 ft aerial buffers, 20 foot vegetated filter strips, wind speed and soil moisture application restrictions and a regional water monitoring program.

**2009** – Although initially highly critical of the first NMFS BiOp, EPA announced a modified set of restrictions for implementation via county bulletins—registrants have not agreed to cooperate and have taken EPA to court over the mitigation measures over the first NMFS BiOp.

**2009** – NMFS completed second BiOp in April for carbaryl, carbofuran and methomyl; jeopardy finding for most salmon species and similar restrictions proposed.

**2010** – Registrations petitioned EPA for rulemaking to establish a transparent process for developing county bulletins and inviting state, grower and industry involvement.

**2010** – NMFS drafted third BiOp in July for 12 additional OP insecticides and is collecting comments from EPA. Work on the fourth, fifth and sixth BiOps for several herbicides and fungicides has been initiated.





NAAA ANNUAL CONVENTION  
& EXPOSITION

December 6–9, 2010 • Savannah, Ga.

# Stewards of the Sky

## Set to Descend Upon Savannah for NAAA's 2010 Convention & Exposition

The countdown is on for NAAA's 44th Annual Convention & Exposition. This year, NAAA is leaving the slot machines of Nevada behind for sweet tea and the Southern comforts of Savannah, Ga. This is Savannah's first NAAA Convention, and the city is rolling out the red carpet for NAAA and its guests.

NAAA chose "Stewards of the Sky" as this year's theme because agricultural aviation and environmental stewardship go hand in hand. The pride and professionalism these "Stewards of the Sky" display is admirable. Join NAAA as we celebrate the work agricultural aviators carry out every day, and continue on the path of excellence by taking advantage of the ongoing training, services and supplies available under one roof at

the Savannah International Trade & Convention Center.

Whether you are a newcomer to the industry or have been attending for years, you'll find much to savor about NAAA's Savannah Convention experience. The educational sessions, networking opportunities and exposure to the latest products, research and technological advancements in aerial application, set in an exciting new location, represent the perfect mix of business and pleasure.

Join your peers from the aerial application industry for an unforgettable week focusing on:

- Stewardship
- Sustainability

- Socializing
- Shopping (business and pleasure)
- Southern hospitality
- And so much more!

Register today at [www.agaviation.org](http://www.agaviation.org) or fill out the registration form on pg. 21. We look forward to seeing you in Savannah Dec. 6–9! For the ultimate preview of NAAA 2010, continue reading.



*Howie Franklin greets President Ford.*



*Attendees are cleared for landing! Savannah's Convention Center is nestled along the Savannah River.*



### **Executive Privilege**

Who better to open the convention than a true steward of the sky, albeit a steward of a different sort? Howie Franklin will be the keynote speaker for NAAA's Kickoff Breakfast. Franklin served and flew with five presidents on Air Force One and is the only person to do so. Serving in the United States Air Force as the head flight attendant for Air Force One is quite different from how we normally perceive that job title. Franklin had many important responsibilities dealing with security, critical timetables, unusual requests and specific details. He was on hugging terms with most of the first families and saw them at the best and worst of times.

From his fly-on-the-wall vantage point, Franklin will offer attendees an insider's perspective, sharing details

about the unique characteristics of Air Force One planes and tales about the powerful and famous passengers he had the privilege of serving over the course of five administrations. He has hundreds of fascinating and funny stories about the presidents and dignitaries he served, and always speaks of them with the greatest respect. Howie Franklin spent 29 years in the Air Force, including 18 years on Air Force One. After retiring from the Air Force, he became the airport manager for the Brunswick County Airport in southeastern North Carolina.

**Be sure to register for the Kickoff Breakfast when filling out your registration form.**

### **ASABE Presenters Offer Insights into Important Field Research**

After a light-hearted start to the convention at the Kickoff Breakfast, the serious business of keeping up on the trends and developments that help sustain the industry begins for NAAA's attendees. The American Society of Agricultural and Biological Engineers (ASABE) conducts important and practical research that benefits the industry. Members of ASABE will present 12 technical presentations at this year's convention. The sessions, which begin after the Kickoff Breakfast, will include discussions on a number of new aerial application technologies and techniques that help to mitigate drift, conserve fuel and ensure proper crop coverage. Some states offer CEU credits for attendance at these



sessions; check with your state or regional association to see if you can receive CEUs by attending ASABE sessions. See pg. 36 for more detailed information about each of the ASABE sessions.

### Concurrent/Company Sessions

Several “Concurrent and Company Sessions” are spread throughout the 2010 NAAA Convention Schedule. **Concurrent Sessions** are organized by NAAA with particular assistance from its Allied Industry Committee 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 on pg. 23, and plan to attend as many of these sessions as possible.

- Aerial Firefighters Session
- Ag-Nav Guia Training
- AgSync Company Session
- Air Tractor Inc. Session
- Application Technology Session
- Chemical Session

- *Compaass* Rose Session—new pilot mentoring session
- FAA/Security Session
- GE Turboprop Engines
- Helicopter Roundtable
- Hemisphere GPS Company Session
- Honeywell TPE-331 Engine Session
- Pratt & Whitney Canada—Piston Engine Session
- Pratt & Whitney Canada—Turbine Engine Session
- Thrush Aircraft Session

### Looking for direction and guidance? Then *Compaass* Rose is for you!

NAAA’s *Compaass* Rose Program is designed to provide professional support and direction to prospective agricultural aviation pilots. The goal is for the participants to enhance their own knowledge, continue to gain agricultural aviation experience, and improve their individual professionalism. Agricultural aviation pilots will have an opportunity to discuss ideas and philosophies about the business, make informed decisions about their future, 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 Dec. 5, the day before the convention officially begins; the second session is Dec. 9.

### NAAA’s General Session: Just What the Doctor Ordered

On the second day of the show, NAAA will examine the health of the Association, the industry and its pilots during the General Session and NAAA’s business meeting—albeit with a spoonful of sugar to make the medicine go down. Several specialists will help NAAA diagnose some of the challenges facing the industry.

#### *Environmental Policy Session*

First, a panel of experts will provide an illuminating look at major environmental regulatory obstacles affecting agriculture and the aerial application industry. We have five excellent speakers, including moderator **L. Michael Bogert**, an attorney with Crowell & Moring LLP, a D.C.-based international law firm. Bogert is a former Region 10 Administrator for EPA and former Counselor to Dirk Kempthorne when he was Governor of Idaho and later when he was Secretary of Interior. He has also held senior positions for Arnold Schwarzenegger and Pete Wilson of California. Bogert is an expert on environmental law that affects agriculture and brings a humorous perspective to the “Inside the Beltway” activities of EPA and Congress. That humor should come in handy as he and the panelists delve into such thorny issues as NPDES permits, spray drift and the Endangered Species Act (ESA).

- **NPDES Permits:** EPA’s pesticide NPDES permits and their effects



*Savannah is known for its gorgeous Southern-style homes, beautiful parks and tree-lined streets.*

on aerial application of pesticides will be covered first. **Dr. John Thorne**, Crowell & Moring LLP, and **Scott Yackel**, president of the American Mosquito Control Pilots Association and chief pilot for Chatham County, Ga., Mosquito Control, are experts on NPDES permits. The new NPDES Clean Water Act permitting system from EPA and more than 40 state water agencies, slated to go into effect in April 2011, is the biggest issue to affect the aerial application industry since 9/11. All aerial applicators need to learn as much as possible about the EPA's new permitting system before it goes into effect to avoid regulator enforcement and possible citizen suits later. NAAA's speakers will provide details on how the new NPDES permitting system will affect the aerial application industry and help guide attendees.



ASABE researchers will present 12 technical sessions on the first day of NAAA's Convention.

- **ESA and Spray Drift:** Switching gears from NPDES permits to endangered species issues, **Dr. Ken Racke**, Dow AgroSciences, will update attendees on ESA policies that will affect your businesses, and **Dr. Michael Leggett**, CropLife America, will provide a status report on EPA's proposed spray drift label language policies.

**FAA Medical Session**

NAAA is pleased to announce that Dr. Warren Silberman, the FAA's lead expert on airmen's medical certification, has agreed to participate in the final segment of the General Session. Dr. Silberman has been the Manager of the FAA's Aerospace Medical Certification Division at the Civil Aerospace Medical Institute in Oklahoma City,

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Okla., since June 1997. He has been a frequent lecturer to various aviation organizations and has been instrumental in keeping lines of communication open between pilots and the FAA's medical certification branch.

Dr. Silberman has agreed to address the problem of a workforce in which the average age is increasing as are the aviation-related medical problems that come along with aging. He will give advice on the procedure to maintain certification and steps to take to regain a medical certificate lost because of one of these ailments. Dr. Silberman is an informative and entertaining speaker that you can't afford to miss. Time will be allotted to answer questions from those attending.

**NAAA Business Meeting**

NAAA "Convention Tuesday" begins with the NAAA Business Meeting, which is equivalent to an annual



*Dr. Warren Silberman*

checkup of sorts for the Association. NAAA Executive Director Andrew Moore will report on the health and long-term plans for the Association. The General Session follows immediately thereafter.

**Biggest Trade Show in the Industry**

For many attendees, the fun and excitement of NAAA's convention are

at their highest during the two-day exposition and trade show. The 2010 NAAA Exposition will be held in the Savannah International Trade & Convention Center, along with most convention programming. The expo brings buyers and sellers together under one roof. Approximately 120 companies will display the latest products, technologies and aircraft designed for the aerial application industry. For an advance look at what companies have in store, see our special exhibitor preview on pg. 27.

If your company is interested in exhibiting, please contact Marshall Boomer at 800-501-9571, Ext. 123. You may also reserve booth space online at [www.goeshow.com/naaa/annual/2010/](http://www.goeshow.com/naaa/annual/2010/). For aircraft exhibiting, please contact NAAA's Peggy Knizner at 202-546-5722 or [piknizner@agaviation.org](mailto:piknizner@agaviation.org).

  
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## NAAA/WNAAA Live & Silent Auction

When it comes to high-stakes entertainment, the intrigue, drama and excitement of NAAA's Live Auction is hard to beat, which is why it has become one of the signature events at each convention. With surprise visitors ranging from Santa Claus to the "Blue Man Group" (our versions), the Live Auction on "Convention Tuesday" has become a "can't-miss" event. These frolicking festivities are very important to NAAA and WNAAA from a fundraising standpoint, so enjoy the reception food and beverages and bring your checkbooks. The live auction and a reception occur Dec. 7.

NAAA and WNAAA also hold a Silent Auction each year. Bidding opens Dec. 7 and closes on the afternoon of Dec. 8, inside the Expo Hall.



*Don't let it scare you away, but Savannah is said by many to be one of America's most haunted cities.*



*A free ferry service will shuttle NAAA's convention attendees back and forth throughout the day and evening across the Savannah River. Three of NAAA's four convention hotels are located in Savannah's restaurant and entertainment district.*

### Your Savannah Getaway

Many attendees plan their winter vacation around the NAAA Convention. Holding the convention in Savannah offers lots to see and do! Plan to arrive a couple days early or stay a few days after the convention to take time to enjoy this charming Southern city. Savannah in December ranges from an average high temperature of 62 degrees to an evening low of 39 degrees. (Average annual snowfall in Savannah is one-tenth of one inch.) **For more information on interesting things to see and do in town, visit [www.savannahvisit.com](http://www.savannahvisit.com).**

### Where to Stay in Savannah

NAAA's original convention hotels, the Westin Savannah Harbor and Hyatt Regency Savannah, are sold out! NAAA has established room blocks across the street from the Hyatt at the Holiday Inn Express for \$109/night plus tax and at the Savannah Marriott Riverfront for \$110/night plus tax. Both hotels are located in the heart of Savannah's main shopping, tourist and entertainment areas and are directly across the Savannah River from the Convention Center.

Getting across the river is quick and easy! A free ferry service will shuttle

NAAA's convention attendees back and forth throughout the day and evening. The Bells Ferry provides water transportation from the Marriott and Hyatt to the Convention Center and Westin. The trip takes about five minutes during peak service times. Free shuttle bus service is also available. Book now to reserve your room at one of these convention hotels!

#### Hotel Reservations:

**Westin Savannah Harbor Golf Resort & Spa**  
912-231-2000 (use group code NAAA)


**Hyatt Regency Savannah**  
912-238-1234 (use group code NAAA)

**Savannah Marriott Riverfront**  
912-233-7722 (use group code NAAA)  
NAAA room rate: \$110 plus tax  
Transportation to Convention Center:  
Use Ferry Dock at Marriott

**Holiday Inn Express**  
912-231-9000 (use group code NAAA)  
NAAA room rate: \$109 plus tax  
Located across street from Hyatt  
Transportation to Convention Center:  
Use Ferry Dock at Hyatt



## SAMPLING OF AVAILABLE AUCTION ITEMS

COMPANY	AUCTION ITEM
 Pratt & Whitney Canada A United Technologies Company	<b>New PT6A-34AG Engine (0 TTSN)</b>
AeroFlow Systems	30 AFS standard check valves
Ag Air Turbines	2009 Wings framed artwork
AgAir Update	2 pen & ink drawings by Richard Despain
Ag-Nav Inc.	2 gift certificates to be used on any Ag-Nav product or service ( <i>auctioned separately</i> )
Airforce Turbine Services (a.k.a. Universal Turbine)	\$10,000 Gift Certificate toward the repair, overhaul or purchase of a PT6A Engine
Bayer CropScience	To Scale Model of an AT-502 with NAAA Logo
Chartis Aerospace	Bath and Body Works gift basket
Covington Aircraft Engines	Gift certificate for any job performed by Covington Aircraft towards PT6-A, R985 or R1340 engine overhaul, maintenance or repair
DynaNav Systems Inc.	3 DynaFlight-AirAg System bid certificates ( <i>auctioned separately</i> )
Farm Air Inc.	One set of main gear legs for an AT-402 or AT-502
Flying Tiger Aviation	\$3,000 toward a turbine transition course
Genuine Aircraft Hardware Co.	Assortment of popular aluminum and plastic caps/plugs used in aircraft repair and maintenance
Buddy Jordan	1980 Chevy V-8 60 loader truck with bucket (truck has just over 10,000 miles on the odometer and a new battery)
Lane Aviation	Ground adjustable balanced pump fan & electric brake
Precise Flight Inc.	Model 1210 Puselite Control Unit
Prime Turbines Inc.	Fuel nozzles for small or mid-size PT6 engine. Includes 14 adaptor assemblies, 14 sheaths, gasket kit and reusable shipping container
S & T Aircraft Accessories Inc.	A4949 Delco Motor (24v) with AN4101-CE Ceco Fuel Pump (400 gph)
Southeastern Aircraft Sales & Service	Combination prop tether and exhaust cover assembly for PT6-powered aircraft that is easy to install and remove and won't blow off in high wind conditions
Tennessee Aircraft Co. Inc.	Handcrafted bookends from TPE331-10 Third Stage T-wheel
Thrush Aircraft	Handcrafted Thrush Aircraft 510 turbo model airplane
Turbine Conversions Ltd.	Single Point Fueling System, approved for all Thrush, AT's, Dromader and Ag Cats
Wings Insurance	Two people, two nights at a luxury hotel in Las Vegas (includes hosted dinner)

## Sponsorship Opportunities Available

Over the years NAAA has been very fortunate to be able to count on many of our Allied Industry companies to sponsor a convention program, activity or item that benefits attendees. This year is no exception, as several generous companies have come forward to take part in our convention sponsorship program. Please thank them for supporting your convention and Association by considering their products and services for your business.

### 2010 Auction Payment Information

#### Auction Payment Arrangements

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

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

#### Auction Payment Arrangements for PT6A-34AG Engine

Potential buyers must provide a letter of credit from a financial institution to NAAA and place 10 percent down as an initial deposit. The estimated value of the engine is \$500,000.

#### 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.

Thank you to our contributors! If your company has something of value to add by all means consider contributing an item to the NAAA/ WNAAA auctions. Simply complete the Auction Contribution Form available on NAAA's Web site and e-mail it to Lori.Racey@theYGSgroup.com or fax it to 717-825-2150. For additional information, contact NAAA at 202-546-5722.



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Pontiac Flying Service

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- Don Younglove  
R&R Flight Service

- Plan Faster
- Navigate Faster
- Spray Faster
- Apply With Confidence

Task Overview - NAAIP

Order #	Customer	Product	Area	Operator	Altitude	Speed	Volume	Time	Notes
11	104748	272.44							

Aerial Work Order Scheduled

Order #	Customer	Product	Area	Operator	Altitude	Speed	Volume	Time	Notes
11	104748	272.44							

Aerial Work Personnel Report

Operator	Altitude	Speed	Volume	Time	Notes

Aerial Work Product Report

Order #	Customer	Product	Area	Operator	Altitude	Speed	Volume	Time	Notes
11	104748	272.44							

Use Report

Order #	Customer	Product	Area	Operator	Altitude	Speed	Volume	Time	Notes
11	104748	272.44							



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	Signage, Escalator Banner, Hotel Key Cards
	Auction Reception
<b>GOLD SPONSORS (\$7,500–\$11,999)</b>	
	Conference Registration Bags, Program Guide (Back Cover)
<b>SILVER SPONSORS (\$3,000–\$7,499)</b>	
	Registration Signage (Exclusive), Program Guide (Inside Ad)
	Aisle Signs (Exclusive), Bag Inserts, Firefighters Session Boxed Lunch
	Farewell Banquet
	Convention Pins
	Coffee Breaks
<b>BRONZE SPONSORS (\$1,200–\$2,999)</b>	
	Program Guide (Inside Ad), Golf Hole
	General Session
Queen Bee Air Specialties Inc.	Trade Show Benches
	Window Clings
	Museum Booth
<b>EMERALD SPONSORS (\$500–\$1,199)</b>	
Texas AAA	Compaass Rose Concurrent Sessions
Transland LLC	Firefighters Concurrent Session
Ag Container Recycling Council	Financial Contribution
AgriData Inc.	Registration Bag Inserts
AgSync Inc.	Convention Newsletter (Exclusive)
Central Florida Ag Aero LLC	Registration Bag Inserts
Kimmel Aviation Insurance Agency Inc.	Signage
Star-Flex	Signage
Sutton James Inc.	Helicopter Concurrent Session

## Farewell Banquet & Awards Ceremony

Similar to past conventions, NAAA's 44th Annual Convention & Exposition begins with the Kickoff Breakfast and ends with an elegant Farewell Banquet & Awards Ceremony. It is a wonderful way to wrap up your 2010 convention experience and honor those in our industry singled out for their special achievements.

Opportunities like this don't come around every day, so take *Savann-tage* of it. Register for NAAA's 44th Annual Convention & Exposition online at [www.agaviation.org](http://www.agaviation.org) or by returning the registration form on pg. 21.

**Y'all come down now, ya hear? ■**



Be sure to visit WNAAA's booth on the trade show floor for great Christmas gift ideas from clothes for kids to jackets for adults.



# 44th Annual NAAA Convention & Expo

Savannah, Ga. – Dec. 6–9, 2010

**Pre-registration must be received by Wednesday, Dec. 1, 2010. 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	\$320	\$220
Spouse	\$265	\$165
Child (under 12)	\$170	Free

Non-NAAA Member	Registration With Banquets	Registration Without Banquets
Non-member	\$440	\$340
Spouse	\$380	\$280
Child (under 12)	\$170	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. 6	Kickoff Breakfast	\$40/each	# needed ____
Monday, Dec. 6	Welcome Reception	\$40/each	# needed ____
Thursday, Dec. 9	Farewell Reception	\$30/each	# needed ____
Thursday, Dec. 9	Farewell Banquet/Awards	\$75/each	# needed ____

**REGISTRANT:** First Name \_\_\_\_\_ MI \_\_\_\_\_ Last Name \_\_\_\_\_

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

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**SPOUSE REGISTRANT:**

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**ADDITIONAL REGISTRANTS:**

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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 – 1005 E Street SE – Washington, DC 20003**  
**Print registration form at [www.agaviation.org](http://www.agaviation.org) – Fax 202-546-5726 – Questions? Call 202-546-5722**  
**E-mail [information@agaviation.org](mailto:information@agaviation.org). Online registration is available now at [www.agaviation.org](http://www.agaviation.org).**



# Come have some **FUN** at WNAAA's 2010 Convention Events!

By Jayne Rucker  
WNAAA Convention Co-Chair

WNAAA hopes you'll join us for the activities planned for the ladies attending the 2010 Convention. Whether you're a spouse or business employee, come and enjoy the events we've got planned for you!

## Monday, Dec. 6

10 a.m.–11:30 a.m.

“**The Victorian Lady**,” Ardis Woods, will entertain and educate us about the “Ladies of Savannah.” We’ll hear stories, songs and ghost tales delving into Savannah’s past. She’ll also give us an introduction to present-day Savannah, with information about “don’t miss” things to do in this charming city.

1 p.m.–3 p.m.

“**Mint Juleps, Wine & Southern Hospitality**” is the theme for our **President’s Open House** Monday afternoon. Stop in for a drink, snack and some Southern hospitality. Come join us for some lighthearted fun and visiting.

## Tuesday, Dec. 7

9 a.m.–10:30 a.m.

WNAAA will be presenting an **Athena Program** again. This year’s program will give you the opportunity to have some fun, share your insights into agriculture aviation and meet women who are living and working the agricultural aviation lifestyle ... **JUST LIKE YOU!**

10:45 a.m.–1 p.m.

Don’t eat a big breakfast, because the WNAAA is treating you to an early lunch! Right after the Athena presentation on Tuesday, please join us at **Paula Dean’s The Lady & Sons Restaurant**. WNAAA will provide the transportation to and from the restaurant. You **must RSVP** before the convention, due to limited seating. Please e-mail or call Jayne Rucker at ruckerfly@gbta.net or 620-525-6712.

12 p.m.–6 p.m.

Don’t forget the **WNAAA Booth** on the trade show floor. We’ll have new items, as well as returning favorites like the annual T-shirts and button-up shirts. There will be lots of items to help finish your Christmas shopping!

## Wednesday, Dec. 8

9 a.m.–10:30 a.m.

This morning eat hearty! **WNAAA is hosting a delicious breakfast** for a very full day! Join Jane Barber as she presents her **President’s Awards for 2010**.

After the awards, we’re going on a “**Museum Hop!**” WNAAA has a tour lined up to go to see museums that in a former life were lovely southern homes, as well as an ultra modern art museum. Transportation is provided, so come and join us for a great time!

## Thursday, Dec. 9 – FREE DAY

Take the opportunity to visit some of the exciting and charming activities Savannah has to offer. You won’t be disappointed in this lovely southern city—or WNAAA’s convention activities! ■

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# EVENT SCHEDULE

Join NAAA for the 44th Annual Convention & Exposition!

## Saturday, Dec. 4

6:30 p.m.	AgAv PAC Golf Tournament Players Reception & Calcutta
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## Sunday, Dec. 5

7:30 a.m.	Golf Tournament – Players Continental Breakfast
8 a.m.	Golf Tournament – Tee Times Begin
1 p.m.	Golf Tournament – Players Lunch & Awards
9 a.m.–4 p.m.	Pratt & Whitney Canada PT6 Seminar
9 a.m.–4:30 p.m.	CD Aviation Services TPE331 Engine Maintenance Training Course (FAA Approved IA Training)
12 p.m.–6 p.m.	Registration Open (Convention Center)
4 p.m.–6 p.m.	NAAA Board Meeting
4 p.m.–6 p.m.	<b>WNAAA Board Meeting</b>
4 p.m.–6 p.m.	Compass Rose Concurrent Session
6 p.m.–7 p.m.	Operation S.A.F.E. Analysts Meeting
6 p.m.	Convention Planning Meeting

## Monday, Dec. 6

7:30 a.m.–6:30 p.m.	Registration Open (Convention Center)
8 a.m.–8 p.m.	Exhibitor Setup
8–9:45 a.m.	Kick-Off Breakfast – Howie Franklin
10–11:30 a.m.	<b>WNAAA Program – The Victorian Lady</b>
10 a.m.–6 p.m.	Canadian AAA Board Meeting
10 a.m.–12 p.m.	ASABE Sessions
1–2:30 p.m.	ASABE Sessions (continued)
1–3 p.m.	<b>WNAAA President's Open House</b>
2:45–4:15 p.m.	Concurrent Sessions • FAA/Security • Honeywell Engines • Hemisphere GPS
4:30–6 p.m.	Concurrent Sessions • Chemical Meeting • Pratt & Whitney Canada–Piston • AgSync 2011 Preview & Social Hour
6:30–7:30 p.m.	Welcome Reception

## Tuesday, Dec. 7

7–8:30 a.m.	CP Products Breakfast
7:30 a.m.–5:30 p.m.	Registration Open (Convention Center)
8–11:30 a.m.	Exhibitor Setup
8:45–9:30 a.m.	NAAA Business Meeting
9–10:30 a.m.	<b>WNAAA Athena Program</b>

## Tuesday, Dec. 7 con't

9:45 a.m.–12 p.m.	NAAA General Session • Clean Water – NPDES Permits • Endangered Species Act and Spray Drift • Medical Clearance Q&A
10:30–11:30 a.m.	Allied Industry Meeting
10:45 a.m.–1 p.m.	<b>WNAAA “Lady &amp; Sons” Lunch</b>
12–6 p.m.	Trade Show Hours
3–5 p.m.	NAAREF Board of Directors
5:30–7 p.m.	Live Auction & Reception
7:30 p.m.	Pratt & Whitney Canada Reception

## Wednesday, Dec. 8

7:30 a.m.–4 p.m.	Registration Open (Convention Center)
8–9:30 a.m.	Concurrent Sessions • Application Technology • GE Engines
9–10:30 a.m.	<b>WNAAA President's Awards Breakfast</b>
10:30 a.m.–2 p.m.	<b>WNAAA Museum Hop</b>
10 a.m.–4 p.m.	Trade Show Hours
3 p.m.	Silent Auction Closes
4–5:30 p.m.	Concurrent Sessions • Pratt & Whitney Canada–Turbine

## Thursday, Dec. 9

8 a.m.–6 p.m.	Registration Open (Convention Center)
8:30–9:30 a.m.	Concurrent Sessions • Thrush Aircraft
9 a.m.–1 p.m.	Concurrent Sessions • Ag-Nav Guida Training
9:45–11:15 a.m.	Concurrent Sessions • Air Tractor Inc.
11:30 a.m.–1 p.m.	Concurrent Sessions • Aerial Firefighting • Compass Rose
1:15–2:45 p.m.	Concurrent Sessions • Helicopter Roundtable
3–4:30 p.m.	Concurrent Sessions
5:30–6:30 p.m.	Farewell Reception
6:30–9 p.m.	Farewell Banquet & Awards Ceremony

Events schedule subject to change. Updates are posted regularly at [www.agaviation.org](http://www.agaviation.org). Watch for more schedule information on NAAA's Web site at [www.agaviation.org](http://www.agaviation.org).



# Participate in the 2010 AgAv PAC Golf Tournament

Don't miss your chance to participate in the AgAv PAC Golf Tournament at the 44th Annual NAAA Convention & Exposition in Savannah, Ga. The PAC is used to strengthen NAAA's presence in Washington, D.C., by supporting congressional candidates friendly to the aerial application industry. So enjoy a round of golf to support the PAC and benefit the industry!

The tournament will be held at the luxurious Club at Savannah Harbor. The club lies nestled between the banks of the Savannah and Back Rivers among the abundant wildlife of the splendid Georgia Low Country, offering views of historic downtown Savannah while it gently winds its way through tidal wetlands. The Club at Savannah Harbor offers an 18-hole championship course designed by renowned architect Robert Cupp in conjunction with the legendary "Slammin' Sammy" Snead. The Club was recently named one of the "Top 60 Golf Resorts in the United States" by *Condé Nast Traveler* magazine and awarded a "Four Star Highly recommended Places to Play" by *Golf Digest*.

The golf tournament will be a four-member team scramble on Sunday, Dec. 5, with an 8 a.m. shotgun start. We recommend that golfers plan to arrive in time to participate in the pre-tournament reception and Calcutta on Saturday,

Dec. 4, at 6:30 p.m. The Club at Westin Savannah Harbor has clubs for rent (Diablo woods, X 22 Irons, + 6 Calloway balls) for \$50. If you will need to rent clubs, please contact the pro shop at 912-201-2240.

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



The Westin Savannah Harbor Golf Resort & Spa features the Robert Cupp/Sam Snead Championship Golf Course.

## NAAA AgAv PAC Golf Tournament Registration Form

### Golf Package

Name: \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

Golf Handicap (your golf score on a 72-par golf course): \_\_\_\_\_

### Meal Package

Name: \_\_\_\_\_

### Payment:

Amount: \_\_\_\_\_ Choose 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 AgAv PAC. Federal law requires all PAC donations to be personal contributions. Corporate contributions are prohibited. PAC donations are not tax deductible.*

*Payment must be made by personal check or personal credit card only. \*\**

Send entry forms and payment to NAAA by fax at 202-546-5726,  
e-mail at [information@agaviation.org](mailto:information@agaviation.org) or mail at:  
NAAA • Golf Tournament • 1005 E Street, SE • Washington, D.C. 20003

## Tournament Schedule:

Saturday, Dec. 4

6:30 p.m. – Reception & Calcutta

Sunday, Dec. 5

7:30 a.m. – Continental Breakfast

8 a.m. – Tee Times Begin

1 p.m. – Lunch & Awards

## Package Costs:

\$200 – Golf Package (per player)

Includes greens fee, Saturday reception and Sunday breakfast and lunch.

\$100 – Meal Package (for non-player attendees)

Includes Saturday reception and Sunday breakfast and lunch.

# 2010 NAAA Convention Exhibitors

More than 120 companies have signed on to exhibit at NAAA's 44th Annual Convention & Exposition. The following exhibitors reserved booth space as of press time. Exhibitor opportunities remain but are filling up fast. Visit [www.goeshow.com/naaa/annual/2010/](http://www.goeshow.com/naaa/annual/2010/) to reserve your booth today!

EXHIBITOR	BOOTH NUMBER	EXHIBITOR	BOOTH NUMBER	EXHIBITOR	BOOTH NUMBER
ACES Systems	426	Davidson Solid Rock Insurance	722	Pratt & Whitney Canada	425
Accuair Wind Tunnel – Forest Protection Ltd.	922	DTC DUAT Service	912	Precision Avionics & Instruments	206
Aero-Engines Inc.	813	DuPont Crop Protection	201	Precision Laboratories Inc.	924
AeroFlow Systems	411	Dynanav Systems Inc.	607	Premier Turbines	608
AeroFlow Systems	914	Evolution Insurance Brokers	409	Prime Turbines Inc.	525
Ag Air Turbines, Inc.	326	Executive Aircraft Maintenance	325	PROAIR Risk Retention Group Inc.	713
Ag Container Recycling Council (ACRC)	413	Falcon Insurance Agency Inc.	606	Queen Bee Air Specialties	185 & 612
Ag-Nav Inc.	110	Farm Air Inc.	313	Rocky Mountain Propellers	217
AgAir Update	617	Fire Boss LLC	816	Rosen's Inc.	626
AgLasers LLC	718	Flight Grip LLC	518	S & T Aircraft Accessories Inc.	709
AgriData Inc.	410	FMC Corp.	407	Sensenich Propeller Service Inc.	821
AgriSmart Information Systems LLC	406	Frost Flying Inc.	627	Serv-Aero Engineering Inc.	807
AgSync Inc.	431	Garrco Products	516	Simplex Manufacturing Co.	513
Aircraft Accessories of Oklahoma	412	GE Aviation	211	Sky-Tractor Supply	301
Air Repair Inc.	507	Genuine Aircraft Hardware Co.	107	Southeastern Aircraft Sales & Service	711
Air Tractor Inc.	611	Gibson & Barnes	721	Souther Field Aviation Inc.	823
Allianz	223	Hardy Aviation Insurance Inc.	500	Southwest Turbine Inc.	527
ApplicationMGMT.com	318	Hatfield/Turbine Conversions	417	Spectrum Electrostatic Sprayers Inc.	806
APS (Aviation Products Systems, Inc.)	306	Hemisphere GPS	701	Starr Aviation	610
AUGER DAN LLC	819	Huffy's Airport Wind Sock Inc.	200	Sutton James Inc.	207
Auto Cal II	808	J & C Enterprises Aviation Inc.	225	Syngenta	103 & 105
Avenger Aircraft and Services LLC	704	Johnston Aircraft Service Inc.	218	Teledyne Battery Product	805
Aventech Research Inc.	520	Kansas Aviation of Independence LLC	508	Tennessee Aircraft Co. Inc.	405
BASF Agricultural Solutions	422	Kawak Aviation Technologies	323	Thrush Aircraft	317
Battlefords Airspray	801	Kugler Company	316	Timken Aftermarket Solutions	401
Bayer CropScience	725	Lane Aviation Inc.	716	Transland LLC	717
Blue Diamond Turbine Services Inc.	101	Leading Edge Associates LLC	803	Tulsa Aircraft Engines Inc.	205
Capman Inc.	906	Machida Inc.	812	Turbine Dromader LLC	324
Cascade Aircraft Conversions	117	MANA Crop Protection	307	Turbine Engine Consultants Inc.	327
Central Florida AG AERO	605	Micronair Sales & Service Inc.	523	Turbine Installation LLC	322
Chartis Aerospace Insurance Services Inc.	403	Mid-Continent Aircraft Corp.	309	Valley Air Crafts	706
Compton's Flying Service	818 & 820	Nation Air Aviation Insurance	707	Weber Aviation Insurance	724
Covington Aircraft	517	Perkins Technologies PTY Ltd.	204	Western Petroleum Company	411
CP Products Co. Inc.	511	Pickett Equipment Co. Inc.	512	Wilbur-Ellis	203
CropDusterParts.com	810	PIM Aviation Insurance	601	Wings Insurance	619
Curtis Agri-Line ASC	304				
Dallas Airmotive	504				
Datasmart Software	102				
Davidon Inc.	621 & 622				



# Grow With Us

## Introducing DynaFlight - AirAg E-Series

Now, an affordable entry-level GPS system designed to get aerial applicators growing with DynaNav.

- **LIGHTWEIGHT & COMPACT**  
Entire system weighs less than 3 kilograms.
- **MODULAR**  
Add components & functionality to meet your growing needs.
- **FULL FEATURED**  
Includes all the unique navigational features of our professional version.
- **EXPANDABLE**  
Fully upgradeable to our professional version.

### **NEW! DynaFlight - AirAg E-Series**

Easy to install - complete system contained in these 2 components.



Heads-up dash-mounted guidance instrument is clearly visible in any light.



easy "Roadway" guidance

The entire system is controlled by 2 switches on the ErgoGrip. Other switches are for normal aircraft functions.



ErgoGrip

See actual spray operations using DynaFlight and listen to air ag professor talk about the benefits of using our products @ [www.dynanavblog.com](http://www.dynanavblog.com)

**Simple by design ... flexible in application.**

# Your Guide to Who's Who & What's What at NAAA's 2010 Expo

With more than 25 hours of educational programming, 120 exhibits and 1,500 attendees, there will be plenty of people to see and places to be at NAAA's 2010 Convention & Exposition. To get the most out of your convention experience, it pays to plan ahead. To assist in your decision making *Agricultural Aviation* put together a handy **Who's Who List of NAAA Convention Exhibitors**. We invited companies committed to NAAA's trade show to describe their exhibits. This list is not inclusive. Not all exhibitors were able to respond before the printing deadline of this article. Brief explanations are provided for the companies that responded to our request. The complete exhibit lineup is on pg. 25.



The 2010 NAAA Exposition, along with most of the convention's programming, will be held in the Savannah International Trade & Convention Center. Airplanes will be on display in Bryan Square, an open-air area between the Westin Hotel and the Savannah Convention Center. For information on programming and other events, see pgs. 24 and 36–41.

—Jay Calleja, *Manager of Communications*

Editor's Note: All listings are provided for informational purposes only. Inclusion does not constitute an endorsement by NAAA. NAAA is not responsible for claims made by exhibitors.

## Accuair Wind Tunnel – Forest Protection Ltd.

**Booth #: 922**

**What's new:** North America's largest, fastest and most advanced wind tunnel for nozzle/atomizer calibration and drop sizing.

**Why stop here?** Whether you are an applicator or a member of the scientific community, the Accuair Wind Tunnel can help you with your drop sizing and aerodynamic research needs.

## Ag Air Turbines Inc.

**Booth #: 326**

See our ad on pg. 44

## AgAir Update

**Booth #: 617**

**What's new:** [agairupdate.com](http://agairupdate.com)—the agricultural aviation industry's most comprehensive Web site!

**Why stop here?** Pick up the latest copy of *AgAir Update*, browse our Web site and flip through the 2010 Show Guide that showcases the latest products and services for the agricultural aviation industry.

## Ag-Nav Inc.

**Booth #: 110**

**What's new:** TrackerNav – FireNav – FlightMaster – Flowcontrol and now AMS System exclusively for forestry applications.

**Why stop here?** Save time and money – talk to our support team and tell us what you need. See a hands-on demo of our latest guidance system.

See our ad on pg. 60

## AgriData Inc.

**Booth #: 410**

**What's new:** We have added Satloc job

file exports and a labeling tool to Surety® Online Mapping.

**Why stop here?** See a demo of Surety® Online Mapping, the No. 1 aerial application mapping program, and learn how to receive four free maps.

## AgriSmart Information Systems LLC

**Booth #: 406**

**What's new:** Flight Plan Online—an information management system for aerial applications

**Why stop here?** See a better way to



Airplanes at NAAA's 2010 Expo will be on display in Bryan Square, an open-air area between the Westin Hotel and the Savannah Convention Center.



communicate with your customers and manage your business so you can focus on spraying more acres.

### **AgSync Inc.**

**Booth #: 431**

**What's new:** We are fields above the competition. With strategic partnerships, AgSync is becoming the ultimate in aerial application management. Enhanced with specific requests from applicators just like you!

**Why stop here?** Let us show you how to maximize your time, money and resources with our online aerial business management system. Stop by for a free demo and to experience what the AgSync difference means. It's not just about maps anymore, it's about you!

**See our ad on pg. 19**

### **Aircraft Accessories of Oklahoma Inc.**

**Booth #: 412**

**What's new:** Visit [www.aircraftaccessoriesofok.com](http://www.aircraftaccessoriesofok.com) for information on harness, oil filters, spark plugs, etc.

**Why stop here?** Over 50 years in the aviation industry gives us a vast array of knowledge for your engine accessory needs—from carburetors to magnetos, propellers and more.

### **Air Tractor Inc.**

**Booth #: 611**

**What's new:** Air Tractor is field testing an improved ram air inlet filter; see new engine gauges and a fiberglass gatebox fairing for the AT-802.

**Why stop here?** Now with several hundred hours working this past season, learn how the new dual cockpit AT-504 earns its keep while training new ag pilots. Get updates on the 1,000-gallon capacity AT-1002 and many new Air Tractor improvements. And, as always, check out the latest Air Tractor aircraft on display.

**See our ad on pg. Back Cover**

### **ApplicationMGMT.com**

**Booth #: 318**

**What's new:** Our product continues to evolve, making it an easier, more effective way to manage your work orders. Why stop here? We have a significant price reduction. Stop by to find out more.

### **APS (Aviation Products Systems Inc.)**

**Booth #: 306**

**See our ad on pg. 40**

### **Auto Cal II**

**Booth #: 808**

**See our ad on pg. 66**

### **Avenger Aircraft and Services LLC**

**Booth #: 704**

**See our ad on pg. 51**

### **BASF Agricultural Solutions**

**Booth #: 422–424**

**What's new:** BASF continues to expand its portfolio of effective, reliable products for aerial application, featuring Headline AMP™ fungicide for corn, Headline® fungicide for soybeans and cereals and TwinLine® fungicide for cereals.

**Why stop here?** Pick up your official commemorative NAAA show patch! BASF is proud to partner with the NAAA on the first official show patch of the NAAA annual meeting. Enter the BASF grand prize drawing. BASF representatives will also be on hand to answer questions about the wide range of BASF aerial application solutions.

**See our ad on pg. Inside Front Cover**

### **Battlefords Airspray**

**Booth #: 801**

**See our ad on pg. 6**

### **Bayer CropScience**

**Booth #: 725**

**What's new:** Introducing new Stratego YLD Fungicide and Leverage 360 Insecticide for 2011.

**Why stop here?** Prosaro, Oberon, Finish Pro, Baythroid and many more products highlight a well-rounded portfolio for aerial applicators which feature easy-

to-handle low-use-rate products. Due to the tremendous excitement for the model airplane in 2009, Bayer is donating another airplane to the NAAA Auction in 2010. However, be sure to stop by and find out how to win a 42" HD TV!

### **Cascade Aircraft Conversions**

**Booth #: 117**

**What's new:** Cascade Aircraft Conversions is now an Authorized Service Center for GE's M601 and H80 turbine engines.

**Why stop here?** Discover how Cascade Aircraft Conversions can benefit your bottom line with products to enhance the performance of your PT6 powered Turbine engine or replace the Radial engine on your Air Tractor or Thrush with a complete firewall forward GE M601 751HP turbine conversion. Cascade Aircraft Conversions—where you have Service AFTER the sale!

### **Central Florida AG Aero**

**Booth #: 605**

**What's new:** Using the latest technology to train agricultural pilots.

**Why stop here?** Stop by our booth to discuss how simulator training can work for you or your company.

**See our ad on pg. 6**

### **Chartis Aerospace Insurance Services Inc.**

**Booth #: 403**

**See our ad on pg. 49**

### **Covington Aircraft**

**Booth #: 517**

**What's new:** Covington Aircraft is named Pratt & Whitney Canada's newest distributor and designated overhaul facility. Visit [www.covingtonaircraft.com](http://www.covingtonaircraft.com) to find out how this benefits the ag customer.

**Why stop here?** Stop by the Covington Aircraft booth for help with sales, rentals, troubleshooting and to receive your free gift.

**See our ad on pg. 45**



# FUEL NOZZLES NOW



Overnight Service, Competitive Pricing for the PT6A AG

Keep your PT6A AG engine running at peak efficiency with our fuel nozzle exchange kit\*. We'll overnight a kit containing nozzles, O-rings and gaskets. You simply switch out nozzles and return your used ones to us. We offer industry-competitive pricing and the backing of more than 75 years of service to ensure your satisfaction.

**Clean, Check, Return** If you're not AOG, you can choose to save extra dollars by sending your fuel nozzles to us. We'll clean, flow-check and return them to you in a one-day turn time. Either way, we offer OEM-standard kits and guaranteed satisfaction.

**A Full Range of Service** Dallas Airmotive delivers a full spectrum of support, including 24/7 field service, OEM parts, repair and overhaul. We have eight PT6A-qualified regional turbine centers in the USA to ensure that you're never far from a center of engine repair excellence.

**Major and Minor Repairs** Whether you need a fuel nozzle exchange, lightning-fast field repair to get you back in the air, or an end-of-season major repair to get you ready for next year's flying, Dallas Airmotive has the people and experience to get the job done – right. We'll get you airborne again and help keep you there.

\*Simplex nozzles, AG engines only.

**AGRIGHT**

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For field support and OEM-authorized service to keep your engine and your operation running smoothly, contact Dallas Airmotive.  
Tel +1 214-956-3001 • Toll-Free (USA) 800-527-5003 • [turbines@DallasAirmotive.com](mailto:turbines@DallasAirmotive.com) • [DallasAirmotive.com](http://DallasAirmotive.com)

## CP Products Co. Inc.

**Booth #: 511**

See our ad on pg. 32

## Dallas Airmotive

**Booth #: 504**

**What's new:** Overnight delivery of fuel nozzle exchange kits on PT6A-AG engines.

**Why stop here?** Learn about our light module and engine overhaul worksopes for PT6A-AG engines.

See our ad on pg. 29

## Davidon Inc.

**Booth #: 621 & 622**

**What's new:** DOP-955 Drift Retardant and Penetrator (621). New design for boom ends and washout ends. Custom-made booms to your specs (622).

**Why stop here?** See new designs.

## Davidson Solid Rock Insurance

**Booth #: 722**

**What's new:** Solomon once said, "There's nothing new under the sun." That may be true, but for those of us who love this business, ag aviation is new every day. New challenges, new opportunities, and new ways to handle them.

**Why stop here?** We'd like the opportunity to meet you and discuss our passion for this industry and our approach to handling those new challenges. We offer a full line of aviation insurance products to cover your aerial application business. Agency Owner and commercial pilot Doug Davidson has served the unique insurance needs of the aviation community since 1982. He founded Davidson Solid Rock Insurance in 1995 on Christian principles, honesty, integrity and the commitment to provide insurance products as solid as its name!

See our ad on pg. 63

## DuPont Crop Protection

**Booth #: 201**

**What's new:** Several insecticides and herbicides, including DuPont™ Altacor® insect control (reliable control of key pests in grapes, pome and stone fruits);

DuPont™ Coragen® insect control (effective control of key pests across a range of vegetables and specialty crops); and DuPont™ Accent® Q herbicide (post-emergence grass weed control in corn, popcorn and sweet corn).

**Why stop here?** Learn about the new insect control and herbicide solutions that deliver consistent, high-quality performance from DuPont Crop Protection.

## Dynanav Systems Inc.

**Booth #: 607**

**What's new:** North American introduction of the new Dynaflight-E Series product, an entry level system that allows you to grow with us.

**Why stop here?** Visit our booth to experience our flight simulator. Demonstrate our products in action and discover the Dynanav difference.

See our ad on pg. 26

## Falcon Insurance Agency Inc.

**Booth #: 606**

**What's new:** Celebrating over 30 years in the aviation insurance business. Visit [www.falconinsurance.com](http://www.falconinsurance.com) for more information, locations and industry links.

**Why stop here?** Falcon Insurance Agency Inc. is one of the country's largest aviation-only insurance agencies. Our agencies are dedicated to providing you with the best available coverage, service and rates.

## Farm Air Inc.

**Booth #: 313**

See our ad on pg. 63

## FMC Corp.

**Booth #: 407**

**What's new:** Learn more about new options for corn and soybean growers with selective postemergence control using Cadet® herbicide and the long-lasting, fast knockdown against a broad spectrum of pests with Hero® insecticide. Applicators can also learn about the lethal preemergence and postemergence control of troublesome weeds with Broadhead™ herbicide in rice fields.

**Why stop here?** Discuss the latest news and product information in aerial application offered by FMC. FMC offers a complete portfolio of products for growers to increase crop yields and control troublesome pests and weeds. For more information on the entire FMC product portfolio, visit [www.FMCCrop.com](http://www.FMCCrop.com).

See our ad on pg. 39

## Frost Flying Inc.

**Booth #: 627**

See our ad on pg. 2

## Garrco Products

**Booth #: 516**

**What's new:** We have new data on drift reduction.

**Why stop here?** Chance to increase margins per acre while reducing drift.

## GE Aviation

**Booth #: 211**

**What's new:** Our concurrent session on Wednesday, Dec. 8, from 8–9:30 a.m.

**Why stop here?** Learn about the soon-to-be certified GE H80 engine and the latest on GE's growing turboprop service and support network.

See our ad on Inside Back Cover

## Hardy Aviation Insurance Inc.

**Booth #: 500**

**What's new:** Market trends change often. We stay informed so you stay informed.

**Why stop here?** Knowledgeable agents active daily in the aerial application insurance and technology. Friendly agents dedicated to your insurance needs.

See our ad on pg. 2

## Hemisphere GPS

**Booth #: 701**

See our ad on pg. 1

## Kawak Aviation Technologies Inc.

**Booth #: 323**

**What's new:** New hydraulic pumps, motors and electronic control valves for Bell 47 and Hiller helicopters.

**Why stop here?** Stop by to learn about hydraulic systems for precision





***Declare war on  
Insects with the Most  
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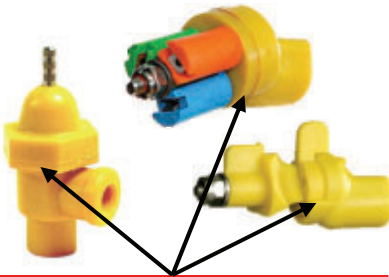
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**See article on pg. 42**

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## **Sutton James Inc.**

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**What's new:** Syngenta is pleased to offer two innovative products, Quilt Xcel™ fungicide and Endigo® ZC insecticide, developed to control the ever-changing pest spectrums while helping to maximize crop quality and yield.

**Why stop here?** Syngenta is an industry leader continually investing in the future

of agriculture. Stop by booth 103 to visit with your Syngenta Plant Performance team and enter for a chance to win an aerial applicator helmet.

## **Teledyne Battery Product**

### **Booth #: 805**

**See our ad on pg. 43**

## **Tennessee Aircraft Co. Inc.**

### **Booth #: 405**

**See our ad on pg. 52**

## **Thrush Aircraft Inc.**

### **Booth #: 317**

**What's new:** Thrush concluded another exceptional year in 2010 with high production rate, process improvements, additional support initiatives and the launch of the GE Thrush.

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**See our ad on pg. 59**

## **Weber Aviation Insurance**

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10 a.m. to 12 p.m., Dec. 6

## Afternoon Session:

1–2:30 p.m., Dec. 6

Sessions are continuous and not repeats.

*The author in bold is the presenting author.*

### **Performance of an Aerial Variable-Rate Application System with a Fan Driven Chemical Pump**

*By Dan Martin and S.J. Thomson*

An aerial variable-rate application system on an Air Tractor 402B with a fan-driven chemical pump will be evaluated with respect to response to rate change, deposition of spray relative to prescription boundaries and spray application accuracy. The variable-rate system is composed of a Hemisphere GPS Air IntelliStar with IntelliTrac software and a 20 Hz GPS receiver in conjunction with an IntelliFlow automatic flow controller. Application rate and ground speed are communicated to the IntelliFlow flow controller by the IntelliTrac software so that the prescription application rate can be applied. Application rates ranging from 0 to 6 gallons per acre (gpa) will be assigned to the sub-blocks of the test site and a prescription will be prepared for use with the variable-rate application system. Response to rate changes and application accuracy will be evaluated from data captured from the automatic flow control system and the placement of spray will be evaluated using water sensitive spray cards positioned with respect to zone boundaries and parallel to the flight line.

**Bio:** *Dr. Dan Martin is a Research Agricultural Engineer with the USDA's Aerial Application Technology Research Project in College Station, Texas. His focus is on aerial application efficacy studies and precision aerial application research projects. He is also an Operation S.A.F.E. analyst and educator.*

# 2010 ASABE/NAAA Technical Session Program

Dec. 6, 2010—Savannah, Ga.

### **Evaluation of Adjuvants to Determine Effect on Droplet Size and Potential Use as "Anti-evaporants" as Substitutes for Crop Oil**

*By Alan McCracken and V. Escalas*

This presentation reports on results of the use of "Adjuvants" for improvement in the deposition of spray droplets thanks to their effect in reducing losses due to evaporation. During the tests it was observed that the products behave differently when applied through rotary atomizers than when applied using hydraulic nozzles. Field tests conducted in Argentina have confirmed that the products have a positive effect on the number of droplets collected using water sensitive cards.

**Bio:** *Alan McCracken is president of MACBRI Produtos Agricolas Ltda, Brasil. He was born in Northern Ireland and studied Agriculture and Agricultural Engineering in England. He has experience in product development and chemical application technology with various multinational companies in more than 100 countries having lived in England, Brazil and Switzerland along with his current residence of Kansas City, Mo. In addition to testing new products and application systems, Alan provides technical support on pest and disease control to a number of aerial applicators and very large farmers in South America with the emphasis being on improved performance with lower spray volumes.*

### **Atomization of Aerial Spray Nozzles at Airspeeds Above 160 mph**

*By Bradley Fritz and W.C. Hoffmann*

Most aerial applicators are familiar with the Spray Nozzle Models developed by the USDA-ARS Aerial Application Technology Group (AAT). These models are available for a number of commonly used aerial spray nozzles and allow users to estimate the spray droplet size based on the nozzle setup, orientation, spray pressure and airspeed. Presently these models are only valid for spray pressures up to 60 psi and airspeeds up to 160 mph, but with the continued performance improvements and developments in modern agricultural aircraft, there is a need to investigate the effects that airspeeds beyond the 160 mph limit have on spray atomization. This manuscript will detail the features of a new high speed wind tunnel system at the AAT facilities that is capable of generating airspeeds up to 220 mph, as well as a scrubber system that will allow for future atomization studies to be conducted with active ingredients. The atomization characteristics of several aerial spray nozzles at airspeeds exceeding 160 mph are measured and reported. Determining how these nozzles perform at higher airspeeds will help to improve present nozzles and/or develop new nozzles or application techniques to counter the increased atomization seen at these higher airspeeds. Additionally, these

new facilities will allow for expanding the Spray Nozzle Models to provide applicators guidance on spray nozzle selection and setup at airspeeds beyond 160 mph.

**Bio:** *Dr. Bradley Fritz is an Agricultural Engineer with the USDA-Agricultural Research Service (ARS) in College Station, Texas. His primary research efforts include environmental impacts on spray drift, biological impacts resulting from spray applications, optimizing spray applications for maximum on-target deposition and evaluation and modification of sampling methodologies for assessing transport and fate of applied sprays.*

## Role of Air Induction Nozzles in High Speed Airstreams

*By Clint Hoffmann, B. Fritz and Y. Lan*

Air induction nozzles have been used for several years in ground spray applications as a means of generating large droplets and reducing the potential for off-target movement of sprays. Like any new technology, it is important to gain a thorough understanding of how these air induction nozzles work in high speed airstreams before placing them on aerial application equipment. Several nozzles will be evaluated under helicopter and fixed-wing aerial application conditions to determine the effects of nozzle type, orifice size and nozzle orientation on spray droplet size. Through a combination of pictures and droplet size data, guidelines will be generated to help aerial applicators make informed decisions about the use of air induction nozzles in their particular operation.

**Bio:** *Dr. Wesley "Clint" Hoffmann is an Agricultural Engineer with the USDA-Agricultural Research Service (ARS) in College Station, Texas, and serves as the Lead Scientist of the Aerial Application Technology project. His research efforts are focused on effects of physical properties and nozzle operational parameters on spray atomization, spray evaluation and development and sampling methodologies for measuring spray droplet transport in the environment.*

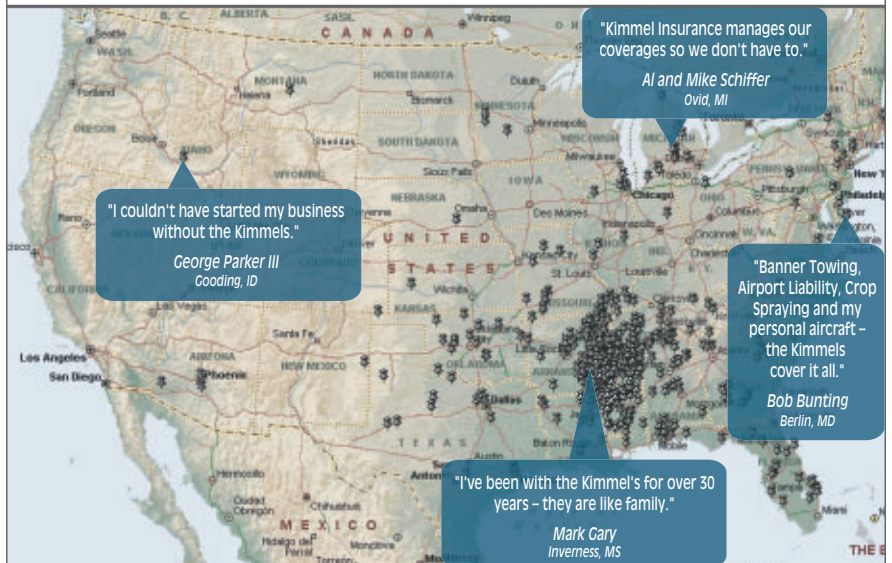
## Fusion of Remotely Sensed Data from Airborne and Ground-based Sensors for Cotton Regrowth Study

*By H. Zhang, Yubin Lan, C. Yang, C. Sub, J. Westbrook, W.C. Hoffmann and R. Lacey*

The need to minimize populations of overwintering boll weevils (*Anthonomus grandis* Boheman) is widely recognized by eradication programs. One tactic to reduce overwintering survival of boll weevils is timely post-harvest crop destruction. Even where cotton plants (*Gossypium hirsutum* L.) are destroyed after harvest, regrowth from stalks or growth of volunteer plants from unharvested

seed can occur when environmental conditions permit. Timely detection and remediation of volunteer cotton plants in both cultivated and non-cultivated habitats is critical for completing boll weevil eradication in Central and South Texas. This study investigates the use of aerial imagery and ground-based remotely sensed data for the discrimination of different crop species and timely detection of cotton plants over large areas. Airborne multispectral imagery and handheld hyperspectral data were acquired at multiple times over two large agricultural farms in Brazos County in Texas during the 2010 growing season. The performances of imagery data and handheld data

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for the discrimination were examined individually; then multisensor data fusion technique was applied on both aerial and ground datasets in order to improve the accuracy of the discrimination. The overall results indicate the potential of multisensor data fusion of remotely sensed data from different sensors as an effective tool for cotton regrowth studies.

**Bio:** Dr. Yubin Lan is an Agricultural Engineer with USDA-ARS in College Station, Texas. He has been involved in sensor and instrumentation research in agriculture for the last 20 years. His current main research focus is on remote sensing and development of new sensor and instrumentation for precision agriculture in aerial application.

### Factors Affecting Droplet Size, Coverage and Weed Control with Sharpen Herbicide

*By Gary Fellows, R. Barbosa, R. Vidrine and A. Rhodes*

Droplet size, number of spray droplets and concentration of a herbicidal active ingredient within the droplet may impact efficacy of products sprayed aerially. Sharpen herbicide, active ingredient saflufenacil, is a new herbicide from BASF in the Kixor family of herbicides. Sharpen controls numerous broadleaf weeds, is an effective burn down product in front of many crops and has an aerial label that allows total carrier volumes down to three gallons per acre. To work effectively, Sharpen requires adequate coverage on the weed leaf surface. Droplet size models have been developed to assist applicators with pattern testing and to optimize product performance. Aircraft speed, nozzle type and orifice size, spray pressure, nozzle deflection angle and product(s) being sprayed affect droplet size and droplet number produced by each nozzle.

Based on results from previous research and a desire to maximize

efficacy of Sharpen herbicide, a study was conducted in June 2010 to compare expected droplet size with actual droplet size of water and a herbicide solution, to evaluate different boom set-ups for droplet size and droplet number and to determine weed control with selected treatments of herbicide and boom set-ups. Based on this study, droplet size and droplet number are affected most by nozzle deflection angle, and secondarily by spray pressure. A 30° angle produced smaller and greater number of droplets than no deflection, and higher pressure created larger and fewer droplets. The expected size of droplets from a model was close to actual as long as a 5° or 30° deflection angle was included in the model. Droplet size produced with water only was similar to droplet size from the actual herbicide solution.

**Bio:** Dr. Gary Fellows is the Technical Service Regional Manager for BASF. From 1990–2000 he was a Research and Development Agronomist for American Cyanamid in Iowa. In 2000 he moved to RTP, N.C., to work for BASF in herbicide discovery and development, before moving to Technical Service in 2004. He has been involved with aerial applications of herbicides and fungicides for the past five years supporting low volume applications of BASF products.

### Low Volume Fungicide Applications to Corn

*By Scott Bretthauer and R. Wolf*

This study examined low volume fungicide applications to corn. The treatments included various spray application rates, two nozzle types and spray solution with and without crop oil concentrate. Spray coverage and droplet size were measured using Kromekote cards and Vision Pink dye, with the analysis performed with DropletScan. Spray deposition was measured using mylar plates and Caracid Brilliant Flavine fluorescent dye applied at a rate of 10 g/acre

regardless of spray application rate. The study was conducted over two years, with three fields evaluated for spray coverage and deposition each year. Within each field, two plots were taken per treatment, with 10 corn plants sampled per plot. On each corn plant, Kromekote cards were placed on leaves one foot out from the stalk in the top, middle and lower part of the canopy. In addition, a plate was attached to the stalk at ear height. This plate held the mylar sampler and an additional Kromekote card. Differences in deposition, coverage and droplet size among the treatments will be discussed.

**Bio:** *Dr. Scott Bretthauer is an Extension Specialist with the Pesticide Application Technology Program at the University of Illinois. His extension areas include pesticide application technology, sprayer calibration, aerial application, drift reduction and pesticide safety education. He has a Ph.D. in Natural Resources and Environmental Sciences.*

### Using Photography to Aid in Analyzing Airplane Spray Patterns at Operation S.A.F.E. Workshops

*By Robert Wolf, S. Bretthauer and P. Newby*

The use of photography to aid in analyzing airplane spray patterns at Operation S.A.F.E. workshops is not a new concept. However, with the advent of digital cameras and additional technologies to make the images readily available for review at the workshops, this technique is gaining popularity among pilots that attend Operation S.A.F.E. Fly-ins.

**Bio:** *Robert Wolf is an Extension Specialist at Kansas State University with responsibilities in the pesticide application area. His major area of focus is with technologies related to the application of pesticides with aerial, commercial and grower ground and turf application equipment.*

### Temporal Indications of Atmospheric Stability Affecting Off-Target Spray Drift in the Mid-South U.S.

*By Steven Thomson, Y. Huang and B. Fritz*

This study is designed to determine atmospheric conditions favorable for long-distance spray drift deleterious to susceptible crops downwind from spray application. The ultimate goal is to incorporate this information into

new guidelines for pilots on weather conditions and times of the day to reduce off-target drift potential in the Mid-south. A tall meteorological monitoring tower equipped with six precision (and periodically calibrated) thermistors at 14.7, 29.5, 59.4, 74.5, 89.6 and 95.5 m heights and four wind speed anemometers at 14.9, 39.7, 64.5 and 89.6 m heights will be logged continuously throughout the day during the entire growing season.



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Wind speed and temperature data will be used to calculate atmospheric stability ratios, and temporal and spatial temperature gradient patterns at different altitudes will be determined. Periods when wind

patterns and stable air conditions occur that are known to favor off-target drift will be determined from tower data. Temperature inversion periods favorable for drift will be examined for strength, time of

occurrence and duration. Probabilities of inversion conditions as a function of time-of-day and weather will be outlined, and preliminary guidelines for safe spraying in the Mid-south will be developed from atmospheric stability data.

**Bio:** Dr. Steven J. Thomson is a Research Agricultural Engineer with USDA-ARS in Stoneville, Miss. His research primarily focuses on spray sampling methods, improving chemical deposition into crop canopies, reduction of off-target spray drift, variable-rate aerial application and remote sensing for detection of crop stress and to support of variable-rate aerial application.

## A Reverse Venture Atomization Chamber

By Russ Stocker

Spray drift is one of the most significant issues facing aerial applicators. Material not applied to the target is a financial loss for the farmer and a potential liability for the applicator. Off-site drift also represents an environmental liability, particularly as habitat, water quality and urban encroachment concerns demand greater attention to larger buffer and/or no-spray zones. During conventional aerial applications, fluid leaving the nozzle is subjected to air shear resulting in an atomization profile (bell curve) with a portion of very small droplets (driftable fines). Increased airspeeds produce more driftable fines, increasing the potential for undesired off-site movement. Controlling the environment where atomization occurs reduces driftable fine production thereby reducing the potential undesired off-site movement of spray material. Control of the nozzle environment is accomplished using the Reverse Venturi Atomization Chamber (RVA). The RVA has three sections. Air enters the first section (diffuser), with

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a restricted opening, and flows into a larger area (settling chamber) where air velocities are reduced, the nozzle is located and where atomization occurs. The atomized spray and air then travel together through the third chamber (constrictor) where they are accelerated to match the aircraft's air speed. By reducing the air speed where atomization occurs, the atomization profile demonstrated by the RVA system produces fewer fines, resulting in less drift. The RVA chamber has demonstrated up to a 93 percent reduction in fines at 100 mph and 78 percent reduction in fines at 150 mph airspeed in wind tunnel testing. Actual drift testing with the RVA system on the testing aircraft at 150 mph in the field demonstrated a 40 percent reduction in drift at 50 meters downwind compared to a conventional spray system.

**Bio:** *Russ Stocker holds a B.S. in Environmental Toxicology from University of California at Davis, as well as an Agricultural Pest Control Advisors License, Aircraft Pilot's Pest Control Certificate, Qualified Applicator License and Qualified Applicator Certificate. Russ has more than 38 years' experience in the pesticide application industry including over 20,000 hours as an agricultural pilot in both airplanes and helicopters. He has developed hands-on training programs for the California Department of Pesticide Regulation and U.S. EPA Region IX and other continuing education programs. He has been involved in research projects related to pesticide applications for university, forestry and private industry including the Spray Drift Task Force.*

## **Spray Table Evaluation of Miticides for Two-Spotted Spider Mites on Cotton**

*By Juan D. López, D. Martin and Y. Lan*

Two-spotted spider mites (*Tetranychus urticae* Koch) are important pests on numerous field and horticultural crops in the U.S. and worldwide. Although this mite species has always been a pest on

cotton especially in drier areas and more recently in the mid-South areas of the Cotton Belt, limited information is available on efficacy of aerially applied miticides. Bioassay research initiated last year was continued and expanded to include the use of GreenSeeker™ Technology to assess treatment differences when miticides at different rates were applied to mite-infested cotton using the spray table. Mite sampling was also conducted by collecting half leaf samples from the different treatments and counting the number of mites. Treatment rates evaluated for each miticide were 1/8, 1/4, 1/2, and all of the lowest recommended rate on the label. Untreated controls included both infested and noninfested cotton. Miticide deposition data were also collected for the different treatments using water sensitive paper exposed during application and analyzed with the Droplet Scan™ software. Results of this research will be presented and discussed relative to miticide efficacy.

**Bio:** *Research entomologist Juan D. López Jr. has been with the USDA-Agricultural Research Service since 1976. Throughout his career, he has conducted research on various aspects of the ecology and control of cotton insect pests. More recently, he has been working with the Area-wide Pest Management Research Unit at College Station, Texas, researching aerial application technology for control of various cotton insect pests such as thrips, cotton fleahoppers, bollworms, tobacco budworms, various species of stink bugs and spider mites. The research on each pest has followed three basic areas: bioassays for determining insecticidal toxicity to the various pests, spray table evaluation of deposition parameters conducive to insecticidal efficacy, and field evaluation of aerial application technologies incorporating results from the first two basic areas.*

## **Automating some measurements during Operation S.A.F.E. workshops**

*By Roberto Barbosa and Y.J. Chiu*

Operation S.A.F.E. workshops, commonly known as "fly-ins," are very helpful to agricultural pilots in "fine tuning" their aircraft. During the fly-in several ancillary measurements are taken, such as aircraft speed, aircraft spray release height, air temperature and relative humidity, wind speed and direction. Most of those measurements are taken by people operating the flight line with the help of some instruments. It is very common in a fly-in not to have people used to take those measurements, or not to have enough people to take note of all measurements. Automation of some of these measurements could improve accuracy and reliability of measurements during the fly-in. In this paper we describe an attempt to automate some of those measurements and the results of our testing.

**Bio:** *Dr. Roberto Barbosa is an Assistant Professor with the Biological and Agricultural Engineering Department at the LSU AgCenter. He holds an extension appointment with the Louisiana Cooperative Extension System and a research appointment with the Louisiana Agricultural Experiment Station of the LSU AgCenter. He works primarily with application technology issues, precision farming technologies and agricultural safety in Louisiana. ■*

# Pratt & Whitney Canada Contributes New PT6A-34AG Engine to NAAA Auction

By Jay Calleja  
Manager of Communications



Mike Perodeau is Pratt & Whitney Canada's VP of Corporate Aviation and Military Programs.

NAAA will experience a series of firsts at its 2010 Convention & Exposition Dec. 6–9. Besides the city of Savannah hosting NAAA's Convention for the first time, the first ever recipient of the Agricultural Aviation Scholarship will be announced and NAAA will auction off a brand new turbine engine for the first time in its history, courtesy of Pratt & Whitney Canada. The longtime supporter of NAAA is contributing a new PT6A-34AG engine—an extraordinary contribution to NAAA and a tremendous opportunity for anyone in need of a new turbine engine.

Pratt & Whitney Canada's PT6 engines are well known for their reliability, durability and versatility. With more than 350 million hours flown across 130 applications for business, commuter, helicopters, and utility and trainer aircraft, it

is the world's most popular engine in its class. There are more than 26,000 PT6 engines in service today. Approximately 1,150 PT6s are in service in the ag sector alone, and the ag market is approaching 9 million hours of flying time on the PT6.

Pratt & Whitney Canada has been a longtime supporter of NAAA and its sister organization, the National Agricultural Aviation Research & Education Foundation (NAAREF). Since 1998, the company has donated \$170,000 to NAAREF projects, including the PAASS Program.

*Agricultural Aviation* caught up with Mike Perodeau, Pratt & Whitney Canada's VP of Corporate Aviation and Military Programs. In a wide-ranging interview, Perodeau spoke about the new PT6A-34AG engine, Pratt & Whitney's views on the ag aviation sector, alternative fuels and more.

**Agricultural Aviation:** In 2005 Pratt & Whitney Canada (P&WC) provided an engine with a light overhaul to NAAA's Live Auction. This year you are contributing a brand new PT6A-34AG engine. Why did Pratt & Whitney Canada decide to provide a new engine?

**Mike Perodeau:** Basically, we took a look at what's happened over the years. The ag market has been very robust lately. Our relationships with the NAAA have been very good. The NAAA is an organization we want to continue to help foster for all of the good things you do, including promoting safety in the industry and helping it grow. So when we weighed it all up, we said we have

an opportunity here to go a little bit further than the norm, so we just concluded we would make a bigger, better gesture this year. It's not the kind of thing we'll be able to do every year, obviously, but at this point in time it seems like a good opportunity to do something bigger.

**AA:** Thank you for all the support Pratt & Whitney Canada provides to the aerial application industry and NAAA. Not only are you supporting NAAA's Auction in a big way, but for over two decades P&WC has been presenting an all-day PT6A seminar on the Sunday before NAAA's convention starts. You also hold a turbine seminar and a piston seminar during the convention. The hospitality reception P&WC hosts is an event everyone at the convention looks forward to each year. We hope these traditions can continue for the foreseeable future.

**MP:** They certainly will. We get a lot of benefit out of them too. The main reason for them, of course, is to have the opportunity for different dialogues with the customers. At the technical seminars it's a two-way street. We provide the technical briefings, but then from the kind of questions that we get from the operators, we know where we need to focus on any issues. And for the hospitality suite, it's a great forum for chatting with various people regarding different aspects of the industry. I think it's been a rewarding experience all around, which we certainly intend to continue.

**AA:** How is the ag aviation market holding up compared to other aviation sectors that you deal with?

**MP:** I think it's safe to say that the ag industry has been holding up relatively stronger than most of the other market segments out there, with the potential exception of the military market, which has got its own drivers. Certainly the past few years have been good solid numbers and even growth. The trouble is foreseeing where it's going to go. I think it is one of the more difficult industries to predict. A lot seems to be tied to commodity prices and other factors that frankly are very difficult for anybody to really do a forward-looking, short-term at least, projection.

In the longer run, I think we see things in the same way your own organization does. We see that it's going to remain, despite whatever cycles may come about in specific years, an area where there will always be room for lots of turbine-powered aircraft. ... You just have to look at the news and see all the forest fires there are in the west, in Europe and elsewhere to know that a productive tool like some of the fire fighting variants is likely to remain popular.

The other thing we tend to see is that there is a lot of growth potential as well outside of the traditional North American base. So there seems to be a lot of interest in areas like South America, northern Africa, potentially even the Russian market. Further than that, who knows what could happen in countries like China that would go from small, individual farms to perhaps, in the medium and long term, the kind of bigger and broader industrial type of farms where aerial spraying could offer some significant efficiencies.

**AA:** What does the future hold for P&WC and the ag aviation industry?

**MP:** It's a market we have a large amount of confidence in. It's something that we see as an area where we should



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stay involved [and] continue to improve our focus. On one hand, there's the products themselves, and over the years we've developed a number of unique variants of our engines for the ag market—the most recent of which, for example, would be the 67F [which was launched for the firefighting side of ag aviation in the AT-802F and AT-1002]. The other aspect is recognizing that it's a pretty sizeable market in its own right, and it has some

unique support and service needs. So in response to some operator feedback we received over the past couple of years, we're beefing up our specific focus on the ag industry. In our customer service group, we've put together a dedicated team to focus on the ag operators. In 2010 alone, they met with on the order of 250 operators to get direct feedback on things we do well, things we could do better and to take action based on that input. Just to use one specific

example, the PT6 is a very reliable engine, but there are some areas where things could be made better, so there are a couple of reliability improvement jobs in work. ... The other focus is on more administrative types of activities, like improving turnaround times on warranty claims, which was a specific irritant, and so we've focused a team specifically to improve turnaround time on warranty claims for ag operators.

**AA: What is the Customer First Centre?**

**MP:** We originally started with a customer help desk back in the mid 90s, which was a 24/7, 365-day-a-year staffed desk, and it would handle things like AOG calls, questions on publications and the like, but it had to pull on other organizations to make a lot of things happen. While it provided good service, there were a lot of handovers. It would take time to complete some tasks, and we saw an opportunity to improve that by co-locating other resources, such as, for example, from the spare parts organization. Going essentially from a two-person customer help desk to the Customer First Centre [in 2007] involved co-locating more people... and also investing pretty heavily in the IT tools and the communication tools to be able to monitor the progress of closure on a customer's problem.

From all the studies we've done, we see our Customer First Centre as the benchmark in the industry right now. It handles, not just calls from for the ag industry but as a whole, about 300 contacts a day, over a hundred thousand a year, and it's really improved our time to resolve customer problems from the first call until they're back up in the air again.

**AA:** More and more people have been experimenting with different formulas for avgas. There are also some new jet

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**fuels that the airlines are testing. Is P&WC actively pursuing testing of its engines and how they interact with various jet fuel modifications?**

**MP:** We've been working on alternate fuels since as far back as the 1960s, but in a bigger, more focused way over the last number of years. There are several different initiatives that we're involved in—everything from looking at first-generation fuels through to the third-generation fuel.

We have a variety of initiatives where we've partnered with other groups, such as universities or other research groups, often with government support. One such program is a collaborative program between Canada and India that will run through 2012. It's part of a consortium of Canadian and Indian universities and technical institutions such as the Indian Institute of Petroleum. With that, we're looking at feedstocks such as jatropha. Another one is with an association called SDTC Canada [Sustainable Development Technology Canada], which is looking at camelina feedstock and we'll be testing that fuel in one of our larger turboprops, a PW150. We're also looking at algae-based fuels in partnership with a couple of different companies and the National Research Council of Canada. That will be tested in a PT6 engine over the next couple of years. We'll continue to look at second- and third-generation biofuels as they develop and there's an awful lot of industry and government interest in this.

It's very clear that going forward there will be probably greater use of bio-fuels. The challenges are less in many respects for the engine than for the infrastructure of generating the bio-fuels and making them available, distributing them. The likelihood is there will be blends rather than pure bio-fuels depending on where you are in the world. And of course from a social

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point of view, it seems natural that there'll be a preference for fuels that don't compete with the food chain.

**AA:** From a going-green perspective, what else is P&WC doing?

**MP:** We have been developing green technology for some time with new technologies and environmental stewardship across all facets of our business. Our green technologies have been used in the more than 65 engines we have developed over the last 12 years, and in the 20 new engines currently under development. Our goal is to stay far ahead of the curve with respect to green engine technologies, and we have a rigorous plan in place to achieve this. Our development work extends from the materials we use in our engines to the processes to manufacture them.

**AA:** All PT6A-34AG ag engines come with a 3,500 TBO (time between overhauls), but we know because of their reputation for performance and reliability that ag operators typically fly them well past that before doing scheduled overhauls. For instance, they may go out to 4,500 or 5,000 hours before they do any major overhauls. Do you have any reaction to that?

**MP:** We certainly know that exists. Depending on how the operator approaches it, in some circumstances we support it. Sometimes an operator, for example, will request we provide a formal letter of no objection for a TBO increase for their fleet, based on factors such as sample inspections. Our Service Bulletins outline how to do this. Essentially a TBO escalation isn't granted by us, it's granted by the local airworthiness authority, so this is more a question of an operator making a representation or submission to his authority that his particular circumstances warrant an extension to his engine's TBO...

The reliability, durability and operating cost of an engine are really a function of a number of things. You don't just fly an engine for 3,500 hours. You've got to do periodic inspections on it, HSIs to retain temperature margin and other maintenance that can depend on the nature of the aircraft operation, maintenance and environmental factors that are more operator-specific. That's why it's more complicated than Pratt & Whitney saying that this engine can go 4,500 hours. Yes, it can under

certain circumstances specific to the operation, maintenance practices and the operating environment.

**AA:** Okay, but it seems fair to say considering the investment they are putting into their aircraft and businesses that operators are doing a much better job of keeping their aircraft equipment maintained now.

**MP:** Yes, I think what we've seen in past decades, certainly in recent years, is the whole industry has become much more professional. I hesitate to use that term, because I would not say it was unprofessional before, but probably because the level of investment in the aircraft and in the business itself has become much higher, there has been a lot more focus in the ag industry on keeping the assets like the aircraft and the engine in tip-top shape. Also, there has been very good focus on improving safety with the PAASS Program. As I said earlier, one of the reasons why we like supporting the NAAA is because we see the ag industry striving to continually improve the health of the industry and the safety aspects. To us these are paramount. These are single-engine applications. It's very important to have a reliable product and that operators have the awareness of what needs to be done to maintain engine reliability. It is also important that the industry has initiatives to make the whole nature of the operation safer. So, I think between the NAAA and aircraft manufacturers such as Air Tractor and Thrush, we see an industry that is investing in becoming better and better year over year. That's part of our culture, and we like to see it in our customers as well. ■

**Auction Payment Arrangements for PT6A-34AG Engine**

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# View from Down Under

Australians Mark and Kerry McDonald took America by storm last winter, getting an eye-opening view of ag aviation in the U.S. along the way

By Jay Calleja  
Manager of Communications



Mark McDonald with one of his ag aircrafts, a Cessna Agwagon.

Photos courtesy of Mark and Kerry McDonald

In 2001, the second season of “Survivor” was set in the Australian Outback. That same year, an Australian ag pilot named Mark McDonald acquired Tableland Air Services, an agricultural aviation business in the Atherton Tablelands, an environmentally sensitive region in North Queensland, Australia. He and his wife Kerry run the mom-and-pop operation together.

The motto of the reality TV competition is “Outwit. Outplay. Outlast.” Mark and Kerry McDonald must feel like contestants on “Survivor” too sometimes. Minus the conniving and the back-biting, the McDonalds have to be just as savvy to survive and prosper in an ecologically and politically sensitive environment filled with watchful regulators, zealous activists and a wary public at times.

Tableland Air Services works year round in the lush, tropical climate adjacent to the Great Barrier Reef and the Daintree Rainforests in the Wet Tropics World Heritage Area. The climate is conducive to growing bananas, tea, coffee, corn and peanuts in the wet season. Potatoes, pumpkins, sugar cane, mangoes and pasture are prevalent in the dry season.

“We feel we have had to operate in our business in a more environmentally conscious manner for some time now,” Mark and Kerry McDonald said in an e-mail to *Agricultural Aviation*. “If we did not, we would have been quickly put out of business.”

Perhaps that’s what gave them the fortitude to outlast the competition to secure a coveted Winston Churchill Fellowship. The Winston Churchill Fellowship Trust awards overseas research fellowships to Australians in

a variety of fields to study issues of importance to the Australian society. No prescribed qualifications are required in order to apply.

At the suggestion of the Aerial Agricultural Association of Australia (AAAA), Mark applied for a Winston Churchill Fellowship in 2009. The initial process involved submitting a detailed written application, which included a provocative title for his proposed area of study: “Managing and Developing Sustainable Aerial



Australian ag pilot Mark McDonald applies a fungicide treatment to a commercial potato crop in the Atherton Tablelands in tropical North Queensland.



*The McDonalds went snowmobiling in Wisconsin with Mike and Terry Stieren. Pictured from left to right, back row: Mark, Jake and Kerry. Front row, l-r, Olivia and Abbey.*

Application in an Environmentally Sensitive World.”

“Personally, I like to call myself an environmentalist in that I am aware of my responsibility to the environment and the possible impact I could have if I am not exercising constant consideration and care,” Mark said. “This means as much to the immediate implications and outcomes of my applications as well as long-term sustainability of our industry.”

McDonald was one of 32 candidates from the state of Queensland to survive the first cut from a pool of 118 applicants. The finalists were invited to Brisbane, Queensland’s capital, to interview with the selection committee. “Mark looked like he had been sat in front of a firing squad when he emerged from the interview of a board of [Churchill Fellowship] directors that included high court

judges, professors, doctors and environmentalists,” Kerry teased.

Out of those 32 candidates, 18 received Churchill Fellowships, including McDonald, who was awarded a John Swire and Sons Churchill Fellowship, which are available for the study of an issue relating to cropping, water management and the effects of climate change on agriculture. McDonald was given free rein to pursue his topic of choice. There was just one catch: In exchange for an adventure he won’t soon forget, he was required to share his research findings with the Australian community in the form of a fellowship report and public presentations. He readily accepted the challenge.

With that, Mark and Kerry set off with their three children, Jake, Abbey and Olivia, for a two-month, cross-country road trip across the United States in late 2009/early

2010. Their journey began in San Francisco on Nov. 28, 2009, took them to Reno, Nev., for NAAA’s 43rd Annual Convention & Exposition and continued across the rural and agricultural regions of 11 states. Along the way, they were welcomed with open arms by NAAA members who opened their doors and their hearts to the McDonald family.

### **Winter/Summer Vacation**

“What a great bunch of people you have over there on the other side of the pond!” Mark and Kerry said in an e-mail. “There were some very special people who had no idea who we were when we initially made contact but helped us from day one.”

The McDonalds experienced their first White Christmas when they celebrated the holiday with Mike and Terry Stieren, Executive Director of the Minnesota Agricultural Aircraft



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The McDonalds take a load off at the National Agricultural Aviation Museum in Jackson, Miss.

Association, who hosted them at their cabin. Another operator arranged for their children to attend a local school for three days while Mark and Kerry toured their local area. Others arranged for a closed zoo to open its doors for a private tour.

Some of their visits were prearranged, but on several occasions they would drop in unannounced on an operator. "Initially, it would be quite funny [to see] the strange looks we would get as we entered their office or hanger. The look of confusion only got worse when we opened our mouths!" Mark and Kerry said. "After they got over the strange accent and we had explained who, what and where, they welcomed us with open arms."

### Observations and Conclusions

There are 1,625 aerial application businesses in the United States and approximately 3,000 ag pilots,



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compared to about 130 operators and 300 ag pilots in Australia. Camaraderie aside, the purpose of the McDonalds' trip was to study the U.S. aerial application industry. In particular, Mark focused his research on the environment and sustainability; safety and technology; industry improvements; and recruitment. The lessons the McDonalds drew from their journey are documented in Mark's Swire Churchill Fellowship Report, available at [www.churchilltrust.com.au/fellows/detail/3361/mark+mcdonald](http://www.churchilltrust.com.au/fellows/detail/3361/mark+mcdonald).

Their goal was to deliver a report for the masses as well as the industry, and the McDonalds earn high marks for explaining the important work aerial applicators do and highlighting challenges the industry faces in a way that would resonate with a layperson. Written in an engaging style, the McDonalds'

absorbing account is as much a travelogue as it is a research report.

"They call me Macca, crazy, mad, friend, foe and much more. It depends on where your opinion sits with my occupation," McDonald writes in the author's introduction. "My real name is Mark McDonald and I am an aerial agricultural pilot in Atherton, Far North, Queensland."

Their travels across America confirmed there are a lot of similarities between the American and Australian agricultural aviation industries and reaffirmed Mark's belief in his chosen profession.

"If Australia is ready to accept, that as a nation we wish to continue to eat well, and maintain healthy nutrition levels, while population grows, then we need to also accept that good agricultural practice must prevail, and aerial application must continue to

grow as an integral part," he states in the fellowship report.

Among the key overall conclusions mentioned, McDonald reported that:

- American aerial agriculture has very similar issues and problems to that of Australia. "This made me appreciate that Australia is not alone. Our problems and issues are occurring on a global scale."
- Both NAAA and AAAA in Australia are working on solving similar problems within their own country.
- Agrichemical companies actively support the aerial application industry in the U.S., "rather than the token interest that is found in Australia. The companies are heavily investing and sponsoring research, development and registration of products and

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technology within the American industry.”

- The USDA-Agricultural Research Service is “a strong link in delivering the technology and knowledge required to take the

aerial application industry into the 21st century.”

Among their recommendations, the McDonalds observed several areas the Australian industry could focus on, including improving the industry’s

image, identifying funding sources for research and education, ongoing safety, application, pesticide training programs and pilot recruitment. Furthermore, Australian and American aerial applicators could benefit from increased collaboration. “So much could be mutually gained by Australia and America sharing expertise, information, knowledge, technology, and education,” the report states.

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## View From Down Under

Energized by their experiences, the McDonalds returned to Australia on Jan. 22 with renewed hope for the future. “The innovation in both industries is exciting and inspirational and the future looks bright,” Mark said. “For Australia we feel that the real turning point has been over the past decade. In this time the progress has been enormous in the attitudes and practice of many aerial operators. We got a feeling that this was also the case in America.”

Like NAAA and NAAREF, Australia’s AAAA is a big proponent of ongoing safety and precision application training. AAAA has developed a range of safety courses including wire management, human factors and drift control, which most pilots have been through, courtesy of the Professional Pilot Program AAAA runs.

AAAA’s latest program—the Aerial Application Management System (AAMS)—is an integrated management system that covers flying safety, product stewardship, logistics, occupational health and safety, human resources and management. “It promises to be a great leap forward for the industry that struggles under the weight of so many regulations,” Phil Hurst, AAAA’s CEO, said. “It pulls everything together and AAAA provides an officer who is dedicated to keeping those participating up to date on a wide front of issues and requirements.”

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As in America, Australian aerial applicators face challenges from outside forces and within their ranks. “The general public are thriving on the media and the ‘green’ push and many do not realize how they are fed,” Mark and Kerry said. “Australia is quite a big country but our population is overwhelmingly urban and uneducated in rural activity.”

To combat that mindset, the industry’s public education efforts could include reminders of what their countries’ food chain may look like without the aerial application industry, the McDonalds suggested.

At the same time, aerial applicators, like all industries, remain handicapped by their worst performers. “We are all judged by the lowest common denominator and the worst performer,” Hurst said. “That is why AAAA has developed AAMS to try and differentiate between those operators who are trying hard on every front—good equipment, training, safe practices, systems, professional development, members of AAAA, Spraysafe accredited, AAMS accredited—and those very few who are decades behind and in some cases not even on label with their equipment.”

“The answer,” Hurst added, “is to keep doing what we are doing—publicly explaining what we do and why, promoting our professionalism, and delivering that to the highest possible standards for every spray job.” ■

*To access the McDonalds’ full report on “Managing and Developing Sustainable Aerial Application in an Environmentally Sensitive World,” please visit [www.churchilltrust.com.au/fellows/detail/3361/mark+mcdonald](http://www.churchilltrust.com.au/fellows/detail/3361/mark+mcdonald).*

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NAAREF and the PAASS Program express sympathy to all those who have lost loved ones or friends this year. We are extremely grateful to those families who, during their time of grief, decided to request that memorial donations be made to the PAASS Program. Those memorials will be used in the production of our PAASS safety and educational program with the goal of preventing injury or death to those engaged in the aerial application industry.

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# Insuring New Ag Pilots

By Doug Davidson  
NAAA Insurance Committee



**Editor's Note:** *This article originally appeared in the May/June 2009 issue. It is being reprinted at the NAAA Insurance Committee's request because the message of how to obtain insurance as a new ag pilot is an important one that bears repeating.*

It's the same old dilemma that I has confronted all of us whoever desired to fly for a living. How do I get insured without enough hours, and how do I get enough hours unless I can get insured? I don't profess to be smart enough to solve this age-old enigma in one short article, but I can give you some ideas on how to get the upper hand.

## Get Educated

There are a number of ways to make yourself a more attractive risk to an underwriter. Proper training is always a good start. I've never met an underwriter yet who didn't love training. Just for kicks, I logged on to the NAAA Web site and found an article that showcased four ag aviation schools. Although there's nothing like actual experience, these schools offer great simulated ag training. Many utilize ag aircraft with a dual cockpit.

These schools can take a beginner with no experience all the way to a prospective ag pilot with 250 hours. They also offer abbreviated courses that teach ag aviation to private or commercial pilots without ag or tail-wheel experience.

Attend a PAASS or *Compaass* Rose Program at one of the state or regional conventions. Both programs were designed to offer training and support to our industry ag pilots. PAASS is designed for the experienced ag pilot/operator and *Compaass* Rose is designed for first year or beginning ag pilots. *Compaass* Rose was originated in 2002 with the specific purpose of allowing new pilots a forum to ask questions and discuss issues in a "safe" setting where no questions are considered too basic or too easy. Most underwriters will insist on PAASS Program attendance, but will also reward your efforts by taking this training into account in their premium calculation.

## Get Connected

Don't be a "lone ranger." Join your state ag aviation association. Join

NAAA. As of 2010, if the ag school you attend is an NAAA member, you will receive a complimentary NAAA pilot membership upon your successful completion of the course. Attend your state or regional annual convention and trade show. Attend the NAAA Convention in Savannah (see pg. XX). Take time to work the exhibit hall and get to know the vendors that provide services and sell products to the ag aviation industry. Learn how we all work together to form the greatest agricultural production team in the world! Get acquainted with operators in your area. Get acquainted with other pilots.

This section is possibly the most important to gain insurability. I'm safe to say that an underwriter will rarely take a chance on a "lone ranger" 250 hour commercial pilot in an ag plane. However, given the proper set of circumstances, that same underwriter will frequently take a chance on that same 250 hour commercial pilot when working under the direct supervision of an operator/mentor who has proven to be a good manager and a good risk over many years. There's a lot more to being a good ag pilot than pushing the stick forward and pulling it back. Find an operator who is willing to pour his knowledge into a new ag pilot and who is willing to invest in your future. Keep in mind, it's entirely reasonable to expect this to come with

There are a number of ways to make yourself a more attractive risk to an underwriter. I've never met an underwriter yet who didn't love training.

some commitment from the new pilot to stay around for a while and give the operator a chance to re-coup some of his investment.

### Get a Plan

When I finished my flight training, I had the mistaken notion that Delta was somehow going to seek me out and hire me on the spot as a new captain. Never happened, THANK GOD! Don't expect to start flying a \$1.2 million dollar Air Tractor AT-802 as soon as you exit ag school with your 250 total hours. I don't care what it is you're trying to do, you need a plan. Insurance underwriters and agents love detailed plans. Keep it simple and reasonable. Crawl before you walk. Don't get impatient. Begin flying a lower valued aircraft that the underwriter and your boss are comfortable in sharing the risk. Where

it is possible, begin applying seeds and fertilizer. Create a plan to advance from seeds and fertilizer to insecticides and fungicides before progressing to 2,4-D or Roundup. Create a plan to move from a recip or a radial to a turbine. Get a plan that makes sense and provides enough time at each step to allow for a safe progression to the next phase.

### Conclusion

I recently obtained a seaplane rating at Jack Brown's Seaplane Base in Florida. Prior to my checkride, I learned that Jon Brown (Jack's son) had given more than 17,000 seaplane ratings over the last 33 years. I comforted myself in the probability that I was a better pilot than at least one of those 17,000 pilots who achieved their seaplane rating. And if so, I was sure I would pass the checkride. I DID!

At the next state or national convention you attend, observe a room full of ag pilots. All of these guys started out in the very same place you are standing. This should be an encouragement to you that your dream of being an ag pilot can be realized. They did it and so can you!

### Final Note

Consult with an insurance agent that specializes in ag aviation. Better still, confer with the agent of the operator/mentor you plan to work for to help create the best insurability plan for your particular location. ■

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*Is there an insurance matter you would like to learn more about or think would be of interest to Agricultural Aviation's readers? The NAAA Insurance Committee welcomes your suggestions. Please send insurance article ideas to [information@agaviation.org](mailto:information@agaviation.org).*

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# Not your Father's Crop Protection

By CropLife America Staff

The challenges to global food production are real and serious. Producing enough food, energy and fiber to meet the needs of people everywhere carries the utmost urgency. As we worry now about feeding a growing and changing world—where 25,000 people a day still die of hunger and malnutrition—the United Nations Food and Agriculture Organization says that global food production must still double by 2050, and that 70 percent of additional food needs can be produced only with new and adapting technologies. At the same time, we continue to see headlines about the negative impact of modern agricultural inputs, such as pesticides, on the environment and food itself.

But these are not your father's pesticides. As a result of intensive research and robust investment, modern agriculture companies have helped farmers double the production of world food calories since 1960 and increase per capita food supplies in the developing world by 25 percent, while maintaining a stable area of cultivated land since 1950.

The top 10 plant science companies invest nearly \$4 billion in research and development per year to develop new products. Even so, only one in 139,000 crop protection products make the cut from laboratory to farmers' fields.

Food crops compete with 30,000 species of weeds, 3,000 species of nematodes and 10,000 species of plant-eating insects. In the 1940s, 2,800 pounds of insecticides and fungicides were used per one million pounds of produced potatoes. Today, with modern, synthetic products, less than 8% of that is used to produce the same yield<sup>1</sup>. Currently in the U.S., two million acres of farmland are devoted to growing rice. Without crop protection products, it would take twice as many acres to provide the same supply. A century ago, one American farmer produced food for 2.5 people. Today, a single farmer can feed more than 130 people.<sup>2</sup> That's progress, of course, but it also underscores how the innovative drive of modern agriculture helps protect both crops and the environment through the use of breakthrough technology.

Science and innovation underpin everything modern crop protection strives for: maximizing productivity, safety and sustainability. The crop protection industry is one of the most research-focused in existence. The top 10 plant science companies invest nearly \$4 billion in research and development per year<sup>3</sup> to develop new products. Even so, only one in 139,000 crop protection products make the cut from laboratory to farmers' fields. Only the safest, most advanced products become the products that farmers will use every day to control insects, diseases, weeds, fungi and other pests.

Farmers face many challenges: feeding a burgeoning world population while conserving resources and serving as responsible stewards of the

environment. They turn to modern agriculture for solutions, including the development of innovative crop protection and production technologies. They expect that with sustainable practices—growing and harvesting more crops with less fertilizer, pesticides and fuel—future generations of farmers will expand their production to supply the world with sufficient food while continuing to serve as good environmental stewards. And manufacturers have strived to meet farmer expectations with tremendous advances in modern-day crop protection products. Today we have many highly advanced products that only affect specific pests, leave the environment more quickly and can be used at much lower rates because they are much more targeted and effective. Biotechnology, drip-irrigation techniques and conservation tillage systems, used with the latest fertilizer and pest management techniques, help the farmers of today enhance food production and address the pressing agricultural issues of tomorrow. In other words, this isn't your father's pesticide.

Crop protection manufacturers make tremendous advances every year in helping to create a sustainable supply of high-quality food and fiber through the use of innovative science and technology to protect crops from productivity-robbing pests and disease. In some cases, products increase crop productivity by up to 50 percent. Modern agriculture, producing more while using less land, water, energy and other resources for each unit of crop produced, is fulfilling the promise of tomorrow today. ■

1 Crop Protection Research Institute

2 The World Factbook, CIA

3 Phillips McDougall





## Continuing Improvements from Air Tractor on Display in Savannah

The Air Tractor AT-502B and AT-602 aircraft on display at the NAAA Convention will feature improved engine instrument gauges. The new oil pressure, fuel pressure and torque gauges received FAA certification in August and will be standard equipment in 2011 production aircraft.

“We’ve been evaluating wet line engine instruments from various manufacturers for several years,” reports Jim Hirsch, Vice President of Engineering at Air Tractor. “We are now working with a supplier whose instrument designs meet our quality and accuracy specifications. The new instruments have received FAA certification and our supplier is ramping up

production of the gauges for installation in 2011 model year aircraft.” Hirsch predicts pilots will notice an improvement. “At-a-glance readability and accuracy of these new gauges is much improved.”

Air Tractor now offers an optional, drag-reducing gatebox fairing for the AT-802. The new fiberglass fairing fits the popular Transland 10-inch hydraulic gate box. Flight tests show the fairing reduces air turbulence and fuel consumption. A test aircraft, equipped with a PT6A-65AG engine and flying at a typical working speed of 155 mph, experienced about four gph in fuel savings. A gate box fairing kit is now available from Air Tractor for the AT-802.

Air Tractor reports that five ag operators are field testing a new ram air filter during the 2010 spraying season. The new air filter design has shown better airflow characteristics and seals better to prevent dirt and debris from getting around the filter. Air filter project manager Kyle Schroeder notes that the field test results are being studied and evaluations of the new filters are continuing, with plans for new filters to be developed for all models equipped with the ram air inlet system.

For more information, visit the Air Tractor exhibit at the NAAA 2010 Convention & Exposition. ■

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The AG-NAV INC. team invites you to visit us at Booth # 110 during the 44th NAAA convention in Savannah, Georgia. 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.

September 30th marks our 25th year of manufacturing and service to the airborne industry. This milestone marks a great professional achievement and solidifies the commitment to our customers to offer high quality products and even higher quality customer support. 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.

Our SPRAYVIEWWW software has been very successful with helping our clients interface applied data to Google Earth. During the 2010 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 hardware suits the requirements for fixed wing aircrafts and helicopters. We have produced a small, medium and large size NAV-BAR. They are equipped with state-of-the-art technology and are able to give you four alphanumeric messages with four digits for each selection; thus, displaying more accurate information in real time. This new design is brighter than any other intelligent light bar on the market. It is lightweight and aerodynamically designed to fit any type of aerial application aircraft. All models will be on display at Booth # 110.

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.

Unlike other heavy and bulky systems on the market, the AG-NAV GUIA is packaged in a compact single unit to save space and reduce weight. The user-friendly software makes it easy to navigate through menus for set-up and real-time application and its built-in light bar is useful, convenient and sufficient for some operations. Installation and removal are done in a snap!

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 # 110 or contact us today at 1-800-99 AGNAV (24628). You can also visit our website at [www.agnav.com](http://www.agnav.com).

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Dues amounts are subject to change by NAAA Board.

*Operators & Pilots who do not belong to a State/Regional Aerial Application Association must pay Participating Operator or Participating Pilot dues.*

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- \$170  Affiliated Operator
- \$900  Participating Operator
- \$170  Pilot
- \$340  Participating Pilot
- \$450  Allied (1–10 employees)
- \$680  Allied (11–50 employees)
- \$850  Allied (51–100 employees)
- \$1,000  Allied (101–500 employees)
- \$1,700  Allied (500+ employees)
- \$170  Affiliated Allied
- \$85  Associate
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Dues, contributions or gifts to the NAAA are not tax deductible as charitable contributions for income tax purposes. Dues and similar payments may be deducted as ordinary and necessary business expenses subject to restrictions imposed as a result of the NAAA's lobbying activities as defined by Section 13222 – Omnibus budget Reconciliation Act of 1993 (IRS Code 162(e)). NAAA estimates the non-deductible portion of dues paid during calendar year 2009 as 17%. Agricultural Aviation subscription cost (\$30 for domestic, \$45 for international) is included in membership dues for all membership categories.

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## In Memoriam: Former NAAA President Ron Deck Passes

Ron Deck, an aerial application operator from North Dakota and NAAA President in 1990, passed away Sept. 9. He was 68. Deck was a longtime board member of NAAA and ably served in a variety of officer positions and committees for the Association. He was also operator of Sky-Tractor Supply Co. LLC in Hillsboro, N.D.

Deck was born in Harvey, N.D., in 1941. He grew up on a family farm near Harvey. After high school he attended St. John's University in Collegeville, Minn. He served in the U.S. Navy from 1961-66. While he was in the Navy, he began taking flying lessons at a local airport.

Deck received early instruction in agricultural aviation in Carson City, Nev. In the mid 1960s he and his wife Barbara moved to Goodland, Kan., for his first aerial application job. From there, they went to Reno, Nev., where he completed his commercial license with instrument rating and instrument



Ron Deck, 1941-2010

instructor rating in both fixed- and rotary-wing aircraft.

In 1970, he opened Deck Flying Service in Hillsboro, N.D., with a Piper J-3 Cub. His business eventually morphed into Sky-Tractor Supply Co., which operates three turbine ag aircraft and is a major ag aircraft service and

parts supplier. Sky-Tractor was an early promoter of GPS as an important technology in aerial application.

Ron was a leader within the aerial application industry and a true professional. In addition to his roles on NAAA's board, he served as president of the Red River Valley Aerial Applicators Association before it merged with the North Dakota Aerial Applicators Association. He received numerous accolades from NAAA and other organizations. The North Dakota Department of Agriculture awarded him with its inaugural Outstanding Pesticide Applicator of the Year in 1991. He was inducted into the North Dakota Aviation Hall of Fame last March.

Ron will be sorely missed by the industry. He attended and exhibited at NAAA's Annual Convention & Exposition for 38 straight years, and was a noticeable presence throughout the years at Sky-Tractor's booth at nearly all state aerial application association conventions.

Ron is survived by his wife Barb; children Peg (Tony) Klemetson, Cheryl (Steve) Fugleberg, Mike (Denise) Deck, Wendy (Jay) Alfson, Brian Egan and Audra (Gabe) Mayo; 14 grandchildren and three great-grandchildren; his mother Marie Deck, sister Kathy (Merle) Moen, and brother Herb (Peggy) Deck.

An H-509 Scholarship at Hillsboro High School has been established in Deck's memory. Memorial contributions may be sent to the Ron Deck Scholarship at Dakota Heritage Bank, P.O. Box 208, Hillsboro, ND 58045. ■

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# NAAA Taps 14 Individuals for 2010–2011 Leadership Training Program

Congratulations to the newest participants in the NAAA/Syngenta Leadership Training Program. The following candidates were selected for the 2010–2011 program:

- **Tommy Anderson**, Arkansas  
Agricultural Aviation Association
- **John Bartholomew**, Iowa  
Agricultural Aviation Association
- **Douglas Biessenberger**, Louisiana  
Agricultural Aviation Association
- **Chris Bradford**, Illinois  
Agricultural Aviation Association
- **Donald “DJ” Fischer**, South Dakota  
Aviation Association
- **Chad Frei**, Pacific Northwest  
Aerial Applicators Alliance

- **Franklin Howe**, Florida  
Agricultural Aviation Association
- **Gary Jerger**, Minnesota  
Agricultural Aircraft Association
- **Christopher Nolta**, California  
Agricultural Aircraft Association
- **Eugene Shanks Jr.**, Texas  
Agricultural Aircraft Association
- **John Thomas**, Nebraska  
Aviation Trades Association
- **Brandon Visser**, Idaho  
Agricultural Aviation Association
- **Jayse Wharam**, North Dakota  
Agricultural Aviation Association
- **Nick Yoder**, Indiana  
Agricultural Aviation Association

skills vital to leadership. Over the years, more than 200 ag pilots and operators have completed the course. Many have gone on to serve as outstanding leaders within NAAA, their state associations and their communities.

NAAA would like to extend special thanks to Rex Martin, Syngenta’s head of industry relations, and Steve Powell of Bouvier Kelly who continue to make the Leadership Training Program a valuable and successful experience for everyone involved. Syngenta has sponsored NAAA’s Leadership Training Program since the beginning, a partnership that enters its 16th year with the 2010–2011 program.

The first round of training for this year’s participants coincided with NAAA’s Fall Board Meeting Oct. 15–17 in San Diego. The training wraps up at NAAA’s Spring Board Meeting Feb. 11–13, 2011, in Washington, D.C. ■

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NAAA’s Leadership Training Program provides valuable instruction in the areas of public affairs, media relations, government affairs, association programs, team building and other

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# NTSB Accident Report

Date	City	State	Aircraft Type	N #	Injury	Description of Accident
05/22/10	Lake Placid	FL	M-18A	80188	None	Hit tree on landing along 60' wide strip
06/10/10	Alcolu	SC	AT-402B	5085Q	None	Hit tree—sun glare obstructed vision
07/06/10	Garfield	WA	AT-301	8878S	None	Fuel exhaustion
07/09/10	Deshler	OH	S-2R	4992X	None	Power loss—hit trees and ditch on landing
07/10/10	Muncie	IN	M-18A	92640	None	Hit power line—landed at airport
07/10/10	Roswell	NM	OH-58A	415NS	None	Hit power line
07/11/10	Lake Village	AR	AT-602	42590	None	Hit power line
07/13/10	Independence	IA	G-164B	8260K	None	Hit crop while going under power line
07/14/10	Blackstone	IL	MK6B	17H	Minor	Hit crop after encountering dust devil
07/16/10	Edmore	OK	AT-301	8774S	None	Boom caught tall grass on airstrip
07/17/10	Cairo	NE	PA-25-260	9522P	Minor	Settled back onto ground after TO
07/19/10	Roseville	PA	Bell 206B	302MG	None	Hit power line while spraying river
07/21/10	Prescott	WA	G-164B	7502A	None	Unable to get airborne on TO—hit fence
07/21/10	Toulin	IL	AT-401	45297	None	Power loss—forced landing in corn field
07/22/10	McCook	NE	S2R	51AR	Serious	Collided with parked A/C while taxiing—A/C fuel exploded
07/23/10	Whittemore	IA	AT-502B	4203E	None	Unable to get airborne on soft airstrip



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Date	City	State	Aircraft Type	N #	Injury	Description of Accident
07/23/10	New Hampton	IA	Bell 206B	40TA	None	Hit power line
07/24/10	Rochester	MN	Bell 47G-4A	124SH	FATAL	Collided with terrain for unknown reason
07/25/10	Galesburg	IL	AT-602	8521L	Minor	Power loss—forced landing
07/28/10	Newport	TN	OH-58A+	48LA	Minor	While on ground, 2' of main rotor separated
07/28/10	Saint Olaf	IA	Bell 206B	275RA	Minor	Hit power line—flying toward the sun
07/28/10	Zwingle	IA	AT-502B	6030U	Minor	Hit power line—flying toward the sun
07/29/10	Holly Hill	SC	UH-12E	104HH	Serious	Power loss—hit tree on autorotation
07/29/10	Montezuma	IN	Ce T188C	2085J	None	Power loss—damaged on forced landing
07/29/10	Petersburg	TX	PA-36-285	57706	None	Hit post while flying under power line
07/31/10	Kountze	TX	OH-58A	3055D	Serious	Fuel exhaustion suspected
08/04/10	Donaldsonville	GA	S2R-T34	4004D	None	Power loss—hit trees and terrain on landing
08/06/10	Meridian	CA	M-18	70461	Minor	Power loss—force landed in rice field
08/08/10	Lindsay	NE	AT-802A	802BG	FATAL	Stall during turn
08/11/10	Tracy	CA	G-164B	6781K	None	Power loss—damaged on forced landing
08/19/10	Buckeye	AZ	G-164B	48455	Serious	Ran off runway—impacted tree on aborted TO
08/26/10	Castroville	TX	AT-401	4530L	None	Power loss—hit trees on forced landing

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	17. I certify that all information furnished on this form is true and complete.		

(signed) Jay Calleja, Managing Editor



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