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FEDERAL REGULATIONS

Believe it or not, a number of federal policies benefit the aerial application industry

ALSO INSIDE:

- Shining the Spotlight on Nighttime Applications
- Pollinator Decline Poses Dilemmas for Applicators
- Harrison Ford's Aerial Application Connection

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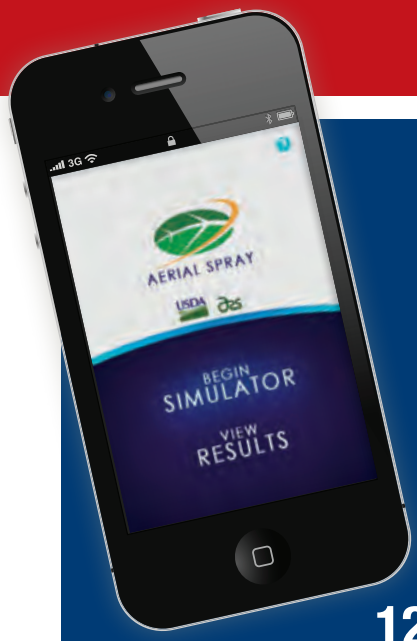

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President's Message

Dana Ness

The Power of Personal Contact

It is a great honor and a real pleasure for me to represent NAAA at the many state conventions and the Canadian Aerial Applicators Association's convention that I have attended over the last few months. I have enjoyed meeting the many great people I have come across in these travels as well as seeing how the different state associations work hard for the industry. It has been informative to see how the state associations interact with their respective regulatory agencies. The one common theme I have come across is that most areas need more moisture going forward. Time will tell on that.

Over the past couple of years NAAA has asked the industry to contact their elected officials in Washington in support of H.R. 872, a bill that would exempt NPDES permits for pesticide applications. H.R. 872 passed the U.S. House of Representatives in 2011, but it got bottled up in committee and never made it to a vote before the Senate in the last Congress. H.R. 872 expired at the end of the 112th Congress, starting the clock over on our legislative relief efforts, which are underway now. On March 6, a bipartisan group of lawmakers introduced H.R. 935, the Reducing Regulatory Burdens Act of 2013. This bill would amend FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and the Clean Water Act to clarify Congressional intent and eliminate the requirement of the NPDES Pesticide General Permit. Once again, I would ask everyone in the industry to contact their representatives in the House and Senate and rally support to help pass this much-needed piece of legislation.

NAAA recently completed its Spring Board Meeting in Washington, D.C. These were very productive and informative meetings, with many industry issues being addressed. I attended meetings on Thursday before our meeting began with the FAA and a couple of Senate offices and had lunch with Representative Sam Graves from Missouri. The FAA meeting was to follow up on previous overtures NAAA has made advocating for expanding the scope of the Agency's MET tower marking guidance to apply to all towers less than 200 feet AGL. We had a good dialogue. The Association also is looking forward to seeing what the FAA has to say when it releases its feasibility study on the viability of creating a database for tower locations.

NAAA President Dana Ness and Montana Board representative Darrin Pluhar flank Rep. Sam Graves (R-MO) during a February visit.

The visits to the Senate offices were to defend the industry against attempts to implement user fees, and to seek an agricultural exemption if such fees are implemented. The networking that is accomplished during these visits goes a long way toward maintaining the good relationships NAAA maintains with many lawmakers.

*PAASS*ing Grades

I have had the pleasure of attending the PAASS Program at most all of my visits to state conventions, and I continue to be impressed with the quality of this great program. The message is strong, and it never got old because each PAASS presenter added their own personal stories to deliver the message of safety and professionalism in their own unique style.

Thanks to all NAAA members for their membership. You are part of a great organization that stands as the frontline of defense for the entire industry. It is my firm belief that our ability to provide aerial application services would be dramatically reduced if we did not have this strong professional organization that is so well respected in Washington, D.C. ■

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Executive Director's Message

Andrew Moore

Pay Your Own Way

The talk of the town—at least in the Washington, D.C., metropolitan area—has been sequestration, which is an agreement between Congress and President Obama to make across-the-board federal government spending cuts totaling $1.5 trillion over 10 years. On March 1, $85 billion in mostly discretionary spending cuts went into effect for 2013. This is big and ominous news in DC. Twenty-one percent of its workers earn federal salaries and are now preparing to be furloughed to comply with the sequestration. Nevertheless, federal spending needs to be addressed.

The current federal debt is fast approaching $17 trillion and has grown by over one trillion dollars a year since 2006. Uncontrolled entitlement spending (Medicaid, Medicare, Social Security) is a large reason for runaway debt growth, as these programs account for 62 percent of federal spending. When no agreement can be made to reduce the growth of federal entitlement programs[1] and more money has to go to interest as a result of the growing debt, fewer dollars will be allotted to discretionary government programs. If this current trend continues in 2015 the annual sequestered budget cuts will be more than $100 billion in discretionary spending and rise to over $150 billion in 2021. Discretionary spending includes things like USDA agricultural research, the issuance of patents and trademarks, space exploration, and FAA services ranging from air traffic control services to aircraft augmentation approval.

> Right or wrong, budgets are tight and we appear to be facing a new norm where we might have to wait longer for services or simply may not receive them at all.

Government policies can certainly be unnecessary and burdensome to aerial application businesses, but some programs can be useful and are important to the aerial application industry (see cover story on pg. 12). But unless the government gets some sort of revenue windfall or reforms entitlement spending, we may have to learn to live with fewer of the more relevant federal services available to us currently or pay our own way for them.

The FAA recently announced that it will close 149 federal contract towers as a measure to address spending cuts from sequestration. A number of these airports have aerial application operations conducted from them. In some cases having no towers will not be too problematic. Operations will just follow standard traffic patterns prescribed for non-towered airports, like they did before the tower was added to the airport. But in some cases having a tower removed will provide some serious challenges. For example, in California's Salinas Valley aerial application operations are mandated to be in contact with the Salinas Municipal Tower when their cloud ceiling is below 1,000 feet if they want to fly within a five-mile radius of the tower. There is more than $8 billion and 200,000 acres of produce in that area, and the aforementioned ceiling pretty much continually exists until 11 a.m. every day from June through August. The FAA has threatened closing that tower, which would ground traffic during key application times (after 11 a.m. it is usually too windy to apply), allowing mold and mildew spores to ruin the lion's share of vegetable crops usually combated by the area's aerial applicator elite.

Now this site and scores of other relatively small airports across the country with similar tower services that are set to close due to the FAA's share of sequestration cuts may have to get used to a new way of doing business. This

1 According to the Brookings Institute entitlements cost as much as 10 percent of the GDP today, which, if unchanged, will grow to 16 percent by 2035.

Despite politicians' timidity to tackle entitlement reform—the real budget buster—the federal debt issues are too large and becoming too ominous to do nothing.

may also include fewer FAA employees in charge of granting STCs, medicals and 137 operating certificates. Sharp criticism has been directed at the White House budget office by general aviation (GA) organizations on decisions to close control towers and scale back aviation services. GA groups argue the risks to aviation safety are unjustifiable and more rational savings can be found.

Right or wrong, budgets are tight and we appear to be facing a new norm where we might have to wait longer for services or simply may not receive them at all. As such, we need to prepare for these things by planning in advance to deal with likely approval delays and being extra vigilant when it comes to safety should we lose monitoring services at some airports.

State programs that provide pesticide education training are also struggling due to federal resources from USDA and EPA that are drying up. These training programs play an important role toward the renewal of pesticide licenses for commercial pesticide applicators. As a result of these dwindling funds, these state programs are considering tapping new revenue sources such as chemical companies and nozzle and equipment manufacturers similar to what NAAREF has done for the PAASS Program. This very well may result in more competition for NAAREF to generate funding for our award-winning and life-saving stewardship programs as these state programs hunt and compete for alternative funding. We also may be losing EPA funding for the program that has been helpful over the years. Both these private and public sources of funding have allowed the program to be subsidized to PAASS Program attendees.

NAAA met with USDA Agricultural Research Service (ARS) leaders recently and was told federal aerial application research would be facing a five percent funding cut this year. NAAA has been instrumental in preserving and even increasing this funding for the past 12 years, but with the sequestration squeeze on discretionary dollars and other aforementioned fiscal issues lurking, cuts could become more and more severe. Many important technologies and techniques commonplace in our industry today, like mitigating drift and enhancing aerial application efficiency, have been invented, tested or fine-tuned at these ARS aerial application facilities. If we want to stay ahead of the technology curve we may need to plan for alternative funding sources which could include forming a "checkoff" program. Many different agricultural organizations have established "checkoff" programs, which collect funds from its producers and use these funds to promote and do research on the commodity. An option is for the aerial application industry to do something similar to have a steady stream of funds coming in solely for research.

Despite politicians' timidity to tackle entitlement reform—the real budget buster—the federal debt issues are too large and becoming too ominous to do nothing. Funding of discretionary federal programs touching the aerial application industry is being affected because discretionary programs are the only ones allowed on the chopping block. The new norm to prepare for is getting less and paying more to develop suitable alternatives. If you think that "sequester" is a Washington word that doesn't touch your professional life, as discretionary cuts get deeper and deeper, you may be forced to think again. ■

WNAAA President's Message

Dona Jorden

The WNAAA's Enduring Foundational Values

The Women of the National Agricultural Aviation Association (WNAAA) traces its beginnings to the fall of 1976. The main focus was, and still is today, the need to educate and communicate the importance of the agricultural aviation industry to the public and related industries. The formation of this group was prompted by an in-depth discussion during the 1976 NAAA Convention in Las Vegas by a group of women with the desire to ensure the vitality of the ag aviation industry for years to come. During that discussion a number of vital points emerged, including the need to:

- Communicate the purpose of aerial application to the public to raise awareness about the vital contributions it makes to agriculture and society.
- Host education programs at the annual convention to increase women's understanding of the ag aviation industry.
- Assist in the development of literature and educational materials.
- Encourage wives to attend state and local meetings.
- Encourage wives to organize student tours of the business facilities.
- Educate non-members of the benefits of NAAA.

With each new generation, women are becoming more involved in the industry. They are bringing with them new ideas and different perspectives to the organization.

From these points came the purpose for forming the WNAAA organization. The organizers of the auxiliary sought the advice of Dick Reade, NAAA's very first president, who stressed that the new group should maintain the cohesiveness of NAAA. It was agreed that the auxiliary would work within the framework of the existing NAAA organization. The auxiliary was structured along regional lines, with additional categories for wives of allied industry members, pilots and international members of NAAA. The officers for the organization were selected, action committees were formed, regional directors were elected and, thus, the WNAAA organization was born.

As we look back now, 38 years after our founding mothers put their heads together, it is interesting to see how far the organization has come. The WNAAA continues to move forward in a positive direction.

- The Athena Project was developed to strengthen client and customer relationships. Another component of the program is teaching support personnel within an aerial application operation how to create a more efficient, stress-free work environment conducive to pilot safety.
- Each member of the WNAAA now has the opportunity to apply for admission into the NAAA/Syngenta Leadership Training Program. The goal of this program is to develop strong, knowledgeable leaders and advocates for the agricultural aviation industry.
- The WNAAA awards a $2,000 scholarship to winners of the WNAAA Annual Scholarship Essay Contest. Each year, the theme of the contest relates to the promotion of the agricultural aviation industry in some way. The theme of this year's contest focuses on "The role Ag Aviation Has Played in Shaping My Life."

The WNAAA uses fundraising efforts such as merchandise sales at the NAAA Convention to support education, communication and safety programs for the agricultural aviation industry.

- During the NAAA Convention the WNAAA raises funds to support education, communication, and safety programs for the ag aviation industry. This is done through a silent auction, merchandise sales at the WNAAA booth and raffle ticket sales.
- The WNAAA also assists NAAA by attending several agriculture-related conventions. In addition to extolling the virtues of agricultural aviation, our targeted outreach efforts generate interest in the industry among students and teachers and market aerial application services to farmers.
- WNAAA Directors are now selected at a state level and are not limited to spouses of NAAA members.

These are just a few small examples of the positive changes that have taken place since the WNAAA was established. With each new generation, women are becoming more involved in the industry. They are bringing with them new ideas and different perspectives to the organization. It's important that we continue to educate the next generation about the importance of agriculture and aerial application, and encourage their involvement as members of NAAA and WNAAA.

Today the WNAAA continues to work hand and hand with NAAA to establish public awareness of the importance of ag aviation industry and the significant role it plays in feeding the world. Let us never lose sight of that purpose. ■

Washington Report

NAAA, Fellow GA Groups Host Harrison Ford on Capitol Hill

Actor Harrison Ford addressed legislators and legislative aides at a GA Caucus event on Capitol Hill. The rolled up paper Ford is clutching in his hand is an NAAA briefing sheet about the aerial application industry. Ford was in town at the invitation of Rep. Sam Graves (seated at right), a friend and fellow pilot.

On March 19, the House General Aviation (GA) Caucus, co-chaired by U.S. Reps. John Barrow (D-GA) and Sam Graves (R-MO), held a discussion about general aviation issues on Capitol Hill with Academy Award nominee and pilot Harrison Ford. NAAA was a co-host of the event along with 10 other general aviation organizations. Ford used the time to discuss the likely economic and safety issues that would occur should almost 200 contract air traffic control towers close as FAA is proposing. He also discussed the negative effects that would occur to our aviation and overall economy should aviation user fees be implemented as will likely be proposed in President Obama's upcoming FY 2014 budget. The event was attended by numerous members of the House of Representatives, media and their staff.

Ford, probably best known for his acting roles as intergalactic space pilot Han Solo in the Star Wars films and archeologist Indiana Jones in the film franchise that bears the same name, is a passionate pilot and humanitarian who described how flying helped reinvent his life some 20 years ago. The actor, with NAAA's website and logo-etched banner adorning the stage behind him, called on Congress to encourage the FAA to find other ways to redistribute its budget that did not necessitate closing contract towers. "It's about safety and jobs," Ford stressed during the one-on-one conversation with Graves before a crowded House hearing room. He went on to talk about sequestration and the impact that closing of hundreds of towers would have on the small airports with towers in jeopardy. Ford specifically mentioned ag aviation and its importance in treating 20 percent of our nation's crops as one of the crucial roles general aviation plays in the U.S. and the dire affects that user fees and tower closings would have in grounding such general aviation operations. Graves thanked Ford for his advocacy on behalf of general aviation and for bringing a spotlight to significant issues affecting the industry.

Ford accepts an aerial application factsheet from NAAA Executive Director Andrew Moore at a private briefing prior to the GA Caucus event.

NAAA Executive Director Andrew Moore was able to visit with Ford prior to the General Aviation event and discussed the statistics about aviation's service to protecting agricultural crops nationwide mentioned above with him. Ford told Moore that the initial examiner for his private pilot check ride was an aerial applicator from Idaho, NAAA member Max Gibson. Gibson operates Western Aviation Inc. in Blackfoot, Idaho.

Ford's visit to Capitol Hill comes on the heels of the Senate deciding not to include an amendment proposed by Sen. Jerry Moran (R-KS) to a bill to fund federal agencies for the remainder of the year. The Moran amendment would have redistributed FAA funds to keep the contract towers in question open. The Senate passed H.R. 933 on March 20 and the House passed it on the 21st. It now awaits President Obama's signature.

NAAA is appreciative of Congressman Graves and his staff for their work in setting up the GA Caucus event with Ford. The Association will continue to oppose user fees and monitor the effects of sequestration on aerial application. The FAA plans to close 149 contract towers on June 15. ■

★ Federal Regulations ★ Affecting Agricultural Aviation:

NOT ALL ARE HINDRANCES

Believe it or not, a number of federal policies benefit the aerial application industry

Ronald Reagan once quipped, "The nine most terrifying words in the English language are: 'I'm from the government and I'm here to help.'" Indeed, as an industry predominately comprised of small businesses, those words can strike fear into the heart of an aerial applicator. Fortunately, not all government agencies fit that aforementioned "tongue in cheek" description, and even those that do, often bely some form of beneficial repercussions. Despite recent virtual gridlock within Congress, agricultural aviation has been fortunate to achieve and maintain several valuable successes in terms of monetary and regulatory relief. However, amidst the many federal regulations that impact the industry, trying to determine if they are detrimental or truly provide some tangible benefits for you and your business can sometimes be a fine line. Before you make up your mind, we encourage you to read on because you just might be surprised at exactly what the government is doing—or not doing, that is advantageous for aerial applicators.

USDA-ARS Aerial Application Research Funding

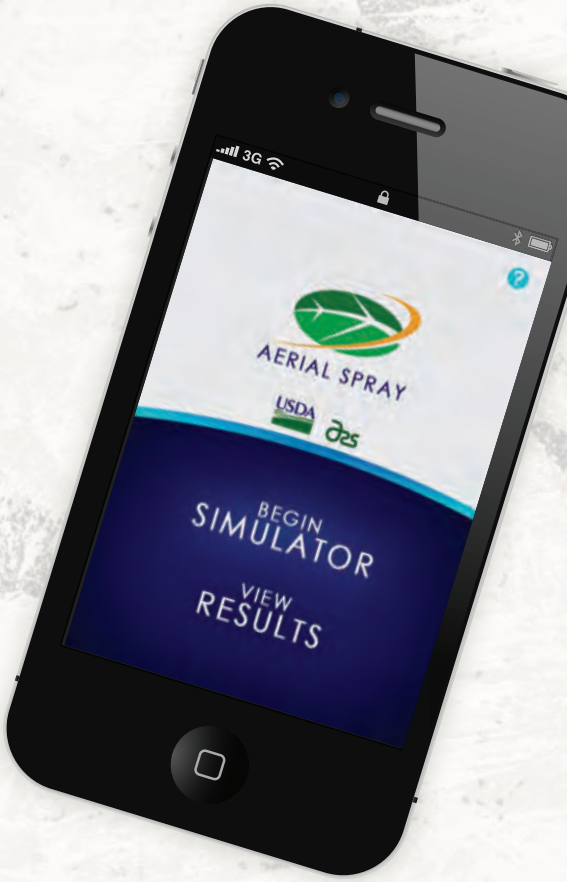
It's been said that a company is only as good as its employees, and while the Aerial Application Technology (AAT) group with the USDA-ARS in College Station, Texas, and the Application and Production Technology Research Unit (APTRU) in Stoneville, Miss., don't directly work for NAAA, they certainly do outstanding work on behalf of the aerial application industry. The research conducted by the AAT and APTRU has resulted in the design of aerial application technologies, tools and procedures that mitigate drift, make aerial application more efficacious and result in fuel savings. And, in a number of instances, it is as a direct result of their work and the development of these technologies, tools and procedures that NAAA has been able to keep regulatory agencies at bay from promulgating and enforcing overly restrictive application and security rules.

One of the biggest and most important projects completed by the AAT group was the creation of the Aerial Spray Nozzle Models in 2004, which are continually being updated with new nozzles and spray mixes. The group also studies drift reduction additives using both laboratory and field trials, conducts research related to weather conditions and drift, is involved with EPA's Drift Reduction Technology

Program (DRT), discussed in more detail below, and conducts various projects examining the effectiveness of aerial application scenarios. As one of the most commonly used developments of the AAT group, the spray atomization models with smartphone apps allow aerial applicators to input their application parameters and determine what size of spray droplets they are producing. Having the ability to determine spray droplet size has proven especially valuable in preventing unnecessary security regulations in the aftermath of 9/11. Concerns existed that terrorists would use an ag plane to disperse biological weapons, but to be lethal these materials must be inhalable and disbursed in very small droplets. AAT scientists have invalidated fears that terrorists could easily misuse an ag aircraft for a chemical attack, as ag aircraft sprayers are built to disperse relatively large particles at high pressures and are not easily modified, thereby rendering useless an immediate theft and subsequent attack.

Currently, the ARS is testing a fusion of both remotely sensed imagery and ground sampling to develop precise prescription maps for aerial application. It is also testing a system known as Aircraft Integrated Meteorological Measurement Systems (AIMMS) and its ability to measure real-time wind speed and wind direction to provide guidance in spray treatments and conducting an evaluation of efficacy and drift from conventional and electrostatic spray applications. These tests and evaluations are both advantageous to the environment and to farmers' profitability. Not to mention that data from AAT and APTRU research projects are often used within modules for the Professional Aerial Applicators' Support System (*PAASS*) program to educate approximately 1,700 ag pilots and operators nationwide on an annual basis, and that new research being conducted by the group is presented each year during the American Society of Agricultural and Biological Engineers (ASABE) session at the NAAA Convention.

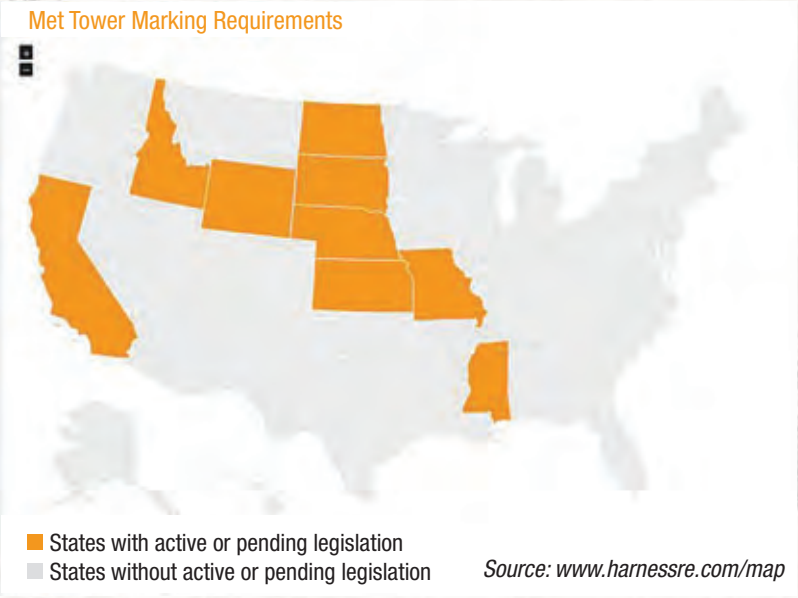
The work of the AAT and APTRU group is invaluable and provides the aerial application industry with an unbiased source of information that is used to improve the accuracy of applications and develop reasonable regulations for the industry. As a result of this important work, for the past 11 years (2002–2012) NAAA has been successful in lobbying Congress and the USDA to increase federal funding for aerial application research by an additional $5.8 million. For fiscal year 2013 the Association has had success in securing language supportive of aerial application research in the House and Senate Agriculture Spending Bill Committee report, but sequestration will result in cutting five percent from the program as all federal discretionary spending faces across-the-board cuts. With the federal debt continuing to rise, significant spending cuts will undoubtedly continue as well. Federal agricultural research dollars will likely be affected, and NAAA will be working overtime to ensure minimal fallout to federal agricultural aviation technology research.



Aerial Sprays was the first app designed specifically and solely for aerial application. Released in late 2011 by the USDA-Agricultural Research Service's Aerial Application Technology group, the app incorporates the USDA-ARS spray nozzle models (10 for fixed-wing aircraft; nine for helicopters).

Marking of Low-Level Obstacles

During the 10-year time span from 2003 to 2012, based on NAAA records, 7.2 percent of aerial application fatalities were the result of collisions with towers. The FAA, responding to NAAA's constant requests, released its long-awaited guidance in 2011 for marking Meteorological Evaluation Towers (METs) less than 200 feet AGL in remote and rural areas. The Agency recommends painting METs with alternating bands of aviation orange and white, placing high visibility sleeves on the guy wires and attaching aviation orange cable balls to the outer guy wires. The FAA has still not formally published AC No. 70/7460-1; however, the new marking



guidance may be found on the FAA's Federal Register notice announcing the changes at *www.federalregister.gov/articles/2011/06/24/2011-15746/marking-meteorological-evaluation-towers*. While the FAA federal MET marking guidelines are not specifically mandatory, the new guidance is substantial because they would, according to the FAA's Office of Chief Counsel, very likely result in liability for a tower company whose tower was struck as a result of not marking the tower.

The FAA is quick to remind those attempting to protect pilots from low-level obstacles that it has preemption over federal airspace and "aviation safety"; however, the Agency has communicated to NAAA that local, county and state ordinances can be developed, so long as they do not exceed the federal statute and are termed appropriately to act in the interest of "public safety," not aviation safety. As such, several states have been successful in passing state tower marking laws or regulations. This includes a tower-marking bill (AB 511) in California (prompted by the tragic death of aerial applicator Steve Allen in 2011 after colliding with an unmarked tower) passed last August. Additional laws were passed in 2012 that mandate any temporary or permanent guyed tower 50 feet or more in height in Idaho be lighted and marked beginning in July 2012 and that require safety marking of anemometer towers located outside of city limits and 50 feet or more in height in Missouri. These latest states with tower-marking laws join the already provisioned states of Kansas, North Dakota, Mississippi, Nebraska, South Dakota and Wyoming, which already have some form of tower marking laws or ordinances in place.

Most recently NAAA has led efforts that resulted in the inclusion of language in the FAA Reauthorization Bill directing the Administrator of the FAA to conduct a study to determine the feasibility of developing an online public resource that would list the location and height of potential low-altitude aviation obstructions, such as guy-wire and free-standing towers. NAAA is keeping close tabs on the study's development to ensure it is finished and favorably reports on the development of a tower location database. While the Association realizes this would substantiate strictly

NAAA ADVOCACY IN ACTION

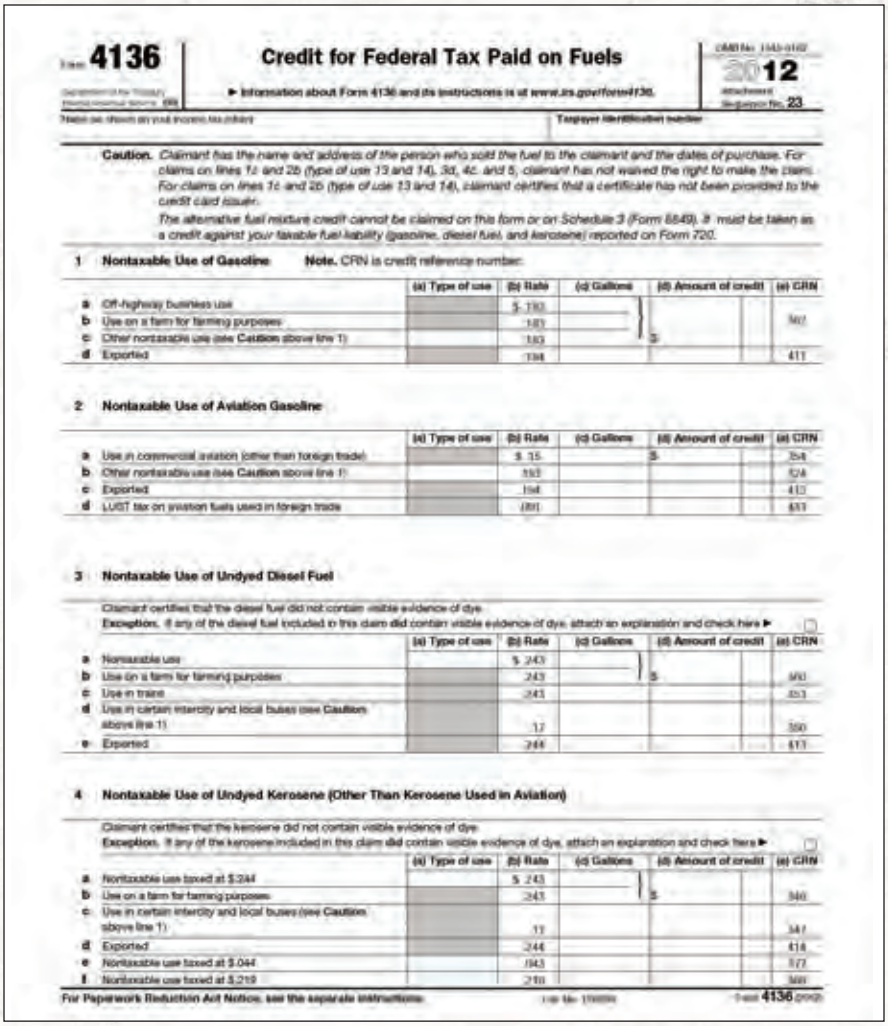
Then NAAA President Rick Richter (second from right) testified April 2011 before the House Small Business Subcommittee on Agriculture, Energy and Trade on the effect of fuel prices on small businesses.

In November 2011, Colorado aerial applicator Leonard Felix testified before the House of Representatives, Small Business Committee, Subcommittee on Agriculture, Energy and Trade about the impact of the newly enacted NPDES permits. He owns Olathe Spray Service Inc. in Olathe, Colo., and was speaking on behalf of NAAA. His testimony highlighted that while long hours and risks are expected in the aerial application profession, the burdens and risks associated with the NPDES permits are not something the industry needs or wants. A better solution, Felix suggested, would be for Congress to pass legislation that would not require NPDES permits for mosquito, forestry and other pesticide applications made over or near water due to FIFRA's environmental protections in these areas.

a voluntary database and would not be combined with the already existing required FAA database delineating towers more than 200 feet in height, simply having a voluntary database to begin recording tower locations would be another step in the right direction in the federal government protecting low-level pilots from the many unknown dangers they confront on a daily basis. Additionally, because the FAA AC only provides guidance for marking MET towers, NAAA will continue to seek expansion of the AC and pursue guidance for marking of all types of obstacles and towers 50 feet AGL—guy wired and free-standing alike.

Ag Aviation Tax Credits and Exemptions

Operating an aerial application business is certainly not an inexpensive endeavor or for those looking to make a quick buck in a short amount of time. Fortunately the federal government does have in place several incentives to lessen the tax burden on one's wallet. Perhaps the most monetarily beneficial federal policy for aerial applicators is the federal aviation fuel tax exemption. In 2005 NAAA successfully lobbied Congress to enact legislation providing more than $4 million in additional annual federal fuel tax relief for U.S. aerial applicators. The law ended the requirement for aerial applicators to obtain waivers from their farmer-customers in order to qualify for fuel excise tax-relief. In addition, the law enables aerial applicators relief from federal excise taxes associated with fuels consumed while ferrying to and from cropland. The reason the exemption is part of the tax code is because it is to benefit farmers who are exempted from other fuel taxes such as those levied on diesel. Other reasons are because the industry operates primarily outside of controlled airspace and primarily use their own private use landing strips.



Form 4136 — Credit for Federal Tax Paid on Fuels — 2012

Caution. Claimant has the name and address of the person who sold the fuel to the claimant and the dates of purchase. For claims on lines 1c and 2b (type of use 13 and 14), 3d, 4c, and 5, claimant has not waived the right to make the claim. For claims on lines 1c and 2b (type of use 13 and 14), claimant certifies that a certificate has not been provided to the credit card issuer.

The alternative fuel mixture credit cannot be claimed on this form or on Schedule 3 (Form 8849). It must be taken as a credit against your taxable fuel liability (gasoline, diesel fuel, and kerosene) reported on Form 720.

1 Nontaxable Use of Gasoline — Note. CRN is credit reference number.

	(a) Type of use	(b) Rate	(c) Gallons	(d) Amount of credit	(e) CRN
a Off-highway business use		$ .193			
b Use on a farm for farming purposes		.183			867
c Other nontaxable use (see Caution above line 1)		.183		$	
d Exported		.184			411

2 Nontaxable Use of Aviation Gasoline

	(a) Type of use	(b) Rate	(c) Gallons	(d) Amount of credit	(e) CRN
a Use in commercial aviation (other than foreign trade)		$ .15		$	364
b Other nontaxable use (see Caution above line 1)		.193			524
c Exported		.194			410
d LUST tax on aviation fuels used in foreign trade		.001			633

3 Nontaxable Use of Undyed Diesel Fuel

Claimant certifies that the diesel fuel did not contain visible evidence of dye.
Exception. If any of the diesel fuel included in this claim did contain visible evidence of dye, attach an explanation and check here ▶

	(a) Type of use	(b) Rate	(c) Gallons	(d) Amount of credit	(e) CRN
a Nontaxable use		$ .243			
b Use on a farm for farming purposes		.243		$	860
c Use in trains		.243			853
d Use in certain intercity and local buses (see Caution above line 1)		.17			350
e Exported		.244			413

4 Nontaxable Use of Undyed Kerosene (Other Than Kerosene Used in Aviation)

Claimant certifies that the kerosene did not contain visible evidence of dye.
Exception. If any of the kerosene included in this claim did contain visible evidence of dye, attach an explanation and check here ▶

	(a) Type of use	(b) Rate	(c) Gallons	(d) Amount of credit	(e) CRN
a Nontaxable use taxed at $.244		$ .243			
b Use on a farm for farming purposes		.243		$	340
c Use in certain intercity and local buses (see Caution above line 1)		.17			347
d Exported		.244			414
e Nontaxable use taxed at $.044		.043			877
f Nontaxable use taxed at $.219		.219			349

For Paperwork Reduction Act Notice, see the separate instructions. Form 4136 (2012)

NAAA successfully lobbied Congress to enact legislation providing more than $4 million in additional annual federal fuel tax relief for U.S. aerial applicators.

NAAA has been successful in providing aerial applicators full relief from the federal excise taxes levied on both aviation gasoline (avgas) and kerosene used in aviation, but the rules for taking tax credits or refunds are different depending on the fuel used. With avgas, an aerial applicator may claim a tax credit as the ultimate purchaser of the fuel, but cannot claim a refund, while with kerosene the ultimate purchaser may choose to make the claim or waive their right to the registered ultimate vendor.

Another extension included in the American Taxpayer Relief Act of 2012 (ATRA) beneficial to many aerial application businesses is the so-called Bonus Depreciation and Section 179 business provisions. The Bonus Depreciation allows businesses to take an additional depreciation deduction allowance equal to 50 percent of the cost of the depreciable property. This is a good thing for aerial application operations purchasing big equipment items such as aircraft and engines. The Section 179 tax provision allows a taxpayer with a sufficiently small amount of annual investment to elect to deduct the cost of certain new or used property placed in service for the year rather than depreciate those costs over time. For a complete explanation of tax credits and refunds on fuel, as well as the bonus depreciation and Section 179 provisions, please refer

to the March/April edition of *Ag Aviation* which can be found at www.agaviation.org.

Overall, NAAA's past fuel tax relief efforts save the aerial application industry approximately $20 million a year, but what Congress giveth, Congress can also taketh away. NAAA is committed to protecting these beneficial and justifiable exemptions, but with fiscal pressures collapsing in on the federal budget everything is open for consideration, which means NAAA has its work cut out for it.

Small Business Administration Advocates for Ag Aviation

If ever an industry typified small business, agricultural aviation would be it. With an average of two operating aircraft and 5.1 people on staff, aerial application businesses are often a family and multi-generational affair. As such, it is advantageous to have a federal agency in your corner, and the Small Business Administration is just that—providing an independent voice within the government for small businesses. If you have not been to the SBA website (www.sba.gov), you may be surprised with the amount of helpful information located there. This includes information on starting and managing a small business; developing a business plan; navigating through licensing and regulations; getting loans and grants; qualifying for government contracting; and even tools for online training or to see how your small business stacks up against the competition.

In addition to these services, the SBA's Office of Advocacy helps small business sectors have an effective lobbying voice in the federal rulemaking process. Typically this involves meeting with lawmakers and agency officials on behalf of small business interests; providing written comments on potential impacts of a proposed rule on small businesses; providing Congressional testimony; and generally working to ensure federal agency or White House compliance with the Regulatory Flexibility Act and Small Business Regulatory Enforcement Fairness Act. Several presidential Executive Orders (e.g., EO 13272 – *www.sba.gov/content/executive-order-13272-august-13-2002*) reinforce SBA's authority to stand up for small businesses and ensure all federal agencies comply with the laws protecting small businesses. As a result, prior to issuing final procedures and policies, federal agencies must notify the SBA of any draft rules that may have a significant economic impact on a substantial number of small entities and give every appropriate consideration to any SBA comments regarding a draft rule. Often SBA's involvement results in changes being made by agencies or the White House to rules as they are developed to avoid unintended economic impacts on small businesses.

NAAA worked successfully with the SBA Office of Advocacy during negotiations with the Environmental Protection Agency (EPA) as it developed requirements for its aquatic pesticide general permit under the Clean Water Act's National Discharge Elimination System (NPDES). NAAA and SBA provided extensive demographic and economic data from the NAAA member surveys and other sources, and argued effectively for

reduced requirements under the EPA permit rule. Those data documented that for-hire applicators do not have the resources or authority to meet the rigid requirements as "decision-makers" such as state or regional mosquito control districts, federal agencies or large land management entities (e.g., railroads or public utilities rights-of-way managers) who are responsible for pest control decisions. As long as for-hire applicators do not assume the role of "decision-maker," the NPDES permit requirements are reasonably close to stewardship and recordkeeping practices of FIFRA and state laws.

In addition to advocating on behalf of small businesses, the SBA has been in the spotlight recently as many parts of the country deal with multiple natural disasters and the dilemma of how to rebuild and repair their places of business. As such, the SBA offers disaster loans for any business or private nonprofit organization located in a Federal Emergency Management Administration (FEMA) declared disaster area that has incurred damage as a result of the disaster. The loan is to be used to help replace damaged property or restore it to the condition it was in prior to the said disaster. The FEMA declared disaster areas can be searched at *www.fema.gov/disasters*. The SBA makes physical disaster loans of up to $2 million to qualified businesses or private nonprofit organizations. According to the SBA website, the disaster loan proceeds may be used for the repair or replacement of real property, machinery, equipment, fixtures, inventory or leasehold improvements. Additionally, disaster loans to repair or replace real property or leasehold improvements may be increased by as much as 20 percent of the total amount of disaster damage to real estate and/or leasehold improvements as verified by the SBA to protect against future potential disasters of the same type. Businesses may apply directly with SBA for possible assistance. The SBA will send an inspector to estimate the cost of damage once a completed loan application is submitted. For more information on whether your business may be eligible and the process for obtaining a disaster loan, visit *www.sba.gov/content/physical-disaster-loans*.

SBA's effectiveness has caught the attention of government watchdog groups who in early 2013 attacked the SBA's Office of Advocacy, urging Congress to pass legislation to strip the SBA of its authority to intervene

Destruction of an aircraft is a federal offense. In March, 69-year-old James R. Cate of Talpa, Texas, was sentenced to 18 months in federal prison and ordered to pay $297,000 in restitution for shooting at an ag plane working near his property. Another Texan, Stephen Paul Riley, 41, of Olney, Texas, faces up to 20 years in prison after admitting to shooting and striking an ag plane flying near his property multiple times. He is due to be sentenced on May 21.

on behalf of small businesses. NAAA and other agricultural organizations will need to monitor the situation closely, as we do not want Congress to be misled by the lobbying of these watchdog groups.

Criminal Statutes Protecting Pilots from Intentional Harm to Aircraft

It is unfortunate that such laws are needed, but federal criminal statutes that serve as protections to pilots that are either threatened or harmed while flying an aircraft exist to protect airmen. They are covered in 18 U.S. Code § 32, titled Destruction of Aircraft or Aircraft Facilities. This federal code makes it an offense to willfully attempt to damage, destroy or disable any aircraft. Discharging a firearm at an aircraft would certainly fall under this code. The penalty, if the defendant is found guilty, could be a monetary fine or imprisonment of not more than 20 years or both. Additionally, 18 USC § 34 states if a death of any person results from a crime prohibited by this chapter, the person shall be subject to the death penalty or to life imprisonment. On a number of cases use of these statutes has put the bad guys away that have shot and damaged agricultural aircraft.

The FBI has informed NAAA that investigation of aircraft shootings are typically handled by local law enforcement officials. Often, local law enforcement is better able to investigate because they know their area of jurisdiction and its residents better than federal authorities. In shooting incidents that occurred to ag pilots in 2012, the lion's share of investigations were done by local law enforcement, but the FBI office tends to be kept up to date on the investigations' progress. Just because an incident is not investigated by the FBI does not mean it is ignored or if a person is found guilty, they will not be prosecuted as severely. The penalty in state court may be as severe as in federal court or more so depending on the specific charges for which the guilty party is convicted. The FBI suggests if pilots are unable to get local law enforcement assistance then they should contact federal law enforcement to investigate.

Drift Reduction Technology (DRT) Program

As an industry, aerial applicators are staunchly committed to mitigating drift, and as such, advocate the most effective way to ensure on-target pesticide applications while maximizing agricultural land use is through the education and use of modern technologies, and continued research into these technologies. EPA is developing a drift reduction technology (DRT) certification and implementation program. This proposed DRT program is designed to identify technologies that have verified spray drift reduction capabilities and accelerate the use of them by providing incentives for companies that manufacture them and applicators that use them. NAAA supports the concept of rewarding applicators that use DRTs; however, the verification process should not be overly burdensome and costly for DRT manufacturers to the point that it provides no financial incentive for them to manufacture these drift mitigating technologies. NAAA has asked EPA to go back to the drawing board to propose a more workable and embraceable DRT program for the industry. All the same, EPA has proposed some interesting incentives which include a proposed star rating system that would ease application restrictions such as buffers. For example if a DRT reduces drift by 75 percent or more it would receive a 3-star rating and would likely be granted equivalent buffer zone reductions; a DRT reducing drift 25–49 percent would be granted 2 stars; and no stars would be granted if drift was reduced less than 25 percent. All this is relative to how the potential drift compares to standard technology.

DRTs, according to the Agency, include advanced nozzle designs, boom shielding, adjuvants and other technologies designed and verified to significantly reduce the percentage of driftable fine particles relative to larger particle sizes; increase the directed deposit of pesticide product on the targeted plants; and reduce spray drift under conditions encountered in farming and other uses of sprayed pesticides. Other technologies used in aerial application that NAAA is urging EPA to qualify for DRT status include the use of on-board smokers and AIMMs, which adds an additional layer to the precision ag system by incorporating a real-time onboard wind speed and direction measurement system.

Testing nozzles in its high-speed wind tunnel is one of the ways the Aerial Application Technology group provides cutting-edge research for the aerial application industry.

Keep in Mind

Regardless of whether you believe in a free market approach or are more of a managed economy believer, our government does and will continue to have a say in regulating businesses. Of the more than 3,500 federal rules (regulations) enacted each year, determining if the costs outweigh the benefits is practically impossible. Examining solely the numbers, the Obama Administration's Office of Management and Budget (OMB) would point to the fact that within the last 10 years (2001–2011) the benefits of federal regulations are estimated at between $141 billion and $700 billion, while the costs are estimated at a mere $43.3 billion and $63.7 billion (Draft 2012 Report to Congress on the Benefits and Costs of Federal Regulations). The outlier in this equation arises because true costs and benefits are not always easily definable or predicated to numbers and dollar figures alone. Whether you agree with the OMB figures or not what is important to remember is that as a member of the National Agricultural Aviation Association, we are here to advocate on your behalf to prevent and/or mitigate federal regulations that are unnecessary and burdensome to your small aerial application business. Conversely, we have and will continue to work with the government to take positions to aide this invaluable industry and its crucial mission to help protect public health, forestry and help produce food, fiber and biofuel.

Whether we like it or not, the government is a fact of life. NAAA strives to extol the benefits of aerial application to the public and the federal government in an effort to ensure agricultural aviation's continued success as an integral part of agricultural production in the U.S. ■

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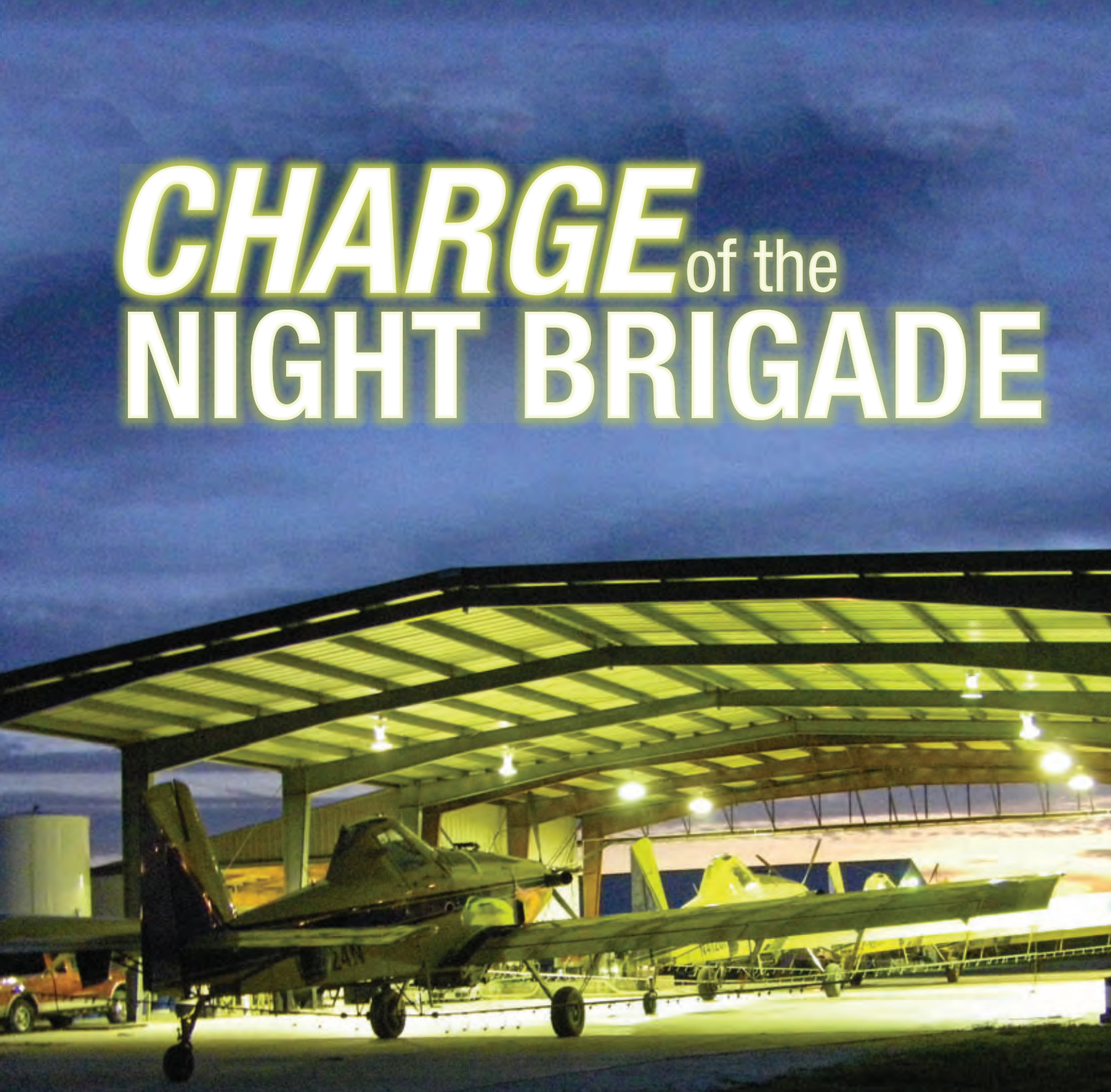
CHARGE of the NIGHT BRIGADE



Shining the Spotlight
on Nighttime Applications

By Jay Calleja
Manager of Communications

At the end of a hot summer day when most aerial application operations are winding down after a busy day's work, the day is just getting started for an army of aerial applicators in Arizona, California and elsewhere who toil through the night to apply crop protection products under the cloak of darkness. Working the graveyard shift is a fact of life for agricultural pilots in areas where nighttime applications are the norm, and outside of some good-natured grumbling about ungodly hours, truth be told, they seem to prefer it that way.

"That's really the worst part of night flying is having to be here, but we know we have to be here. It messes up the rest of your life," said operator Doug Thiel of Thiel Air Care Inc., Chowchilla, Calif., with a slight laugh.

"You fly all night and you sleep during the day. So in some respects it's a little harder on the family life," said operator John Pew of Custom Farm Service of Arizona and Sarita Aerial Contractors Inc. in Coolidge, Ariz. "Some of the guys used to talk about going to restaurants and wanting to order a steak dinner, because for them it's their dinner time and everybody else is in there eating eggs and bacon."

Those sacrifices aside, operators perform nighttime applications for a variety of reasons. Some of the most common are to get the work done when the fields are clear of workers, to protect pollinating bees, temperature concerns or all of the above (see sidebar on pg. 27 for more reasons). For obvious reasons, the need for cockpit safety becomes even more pronounced when ag pilots work at night, but the operators who do it insist that with a clear plan and a thorough understanding of the area it is not only safe but in some respects safer than working during the day. We queried several aerial applicators who engage in nighttime operations to learn more about the benefits and challenges of applying for the aerial night brigade.

The Night Shift

In places like the Arizona desert where summer temperatures easily exceed 100 degrees, the oppressive heat alone is reason enough to hold off until cooler temperatures prevail. "When you start getting these 115, 120-degree days, you just can't be out there in the daytime spraying," Pew said. "We'll do almost all of our insecticides at night in the summertime when the temperatures are cooler and you have less evaporation and the product can hang around on the plant a little longer. It becomes a temperature problem then, as well as the bugs that we're trying to get are nocturnal."

Pew has six Air Tractor 802s between his two operations, which cover both sides of the Salt River Valley in Central Arizona, not far from Phoenix. Four are used strictly for agricultural applications and two are for wildland firefighting.

Doug Thiel of Thiel Air Care Inc. in Chowchilla, Calif., stands next to his Air Tractor 802 shortly after midnight on a late March night of ag flying. The plane is outfitted with various lights, including two turn lights angled outward at the end of both wings.

The night season for his companies starts in June and continues into October, but they can be called on to fly at night at any point during the year.

"We're an operation here in Arizona where we can never shut the doors," Pew said. "We're 12 months and you might say a 24-7 operation."

Down in the southwest corner of the state in Yuma, Ariz., night flying is the rule, and day runs are the exception for Morris Ag Air & Sons Inc. "We're almost exclusively night," operator Miles Morris said. "The only time we go away from that is occasionally we'll get all our orders in and we have all our materials before dark, so we'll do a couple of loads before it gets dark. Or if there happens to be some herbicide or a really super tight field to get into as far as power lines or obstacles, we'll do that in the daytime."

Produce is big business in Yuma, and Morris Ag Air makes applications on everything from broccoli and cauliflower to onions to lettuce, spinach and cabbage. Morris suggested that tradition has as much to do with why Arizona's aerial applicators work at night as anything else. "There's people that fly produce all the time in the daytime, but here we just don't," he said. "I think it's just something that evolved with the cotton years."

Before Bt cotton was invented, pink bollworm and bollworm used to be the main pest threat in Arizona. "Ten years and prior ago, 90 percent of our work was cotton work, and those bugs were all active at night. That's when you had to do it," Pew said. Because the insecticides they use have a longer residual now, spraying cotton at night isn't as necessary now.

In addition to avoiding field workers, the fact that Pew's operations aren't far from Phoenix necessitates nighttime flying because the area has gotten so built up. "There's just so much traffic, and you're close to town and up against subdivisions, that you've got to work at night when the people aren't out and active. You don't have joggers trying to run through the field and people riding their bike. They're all home asleep," Pew said. "If you tried to do that work in the daylight hours you'd never get it done."

Thiel Air Care is located in Central California in the San Joaquin Valley, a robust agricultural area with a diverse mixture of crops. With six turbine Air Tractors (one Air Tractor 802, two AT-502As and three AT-502-34s), Thiel Air Care sprays wheat, alfalfa, corn, lettuce, broccoli, onions, garlic, grapes and several permanent crops such as almonds and pistachios. Almost all of that is done at night and includes organic applications as well as conventional jobs.

Night applications start around May 1 and end around Oct. 15, but the sweet spot is the peak summer months during the busiest part of Thiel's season. "From June to the end of August typically 85

Sulfur is loaded into the hopper of an ag plane at Lakeland Dusters Aviation Inc. in Corcoran, Calif. Lakeland Dusters makes night applications on a regular basis.

percent of the applications are at night. I hardly do any daytime flying myself."

Workers in the field are the biggest reason for nighttime applications in Thiel Air Care's area. "There's a lot of harvest crews and weeding crews," Thiel said. "Also, a big reason is bees. That will dictate when we do a lot of the work. The county wants those crops sprayed from two hours after sundown to one hour before sunrise to give the material time to dry before the bees start to forage."

In Idaho, the main ag flying season lasts about five months, from May through September. In Valley Air LLC's area in Caldwell, Idaho, the ratio of night to daytime applications is about 50-50 during the months of June, July and August.

Valley Air is located in a big seed area. According to operator Bruce Hubler, the two things that necessitate nighttime applications there are pollinator activity during the day and because the alfalfa seed crop has to be sprayed at night. Alfalfa seed is pollinated by leafcutter bees, and the bee boxes that house them remain in (or adjacent to) the field overnight, which means whatever product is applied has to be safe to spray around bees. "It has to be something that acts quick—something that kills the bugs, so when the bees come out of box in the morning it won't hurt them. Because they're going to go out and work the very field that you sprayed."

Valley Air flies turbine Thrushes and turbine Dromaders and plans to use four of its five airplanes this season. Because they do both day and night work during the summer, Hubler's crew normally works a split shift in the summer starting at 6 p.m. The reason for a split shift, as opposed to working straight through the night, is because the bee field applications need to be finished by around 2 a.m. to give the chemical time to dissipate before the bees start to come out once the temperature rises in the morning. Hubler describes the less-than-ideal schedule as follows: "You're shutting down at 2 in the morning and getting a few hours of sleep, and getting back up at 5 o'clock, and you start doing morning work and going until about 10 or 11 in the morning. Then you're shutting down and jumping back in the rack and getting some sleep."

Getting proper rest is especially important for pilots and crew working nights, and operators need to keep a watchful eye out for signs of fatigue. It is imperative that pilots and ground personnel working the night shift adjust their schedules so they can get enough sleep in the morning to return to work fresh in the late afternoon or early evening.

Night Lights

To work under the shroud of darkness, the aircraft has to have proper exterior and interior lighting. Pew uses a standard Air Tractor nighttime system on his airplanes. The setup consists of one 600-watt wing-mounted light in

LIGHTS ON FOR SAFETY *John Pew of Custom Farm Service of Arizona and Sarita Aerial Contractors Inc. in Coolidge, Ariz., uses the standard Air Tractor nighttime lighting configuration on his AT-802s, but he says Air Tractor actually got the idea for the nose light from him. "I came up with those nose lights years and years ago," Pew said. "Leland Snow liked the idea and started manufacturing them in the nose of the airplane himself, which is great."*

each wing, two 450-watt lights on the nose of the plane and a turn light in each wing that shines out at a 45-degree angle. Some operators add additional forward lights under the wings, but most airplanes are lighted the way Air Tractor or Thrush would configure them, Pew said. Morris Ag Air's fleet consists of eight aircraft: six late '70s turbine Thrush planes and two turbine helicopters. The planes are equipped with three forward-facing, 800-watt porch lights. In addition, they have four 450-watt porch lights. Two of them face forward, and two are turn lights angled out to the left and right. The turn lights point down toward the ground when the pilot is in a bank, providing depth perception and ground reference.

"A lot of times you can see better directly in front of you, but you just don't have as much peripheral vision as you do in the daytime," Morris said.

Nighttime applicators depend on their night lights at some points more than others. "When there's a nice big full moon out there, you can see the farms almost without turning your lights on," Pew said. "It's just amazing—you can make out the whole farm, you can see all the roads, you can see the buildings and everything just from the natural moonlight. Then two weeks later it's pitch black again and you're back on the edge of your seat."

Working fields that truly are in the middle of nowhere is the eeriest aspect of night applications. "Some of our farms that are way out from the cities and [devoid of] any lights will keep you on edge. That's not a lot of fun," Pew said. "It's kind of like driving down a new road in the middle of the dark. You know the road goes forward, but you don't know what's coming up around the corner."

Night Safety

The most important tools for any ag pilot are the ones he is equipped with from the neck up. "I've been flying at night since 1987, and it's really overblown in a lot of ag pilots' minds. It's really not that hard," Thiel said. "Usually the air is a lot cooler, so the airplanes are flying a lot better. The engines run cooler. As far as seeing stuff, you have to learn how to look for stuff. That includes knowing your area really, really well, and you have to know how to use your rudder to move your lights around."

That's not to say he just jumps into his AT-802 and heads off into the night. Planning and coordination are important components of any aerial application job, but mission planning takes on even greater importance during nighttime operations. "We don't ever spray a field at night that

Visions of Night Applications

An NAAA survey finds that roughly 30 percent of operator respondents engage in nighttime applications

BY KEN DEGG, NAAA DIRECTOR OF EDUCATION & SAFETY

NAAA recently conducted a short online survey of operators in the aerial application industry to see if they made applications during the hours of darkness. The intent was to quantify the amount of this important type of application work and judge the potential acceptance of new technology in night vision goggles (NVG) by pilots currently operating at night. The survey was completed in January 2013 and covered operations for the 2012 calendar year. The operators were asked to report operational totals on all aircraft in their operation.

NAAA emailed survey invitations to almost 1,200 member and non-member operators. The survey was mentioned in an NAAA eNewsletter issue as well. A total of 211 operators responded to the survey. Of these, 71 percent said they did not do night applications and 29 percent said their operation did apply at night. The night application percentage of operators responding to the survey may have been influenced by our request for NVG information, which would have attracted responses from more nighttime than daytime operators. Based on the 2012 NAAA Aerial Application Industry Survey, NAAA estimates there are a total of 1,350 part 137 operations in the U.S. This sampling of about 15 percent of the businesses does show a substantial amount of work accomplished at night.

Respondents that perform night applications were asked to select from four choices of why they flew at night. They were allowed to select more than one choice or to write in their own reasons. Fifty-six operators chose as follows:

- 27 said "to protect pollinators" – 48% of nighttime applicator respondents
- 31 said "laborers in the field during the day" – 55% of nighttime respondents
- 38 said "temperature lower at night" – 68% of nighttime respondents
- 25 said "other" – 45% of nighttime respondents

In the explanation of "other," 9 cited "less wind at night"; 6 said they "performed mosquito treatment or control"; 3 apply at night "to complete a field"; 2 each cited "constraints of time" and "24 hour crop protection (i.e. frost prevention)"; and 1 respondent apiece mentioned each of the following reasons: wind direction, reduced sun degradation, constraints of weather, daytime weather, increased insect activity, increased aircraft performance, chemical temperature restriction and spraying feedlot of jumpy calves.

Fifty-six of those night flying respondents answered the question, "If allowed, would you consider the use of improved NVGs to make your nighttime application safer?" Sixteen percent (9) said "no" and 84% (47) answered "yes."

Operators engaged in night flying were asked to report how much of their applications was at night compared to daytime either by hours flown or acres treated. Thirty-seven respondents submitted acre totals indicating they treated 5,786,000 total acres in 2012, of which 1,641,000 were at night. This calculates to 28 percent of their total acres being the result of nighttime applications.

Thirty-seven respondents answered the question by hours flown. They reported 45,504 total hours, of which 11,737 were flown at night. Night operations made up 26 percent of their hours flown.

Much could be gleaned from the comments entered on the survey. A majority of operators currently applying at night were in favor of NVG use as well as any technology to increase safety. As several operators said, they are already working in this environment, so why not use any available tools to make it safer and reduce stress? Others with previous experience with NVGs weren't sure the technology would be good enough to depend on at near-ground-level operating height.

It became apparent that many of the operators not currently doing night applications might be interested if they felt it could be done safely and economically—especially if night vision goggles technology advanced to the point that resolution and field-of-vision could be greatly improved.

Some of the objections to flying at night were summed up by one commenter who said, "I like to sleep at night." ■

we don't know," Thiel said. "If we don't know it, we'll either go look at it or wait until we get a time when we can spray it right after daylight in the morning the first time. Usually, almost always, somebody in the company has flown that field."

As an added safety measure, having a flagger, or field finder, meet the aircraft at each field to point out wires and other obstacles is helpful but not absolutely necessary, provided the pilot knows the area well. Often a field finder will travel in a vehicle with a yellow rotating beacon on the roof, which helps the pilot find the correct field. Identifying the correct field at night can be a challenging, especially when adjacent fields are of the same shape and crop, but advances in GPS technology have aided pilots immensely in that regard. Shapefiles spatially describe geographic features, and now that nighttime pilots can integrate them into their global information software and GPS system, their ability to locate fields and keep their dimensions and obstacles in order has improved greatly. "Shapefiles make our life so much easier," Thiel said.

The flagger will usually arrive ahead of the aircraft and verify that the field is free of people by driving around the sides of the field with a spotlight. They might also use a handheld anemometer to take a wind reading. Thiel Air Care runs four crews at night and one in the daytime during the summer. Every airplane is accompanied by a field finder in the evening. The field scouts use handheld Q-Beam spotlights to preflight the field and remain on site while the pilot sprays the field. "The scout calls the wires to us on the radio even though we do know them every time we spray it. It's not something to take lightly," Thiel said. "You have to know the field, and then you have to have a good memory too, because scouts do at times miss wires."

Thanks to satellite imagery, Hubler rarely utilizes flaggers anymore. "That's changed over the years. When I was a young kid and the flagger, I would be the one that would go out and map and identify obstacles," he said. "If you have an iffy field you might have to actually go out and take a look at it, but nowadays a lot of the scouting is done though zooming in through Google Earth and identifying the obstacles that way."

Sometimes the obstacles are simply too great to work a given field at night. Large power lines are Pew's biggest headache. He says that several on-demand power plants have been constructed in his service area south of Phoenix metropolitan area. In turn, giant power lines have sprouted up throughout the valley. "These are huge 175-foot, 180-foot-tall power

lines," Pew said. "I've just told the farmers we're not going to work at night around those big wires because you just can't see them. And they understand that."

Nighttime Enthusiasts

"There are a lot of advantages to flying at night, and there are a lot of things to worry about other than you can't see," Thiel said. "You don't have as many people around, and especially in California not being seen probably takes a lot of our worries away."

Being unencumbered by outside distractions is one of the benefits of nighttime flying. Another advantage in high-heat areas like Arizona and California is that the conditions get much better at night when the temperature cools off. The effectiveness of some crop protection products diminishes above certain temperatures. There's less evaporation at night, which enables an insecticide to coat the crop better and attack more pests. The conditions also tend to be calmer at night, which is more of a mixed bag. Nighttime applicators need to be aware of the potential for inversions and may need to manage their droplet sizes a little differently because of that.

When you think about nighttime applications from a pilot's perspective, the safety precautions that pilots need to heed spring to mind first, but there is one big safety advantage that Pew really appreciates when's he's out at night: being able to spot other aircraft working around him. "Because of their strobe lights and work lights, I can look around the whole valley when I'm flying and spot every one of my airplanes, and my competitor's airplane. In the daytime you don't see the other airplanes," he said. "The safety of that is tremendous."

Thiel has some straightforward advice for anybody considering nighttime applications. "Just keep your head about you and know your field. Get really comfortable with the airplane, and have a mission-oriented approach on every job and you'll be fine. You're going to be surprised at how easy it is."

Since staying safe is paramount, it's impossible to overstate the importance of nighttime safety precautions. So on a final note, remember this advice from someone with 27 years of nighttime ag flying experience. "Wires and obstacles in the dark should never be taken lightly," Thiel said. "Most any wire negotiated in the daytime can be negotiated at night, but it better be completely understood. Don't ever try to figure them out in the dark." ■

"Most any wire negotiated in the daytime can be negotiated at night, but it better be completely understood. Don't ever try to figure them out in the dark."

—Doug Thiel, Thiel Air Care Inc.

Pollinator Decline Necessitates Caution by Aerial Applicators

By Scott Schertz
Schertz Aerial Service Inc., Hudson, Ill.

In my opinion aerial applicators are currently facing a potential cascade of forces that warrant enhanced considerations on some of our operations. In the pollination industry, a phenomenon called colony collapse disorder (CCD) has been in the news since 2006. There are developments in the attention to CCD that are worrisome and merit the attention of our industry. I have had the opportunity to represent the aerial application industry, on behalf of NAAA, for most of the last six years on the Pesticide Program Dialogue Committee (PPDC), an EPA Federal Advisory Committee on pesticide policy. As such, pollinators have been a frequent topic of discussion in that forum. It has also been a topic in a workgroup I am part of under the PPDC dealing with pollinator health issues. In addition to the EPA role, I also work with several other agriculture industry committees in Washington, D.C., that interact with this issue. Across the board, I have found that many regulatory, political and scientific efforts are underway to define, study and "fix" the potentially devastating problem surrounding CCD. Outside of the U.S., Europe and South America are also calling attention to this subject. While the scope of this article represents only a small consideration out of the complete catalogue of all the efforts and attention directed toward the situation, it is worthy of our serious consideration nonetheless.

Almond grove pollination will be a good indicator of how healthy the bee population was through the winter because 60 to 80 percent of the nation's commercial beehives are used to pollinate almonds.

About this time last spring there was a good start to the year for many hives. This year is a considerably different situation, as shown by the lack of available healthy hives for pollination of the California almond crop. Somewhere around 60 to 80 percent of the nation's commercial hives are utilized in that crop, thereby providing an indication of the overall health and numbers of hives. There are many possible and some probable reasons (such as high numbers of parasitic mites) for recent high overwintering losses.

While this does not fit the typical example of a colony collapse, it does put stakeholders in bee health on notice. The situation is further complicated by the fact that native pollinators come up in the conversation from time to time as also being affected. In fact, at the end of March beekeepers, environmental and consumer groups, including Beyond Pesticides and Pesticide Action Network North America (PANNA), filed a lawsuit in Federal District Court against the

EPA for its failure to protect pollinators from dangerous pesticides. The coalition seeks suspension of the registrations of the insecticides clothianidin and thiamethoxam, which these new plaintiffs state "have repeatedly been identified as highly toxic to honey bees, clear causes of major bee kills and significant contributors to the devastating ongoing mortality of bees known as colony collapse disorder (CCD)."

The colony collapse situation has motived the pollination industry to become more organized and active in political circles. Several state and national trade associations represent commercial bee operations, and an even greater number represent amateur beekeepers. The concern has grown to the extent of forming a national Pollinator Defense Fund with the announced purpose of pursuing litigation. Additionally, in my view, a considerable degree of consultation is taking place between these beekeeper organizations and groups that have pesticide use limitations as their main apparent goal. Point in case, on March 15 Sen. Barbara Boxer (D-CA) held a Senate staff briefing on pollinator issues with many of the groups referenced here providing testimony. The discussion then and now is not solely limited to crops that require pollination services though. In fact, many groups tend to be more active in attempting to limit crop protection activities in crops that do not require pollination such as cotton, soybeans and corn. As an aerial applicator it is imperative you are aware of the situation even if your grower customers do not host bee hives, as hives may be located on very small plots of land with no grower connections, or by nearby "hobby" beekeepers.

Issues revolving around pollinator loss and aerial application of insecticides have been litigated over the last 70 or so years. The 1949 case of Lenk v. Spezia (Cal. Dist. Ct. App. 1949) set the stage that pre-notification of aerial insecticide applications put a responsibility on the beekeeper to move or protect his hives. The land rights are further reinforced by Bennett v. Larsen (348 N. W. 2D 540 Wis. Ct. App 1984), "Because land possessors have the right to reasonably use their property as they see fit, and because bees tend to enter property and there is little the land possessor can do to prevent their entry, there should be no common law duty owed to protect the bees on the property, except that the land possessor cannot intentionally or wantonly destroy the bees." With history and the courts on a landowner's side, bee health and beekeeper concerns become a very precarious environment for applicators to navigate.

As has been reported in the media, much of the bee advocacy attention

is focused on the neonicotinoid class of insecticides. Such insecticides have many uses in agriculture, such as seed treatment and some foliar uses—much of which is done by aerial applications. Some beekeepers that have very large operations may not actively interact with their hives, as they may have thousands of hives across many states at one time. However, the discussion becomes especially intense when there is any intersection of these neonicotinoid products or other insecticides while plants, including weeds, are flowering in or close to a treated field. Many of the beekeeper representatives contend it is a label violation to use bee-toxic insecticides at those times. I believe many in our industry realize that effective pollinating times are often when crops need insect protection the most. The interpretation of a pesticide label that mentions when a field is "visited" or "actively visited" by pollinators can predicate requirements for both applicators and beekeepers, when states already have a viable regulatory framework in place. It is my belief that case law and many state laws put nearly equal responsibility on commercial beekeepers and pesticide applicators to allow for the protection of crops while assuring minimal acute bee losses. Many states require the registry of hive locations as well as some beekeeper responsibility for moving or covering hives upon advance notification of insecticide applications. They also put very real responsibilities on applicators as to when spraying may take place, at what distance from hives and when notification is required of spraying to take place in proximity of bee hives.

While every aerial applicator and aerial retailer must understand the scope and respective responsibilities under state law, a heightened awareness and responsibility for bee health is my expectation for the season ahead of us. To have access to some form of protection as aerial applicators under state law, you must understand and actively comply with your perceived responsibilities. With so much attention placed on bee health, any acute bee losses may correlate into intensified interest and potential liability to applicators and retailers. Based on my experience and the regulatory discussion I've been privy to, I would encourage all of us in ag aviation to heed caution when treating with insecticides—neonicotinoids in particular—and to help ensure bee health in whatever manner possible as we complete the application season. ■

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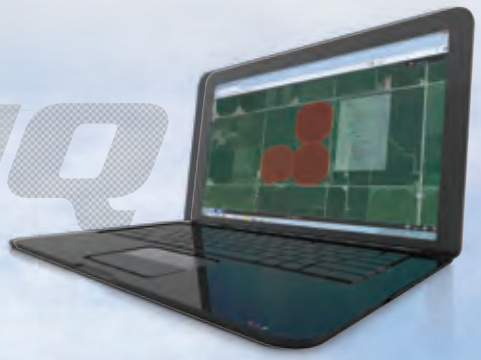

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Why Do YOU Buy Insurance?

By J.T. Helms
NAAA Insurance Committee

WHEN A CLAIMS ADJUSTER hands you a check or has just settled your liability claim, it is easy to grasp the benefits of purchasing insurance. However, in the absence of a claim, the lack of otherwise tangible benefits can make some buyers think they are not receiving anything in return for their premium.

Insurance policies are known as aleatory contracts, meaning their coverage must be triggered by an unforeseen event and might not be triggered at all during the contract. There are many benefits that insurance coverage provides. For instance, banks normally require physical damage coverage on equipment when providing a loan. Contracts you enter into may also require some assurance that the obligations of the contract can be met despite unforeseen events, and insurance can provide that promise of continuity. In an effort to provide their own peace of mind, many buyers purchase aircraft physical damage coverage as a way to ensure their aircraft would be repaired or replaced in a timely manner after a covered loss.

The liability portion of the insurance policy also provides benefits other than legal defense and handling of claims. Chemical liability coverages or other proof of financial responsibility are required by states of operators applying for a license to spray chemicals. Liability coverages offer their own peace of mind to aerial applicators. Liability coverages ensure operators have means to make whole anyone should they be adversely affected by their aerial application within the limits of the policy. In essence, carrying appropriate liability coverage and limits can be thought of as a promise by the operator to be a good steward to both the customers they serve as well as people and their property over which they fly.

Insurance policies are known as aleatory contracts, meaning their coverage must be triggered by an unforeseen event and might not be triggered at all during the contract.

You may not be aware of it, but you might be offering some of your coverage to others. There are two main ways this occurs on an aviation insurance policy: waivers of subrogation and additional insureds.

Subrogation involves one insurer seeking reimbursement from another insurer for claims it paid that were caused by the actions of the other insurer's policyholder. A waiver of subrogation eliminates that option. For example, after handling a claim in a timely manner to provide continuity to their insured, an insurer could be prevented from recouping money from the at-fault party or their insurer if a waiver of subrogation exists on the policy for that party. The existence of a waiver of subrogation could adversely affect an operator's loss history by preventing claims being credited to the at-fault party through subrogation. Waivers of subrogation are rarely found on aerial application policies.

Additional insureds are far more prevalent in agricultural aviation. The insured can offer to cover other people or entities as "additional insured" under the liability coverage of the policy. Individuals or companies are often named specifically as an additional insured by endorsement on the policy. In ag aviation, this can also be done in a blanket fashion by including all farmers, owners and growers (sometimes referred to as FOG) for whom the applicator operates. This practice is considered by some to be good business practice

to include your customers or other business partners under your insurance in case they are included in a claim or lawsuit as a result of your services. The buyer should be aware, however, that this could dilute the coverage purchased by sharing the limit among any and all insured parties on the policy who are legally liable for a claim. Higher liability limits may be available to deal with that potential dilution of coverage.

Insurance buyers have varied justifications for purchasing coverage. Hopefully, you will not need to invoke those more tangible benefits of your policy involving a claims adjuster. Should that become necessary, and in an effort to address your changing needs and those of your business, keeping your policy up to date with a regular review of your coverage and limits with your insurance agent is recommended. ■

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.

Adhere to the PAASS Motto with These

SUMMER

SAFETY TIPS

"Upon the Performance of Each Rests the Fate of All." If you've ever attended the PAASS Program at a state convention then you have heard those words uttered more than once. NAAA and its sister organization NAAREF take that motto seriously and you should too, particularly now that the summer flying season is in full swing and all eyes are upon us. With that in mind, here is a daily checklist to follow to ensure your season is safe.

GUARD AGAINST FATIGUE: Increased activity leads to longer flying days and less time off for rest. Many times pilot error accidents are the result of poor decision making that can be traced directly to the effects of fatigue. Fatigue is not always easy to recognize, but when tasks normally completed with ease require extra concentration, chances are the effects of fatigue are starting to seep in. It is a known fact a person is a very poor judge of his or her own physical or mental condition.

Senior Air Medical Examiner Dr. Mark Ivey, a helicopter pilot and an expert in sleep medicine, has some simple advice to combat in-the-cockpit fatigue: take a nap. "They're not just for kids," Ivey informed *Agricultural Aviation*[1]. "Humans have two periods during the 24 hours where they are sleepiest: 0300 and 1500. These are also the times when fatal motor vehicle accidents occur the most. Most ag operators are not flying at 0300, and 1500 is usually the heat of the day. So take a nap for 20–40 minutes around 1500 and then take one or two cups of brewed coffee." Remember to get a good night's sleep too.

DRINK PLENTY OF WATER: Dehydration sets in quickly when the heat index rises and can lead to more severe heat-related illnesses. Keep yourself and your crew hydrated by providing plenty of fresh water to replace what gets lost during the day through perspiration, urination and respiration. Early symptoms of mild dehydration are headaches, chronic pains in joints and muscles, lower back pain and constipation. Urine with a strong odor along with a yellow or amber color indicates the need for more water. Thirst is the most obvious sign, but people typically don't realize they are thirsty until well after the shortage of water occurs. Rehydrating is another reason to take frequent breaks.

1 "The Pitfalls of Flying While Fatigued," Agricultural Aviation, May/June 2012

ESTABLISH PERSONAL MINIMUMS: NAAA encourages each pilot to establish personal minimums and make them hard and fast rules to live by. In your desire to get the job completed quickly and still do a good job for your customer, it can be very easy to justify an action "just this one time." Spur-of-the-moment decisions can bite you. Establish your own personal minimums after giving consideration to all conceivable hazards and evaluating mitigation measures for those hazards. Once established, the safety bar should not be lowered just because you were able to get away with something once.

BEE CAREFUL: Regardless of the cause, the rapid decline of honeybees over the last five to seven years has everyone from beekeepers to fruit and vegetable growers to the EPA feeling the sting of the phenomenon known as colony collapse disorder (CCD). This has major implications for agriculture since approximately one-third of all crops in the United States require insect pollination. The USDA-Agricultural Research Service has stated that CCD could threaten the pollination industry if it becomes more widespread. As such, operators and pilots need to be attuned to pollinator concerns and mindful of protecting bees while they work. Remember to follow state rules on locating and notifying beekeepers of intended chemical applications. Additional stewardship measures include reading and following label directions and to determine whether bees are foraging. If so, be mindful of the pesticide's toxicity to bees and apply late in the evening or early morning when bees aren't foraging. *(For more on nighttime applications, see pg. 22; for more on pollinator decline, see pg. 30.)*

NAAA's Wind Tower Safety Stuffers are an easy way to spread the word about the very real risks that unmarked towers pose to ag pilots working in agricultural areas. NAAA Operator Members can request them for free by contacting NAAA at (202) 546-5722.

WATCH OUT FOR OBSTRUCTIONS: Obstructions have always been hazardous to low-level pilots' health, but the number of telecommunications towers, GPS differential signal towers, meteorological evaluation towers, wind turbines and other obstructions erected in agricultural regions has increased significantly over the past several years. Be on the lookout for new obstructions, including unmanned aircraft systems, and use every method available to learn the location of obstructions in or near the field to be treated.

From 2000 to 2010, 7.2 percent of aerial application fatalities were the result of collisions with towers and 13.0 percent were the result of collisions with wires, including guy wires connected to towers. Taken together, tower and wire collisions accounted for 1 out of every 5 ag aviation fatalities during this span. This is an a matter of grave concern to aerial applicators and NAAA. You can help by joining NAAA's "Let's Be Fair About Sharing the Air" campaign. Several tools are available at *www.agaviation.org/towers.htm* to aid ag pilots in their outreach efforts. One of the simplest and best examples is NAAA's wind tower safety stuffers, which illustrate how poor

tower marking and improper wind turbine siting put pilots' lives and farmers' livelihood at risk. The double-sided safety stuffers fit into a No. 10 envelope and can easily be enclosed along with a customer invoice or letter campaign to county planners and local leaders. They are available in packs of 100 at no charge to NAAA operator members and to non-members for $25 per pack, Wind tower safety stuffer requests should be directed to NAAA at 202-546-5722 or *information@agaviaiton.org*.

FERRY ABOVE 500 AGL: When ferrying, remember the PAASS safety phrase "Ferry Above Five and Stay Alive" to keep yourself above power lines, unmarked towers and other ag aircraft conducting spray operations. Another important consideration is ferrying at or above 500 feet is required by FAA regulations over all but open water or sparsely populated areas. In Arkansas this season, the FAA has issued violations for aircraft ferrying below this altitude. Flying at a higher altitude has the additional advantage of allowing more reaction time in the case of an aircraft or engine malfunction.

FLY SAFE! These are but a few of the safety reminders NAAREF sends to operators and pilots through ongoing Fly Safe alerts. In the interest of safety and the benefit of all, Fly Safe messages are shared with NAAA members and non-members—specifically, all operators and pilots with a valid email address on file with NAAA. A fax option is also available. These important safety alerts are sent every other Monday in April, May, June and August and every Monday in July, which historically has been the peak month for ag accidents. Additional safety reminders are issued whenever aviation activity warrants them. If you are a Part 137 operator or ag pilot who has not been getting Fly Safe, please contact NAAA Director of Education & Safety Ken Degg at (202) 546-5722 or kdegg@agaviation.org to be added to the recipient list.

Although this advice is free, the resources to produce it is not. Funding for NAAREF services and programs, such as PAASS, the Fly Safe campaign and Operation S.A.F.E., comes from NAAA and other donors willing to invest in the future of agricultural aviation. We invite you to join the cause of preserving and protecting the aerial application industry, your livelihood and your life by joining NAAA if you aren't a member already. To join, call 202-546-5722, visit *www.agaviation.org/content/membership* or complete the membership application on pg. 55 of this issue. ■

The Danse Macabre

(pronounced dahNs mA-kA-bRuh)

The Folly of Hammerhead Turns

BY GAYLON STAMPS
Stamps Spraying Service Inc., Panhandle, Texas

I ran across this French phrase in a hospital waiting room while reading *National Geographic*. From the dictionary on my phone I discovered the meaning: "the dance of death." Since I'd been studying for my next PAASS Program presentation, my thoughts went instantly to the stall/spin module. What a perfect description for the hammerhead turn!

How many of our fellow pilots have spent life's final effort trying to recover from a high turn, a stalled wing and the gyroscopic forces of the propeller pulling them into a spin? Too many! Yet in the heated battles of aerial crop protection, when spray planes may be observed literally all across the fruited plain, we still see too many pilots "yanking and banking" their planes into hammerhead turns, burdening their craft to the limit, and then quipping as rebuttal, "I'm just saving time."

In the PAASS season of 2012–2013, expert airmen Dusty Dowd and Wayne Handley gave clear and timely testimony why we should not be using high hammerhead turns, even when we feel pressed by the workload and the clock. First, if the plane stalls, then spins at the relatively low altitude of 300 or 400 feet above ground level, even the best pilot has little hope of recovering! Second, at best, the time saved by these course reversals is minimal. As an example, the suggestion was made that if only three seconds were added to each turn during a *busy* day (e.g., 300 turns), only 15 minutes would be added to our total flight time. In our daily routines, how might we otherwise recover those few minutes rather than with precarious turns? With very little thought, the answer to that question comes easily.

The main point of the module was "avoidance." Avoidance may only come by recognition, and recognition only by knowing what precedes the stall/spin. With our planes, as was noted by Wayne, the "nibble" precedes the stall. Others may describe it as a chatter or a burble. However you describe it, we've all felt it, and *THEN* is the time to respond. Holding the back-pressure and turning in the chatter could be the most dangerous thing we do. Avoid holding the plane in an attitude where it continues to nibble

High turns do more harm than good and should be avoided no matter how "busy" an ag pilot gets.

at the stall. Release the elevator's back-pressure and center the ball, most often by applying top rudder. But the best way to fend off the chattering turn is to consider adding those three seconds to the outbound leg. You won't have to use as much elevator to catch the light-bar, and at the end of the day, most likely, you won't be nearly as tired. It's a win-win!

2013 finds us already with an alarming fatality rate. Hear that alarm! Ensure *YOU* are doing all you can to maintain safe flight. Remember: Take a little more time, stay focused, especially in tight places, and avoid the hammerhead turn—the Danse Macabre, the Dance of Death! ■

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PT6 CELEBRATING 50TH ANNIVERSARY

REVOLUTIONARY THINKING STILL DRIVING PT6 SUCCESS

Pratt & Whitney Canada recently kicked off a year of celebration to mark the 50th anniversary of its legendary PT6 engine. The first production version of the engine was shipped in December 1963 to Beech Aircraft Company for its Beech 87, which later became the King Air. To date, more than 51,000 PT6 engines have been manufactured, finding their way onto 130 different aircraft applications and powering those aircraft for an amazing 380 million hours.

In the late 1970s and 1980s, P&WC began working with the key agricultural aircraft manufacturers, Air Tractor and Thrush, to develop PT6A-turbined powered applications. P&WC's relationship with the agricultural spraying community and its passion for the PT6A engine has evolved tremendously since that time.

"It's easy to become very passionate when talking about the PT6 engine," says Denis Parisien, Vice President, General Aviation at P&WC. "We believe the engine has earned the right to be called a legend. It started with an idea, a gas turbine turboprop, which evolved into a vision of giving operators an engine unmatched for dependability, dispatch reliability and ease of maintenance. The engine is so successful because we've never wavered from that vision; it drives us today just as it did 50 years ago."

The engineering team on the original PT6 engine decided to size the engine at 500 shp (shaft horse power) and configured it to serve both fixed-wing aircraft and helicopters as market studies at the time were pointing to strong airframe potential for such an engine. They opted for a free turbine layout that would allow for a wide range of propeller speeds opening the PT6 engine up to a variety of applications while providing excellent performance. The team chose an opposed shaft layout that, among other benefits, allows a split between the power and gas generator sections for ease of maintenance—hot section inspections and repairs can be done in the field while on wing.

"The basic architecture of the PT6 made it a great engine from day one," says Parisien. "Our job over the years has been to build on that base to achieve continuous improvement."

It's by design that the PT6 engine today is up to four times more powerful than the engine of 1963. It has a 40 percent better power-to-weight ratio and has up to 20 percent better specific fuel consumption than the original.

Technology injections over the years include:

In 1973, a two-stage power turbine was added to the PT6A-41 to increase the engine's power and fuel efficiency.

In 1984, first-stage Integral Bladed Rotor (IBR) technology was introduced on the PT6A-65 model resulting in fewer parts in the engine and better efficiency.

In 1993, Single Crystal blade technology was first introduced on the PT6A-67A which resulted in increased temperature capability for the engine allowing it to operate at higher gas path temperatures and providing more power for the same size engine.

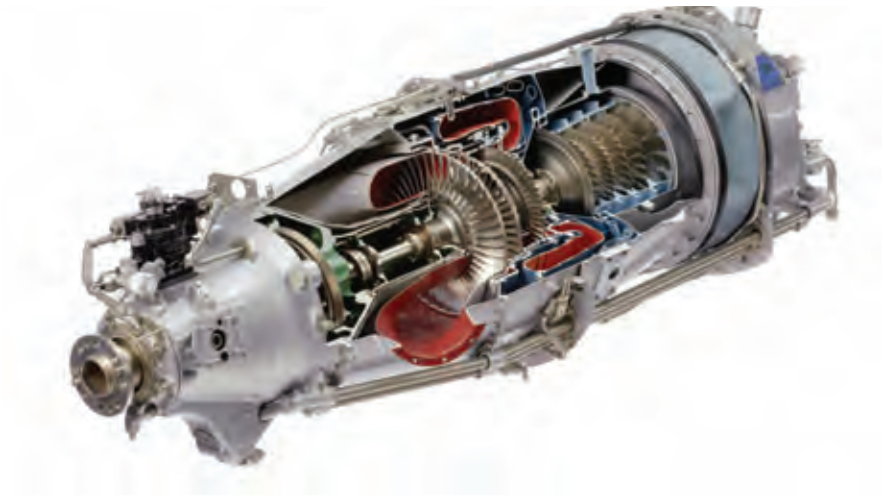
In 2010, the Computerized Visual Inspection System (CVIS) was introduced to the manufacturing process for PT6 engines. It is an automated inspection tool that verifies the integrity of the external assembly of new engines. This was a major step forward in quality assurance for the PT6 engine.

By 2012, the manufacturing environment for the PT6 engine had become fully computerized; parts are designed digitally which gives a physical model that can be used from the casting process right to the inspection of the final machined part.

New manufacturing processes are continuously applied to the PT6 engine—such as the precision laser drilling of the combustor liner, high-speed machining and adaptive machining—which have greatly reduced the engine manufacturing lead time and increased repeatability.

Introduced in 2012, the PT6A-140 engine is the first variant of next-generation products that produces 1,075 shp thermal for significantly improved climb, cruise and takeoff performance in hot and high operation. This is the most powerful PT6A engine in its class and it provides the best power-to-weight ratio. This engine demonstrates a 5 percent improvement in specific fuel consumption, through the incorporation of advanced aerodynamics, a more efficient compressor and the latest generation of hot section materials.

Twelve key men on the PT6 design team: Gordon Hardy, Jim Rankin, Fernand Desrochers, Fred Glasspoole, Ken Elsworth, Allan Newland, Pete Peterson, Hugh Langshur, Jean-Pierre Beauregard, Elvie Smith, Dick Guthrie and Thor Stephenson.



The PT6 engine of today is up to four times more powerful than the engine of 1963, has a 40 percent better power-to-weight ratio and up to 20 percent better specific fuel consumption.

While the power of the engine has increased up to 2,000 shp, the diameter has stayed the same. "We have been able to grow the engine's power capability primarily by taking advantage of advances in materials that allow for operation of the engine at higher temperatures, and advances in aerodynamic modelling capability to increase the flow through the engine," says Parisien.

For more information on the PT6 celebration, check out pt6nation.com, a website dedicated to the engine. The celebration will culminate at the annual convention of the National Agricultural Aviation Association, Dec. 9–12, 2013. ■

$7,500 in Scholarship Money Available for Aspiring Ag Pilots

NAAA/BASF Agricultural Aviation Scholarship Program Offers Needed Training Funds

How does $5,000 sound to help get someone started on their journey to becoming a professional ag pilot? That's the top prize in the 2013 NAAA/BASF Agricultural Aviation Scholarship competition. The goal of the Agricultural Aviation Scholarship is to strengthen the aerial application industry by helping NAAA Operators bring new pilots into the profession. Each applicant must be sponsored by an NAAA Operator Member, and scholarship recipients must use the proceeds for flight training or agricultural coursework at a university, college, community college or other institution of higher learning. A stipend for a trainee in an NAAA Operator-sponsored apprentice program is also permissible.

The Agricultural Aviation Scholarship is funded by an educational grant provided by BASF and administered by NAAA. NAAA will award one scholarship valued at $5,000 and could award a second scholarship valued at $2,500 depending on the pool of applicants.

NAAA presented Justin Mook of Wiggins, Colo., and Kippy Foltyn of Lansford, N.D., with scholarships in the amounts of $5,000 and $2,500, respectively, at the 2012 Convention in Savannah, Ga. This year's winner, or winners, will be recognized in December at NAAA's 47th Annual Convention & Exposition in Reno, Nev.

Paying Their Dues

NAAA 2012 Treasurer Kyle Scott of Scott Aviation Inc., Fort Morgan, Colo., served as Mook's operator sponsor. Mook, who has a background in farming and ranching, spent the last two summers working as a loader for Scott while he took flying lessons on the side. He went to Enrich's Helicopters Flight School in Colorado Springs, Colo., for his initial fixed-wing training. He has his commercial pilot's license now and plans to get some ag training in at Flying Tiger Aviation in Louisiana. "I've always wanted to fly. This is going to help me greatly," Mook said of receiving the $5,000 scholarship.

The plan is for Mook to start training in Scott's Air Tractor 301 on a limited, supervised scale. "I hope to ease him into some spraying this summer," Scott said. "It's a slow process that you build on a little at a time." The goal eventually is for Mook to move into Scott's AT-402A to fill a seat that 74-year-old Gene Smith is holding until Mook is ready.

NAAA's second-place scholarship recipient, Foltyn, was sponsored by NAAA Operator Member Brian Sturm of Pioneer AgViation Inc. in Minot, N.D. Foltyn was born North Dakota but moved to the Richmond, Va., area at a young age. One of the memories of North Dakota that stuck with him over the years was of sitting in the back seat of his parents' car looking out as ag planes flew overhead. The sight of an ag pilot making a turn to work his way back into a field was spellbinding to him.

He got into glassmaking later in life and became an accomplished glazier. Foltyn spent more than 15

Justin Mook, who received a $5,000 scholarship from NAAA and BASF, was all smiles after taking sponsor Kyle Scott's Air Tractor 301 for a spin for the first time in March.

years installing glass in commercial and residential buildings. He moved back to North Dakota in 2008 and continued to do glasswork until a chance encounter occurred at a gas station in Minot. Foltyn struck up a conversation with Sturm after seeing him in his flight jacket. His experience working on his grandfather's farm must have come in handy that day because Sturm offered him a job as a loader. For the last two years he has served as Pioneer AgViation's chief loader and all-around handyman helping fix loading equipment and maintaining the aircraft fleet. Sturm praised his work ethic and problem-solving skills when he recommended Foltyn for the Agricultural Aviation Scholarship. "He has the desire and the will to become an aerial sprayer; he only needs the means in which to do so," Sturm wrote.

Foltyn was 50 hours shy of his commercial pilot license when he got the $2,500 scholarship. He attended AG Flight Pilot Training LLC in Bainbridge, Ga., in 2010, and he plans to use the additional money to continue training there. "It's definitely going to help me finish up my flying [lessons]. I'm excited to do that," he said. Foltyn also expects to build some time this year in Pioneer AgViation's AT-301.

How to Apply

NAAA is now accepting applications for the 2013 NAAA/BASF Agricultural Aviation Scholarship. To be considered for the 2013 scholarship, every applicant must submit:

- **A letter of recommendation** from the NAAA Operator Member sponsoring the applicant.
- **An essay of 250 words or less** written by the applicant explaining why he or she is deserving of an NAAA/BASF Agricultural Aviation Scholarship.
- **A one-page résumé or list of activities** detailing all agricultural and aviation experiences, education and training.

To learn more about the 2013 NAAA/BASF Agricultural Aviation Scholarship, review the application instructions on the adjacent page. The application is also available on NAAA's website at *www.agaviation.org/content/agricultural-aviation-scholarship-news*.

Please call NAAA at (202) 546-5722 if you need clarification about any of the application requirements. NAAA membership is not a prerequisite for the person applying for the scholarship, but Associate memberships, available for $95, are a great way for candidates to learn more about the industry and augment their training. **The deadline to apply is Aug. 31.** ■

2013 NAAA/BASF AGRICULTURAL AVIATION SCHOLARSHIP APPLICATION INSTRUCTIONS

This scholarship program is made possible through an educational grant from BASF Corp.
The scholarship program is administered by the National Agricultural Aviation Association.

BASIC INFORMATION:

Purpose: To bring new pilots into Agricultural Aviation and help fund their training. Scholarship is to be used for flight training or ag-related coursework at a university, college, community college or other institution of higher learning.

Amount: The **NAAA Agricultural Aviation Scholarship Program** will award up to two (2) one-year scholarships to a deserving, qualified student(s) participating in one or more of the following programs:

1. **a certified flight training program**
2. **an NAAA Operator-sponsored flight-training apprentice program**
3. **an agriculture, agribusiness or ag vocation program** for a second-year or later student(s) enrolled at a U.S. 2-year or 4-year program of study at an accredited junior college, college or university.

The number of scholarships may vary from year to year. NAAA will award one $5,000 scholarship annually for the life of the program, and may award a second $2,500 scholarship. One award per applicant.

Eligibility: Paid employees of NAAA or BASF and immediate members of their families are not eligible. Entrant must be sponsored by an NAAA Operator.
Prior NAAA Agricultural Aviation Scholarship winners are not eligible.

Sponsor: Each applicant must be sponsored by an NAAA Member Operator.
An Operator may sponsor only one applicant per year.

Application Process: Applicant should fill out ALL "applicant information," sign the form and give the application to the NAAA Operator Sponsor. The Sponsor will complete the sponsor form, add a letter of recommendation, and forward all required information via U.S. Mail, Fax or Email to:

NAAA Agricultural Aviation Scholarship
1440 Duke Street, Alexandria, VA 22314
Fax to (202) 546-5726 • Email to information@agaviation.org

Application Checklist:

By August 31, 2013, please submit the following materials:

- Completed application
- One (1) letter of recommendation from the NAAA Operator sponsoring the applicant. *(Letter of recommendation may be submitted in a sealed envelope.)*
- Essay of 250 words or less explaining how you would use the NAAA/BASF Agricultural Aviation Scholarship to further your education and training.
- Current one-page résumé or list of activities detailing all agricultural and aviation experiences, education and training.
- Plus:

If scholarship proceeds are for flight training:

- Provide proof you are enrolled or have been accepted for enrollment in a certified flight training program (ag or otherwise).

If scholarship proceeds are for an Operator-sponsored apprentice program:

- Provide a brief but detailed explanation of the apprentice program.

If scholarship proceeds are for ag-related coursework at a college or university:

- Submit an official transcript from applicant's college, junior college or university. The Registrar's Office can mail your official transcript to NAAA or place it in a sealed envelope for you to mail with your application form. (GPA must be 2.5 or better on a 4.0 scale at the time of application to be eligible for NAAA scholarship).
- Provide proof that you are seeking an undergraduate or graduate degree in an agricultural, agribusiness or an ag vocation field (transcript may suffice; consult your registrar or department office for more information).

All applications must be received or postmarked by **August 31** to be eligible for scholarship funds available for the following calendar year (January–December).

Selection Process:

All applicants will be evaluated based on the following criteria: need, prior experience, likelihood of retention in the aerial application industry, strength of operator's recommendation letter, and strength of applicant/candidate's essay.

Applications will be reviewed and winners chosen during the Fall NAAA Board Meeting by the NAAA Membership Committee.

Winners will be notified by November 1. Winners will be publicly announced at the NAAA Annual Convention in December.

The decision of the NAAA Membership Committee is final.

Payment:

A tuition bill must be presented verifying enrollment of the applicant. If tuition has been paid in full, upon proof of such payment, NAAA will remit payment to the scholarship recipient. Otherwise, the scholarship will be paid directly to the appropriate school before the recipient's training/coursework begins or resumes. Any funds paid directly to the applicant as part of this award not used for approved higher education or apprenticeship expenses must be returned to NAAA. Paid receipts for tuition or higher education expenses must be provided. A signed statement from the Operator providing the apprenticeship will serve to verify those expenses. Scholarship recipients must provide proof of expenses to NAAA by June 1 of the year following the award. Apprenticeship payments used for living expenses may be taxable.

Revisions:

NAAA reserves the right to review the conditions and procedures of this scholarship program and to make changes at any time.

2013 NAAA/BASF AGRICULTURAL AVIATION SCHOLARSHIP APPLICATION

PART 1
APPLICANT INFORMATION:

Name:_____

Address:_____

City, State, ZIP: _____

Phone: _____ Email: _____

Name of University, College, Community College, Flight School or other flight training program:

_____

Address:_____

City, State, ZIP: _____

Phone: _____ Enrollment Contact: _____

Course of Study:_____

Description: _____

_____

Length of Program: _____

I am (choose one):

____ Currently enrolled_____ Enrolled beginning: (date course begins) _____

I expect to complete this course of training or study by (month/year) _____

In 250 words or less, please explain why you want to pursue a career in agricultural aviation and how you would use NAAA's Agricultural Aviation Scholarship to further your education and training:

_____

_____

_____

APPLICANT'S SIGNATURE _____ **Date:**_____

2013 NAAA/BASF AGRICULTURAL AVIATION SCHOLARSHIP APPLICATION

PART 2
SPONSOR (NAAA OPERATOR MEMBER):

Sponsor Name:_____

Company:_____

Address:_____

City, State, Zip: _____

Phone:_____ Email _____

Relationship to employee (choose as many as appropriate):

___ Family Member

___ Employee (current or past)

___ Other, please explain: _____

If not a family member, how long have you known the applicant:_____

NAAA OPERATOR/SPONSOR'S SIGNATURE _____

Date:_____

Please attach a letter of recommendation for the attendee. Please comment on the applicant's agricultural or flying background as well as general character, focusing on why you believe the applicant will become a good ag pilot and what the applicant has to do to further his or her training and development.

All applications must be received or postmarked by **August 31** to be eligible for scholarship funds available for the following calendar year (January–December).

2013 WNAAA Essay Contest Offers $3,000 in Educational Scholarships

ATTENTION, HIGHER-EDUCATION STUDENTS:

Don't miss out on the opportunity to compete for a combined $3,000 in educational scholarships. The Women of the National Agricultural Aviation Association will award a $2,000 scholarship as the top prize in its 31st annual essay competition, and Covington Aircraft Engines has generously agreed to sponsor a $1,000 scholarship. The deadline for the 2013 WNAAA Scholarship Essay Contest is Aug. 15. The WNAAA reserves the right not to award a scholarship if entries lack merit.

2013 Essay Theme:

The Role Ag Aviation has Played in Shaping My Life

Contest Deadline: Aug. 15, 2013

Eligibility Requirements

If you are an NAAA member (or become one by June 15), the WNAAA invites you to sponsor a contestant in the 2013 WNAAA Scholarship Essay Contest. The scholarship is not restricted to pursuing a "flying career." Any educational pursuit beyond high school (at any age) is eligible. The competition is open to all NAAA members and the children, grandchildren, sons-in-law, daughters-in-law or spouse of any NAAA operator, pilot member, retired operator or pilot who maintains an active membership with NAAA. The contest is also open to allied industry members and the children, grandchildren, sons-in-law, daughters-in-law or spouse of an allied industry member. Each allied industry company is allowed only one eligible family member, drawn from those listed in the Allied Industry Members section of the 2013 NAAA Membership Directory. To qualify, dues must be paid by the organization or individual member on or before June 15, 2013.

Entrants must have graduated from high school prior to the deadline date for entry (Aug. 15, 2013) and be enrolled in continuing education during the year of entry. Previous winners are not eligible to compete.

2013 WNAAA Scholarship Guidelines

The theme for this year's contest is "The Role Ag Aviation Has Played in Shaping My Life." Essays must be 1,500 words or less. Topic deviation and/or modification will not be accepted. Papers submitted will be judged on content, theme development, clarity, originality and proper grammar. All sources used must be cited in a bibliography or works cited page. Plagiarism will result in immediate disqualification. Entries must be typewritten and double-spaced.

To ensure the judges will not know the identities of the writer, keep any reference to the author's name, sponsoring company and company location out of the essay itself. However, a title page must be attached and contain the entrant's name, address, email address, telephone number, relationship to sponsor, sponsor's company name, address and telephone number. A photograph of the entrant and short biography should also be provided.

Manuscripts may be sent electronically or mailed. Electronic submissions should be sent as an email attachment to ***bretjane@mncomm.com***. If the essay is sent by mail it must be postmarked by Aug. 15 and mailed to:

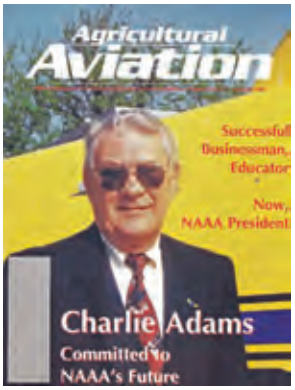
Jane Pitlick, WNAAA Scholarship Chair
PO Box 395
Onida, SD 57564

Receipt of essay will be acknowledged. The winners will be notified by phone and letter and recognized at the 2013 NAAA Convention in Reno, Nev.

Selected essays will be published on the NAAA website and may be published in Agricultural Aviation depending on space. The judges' decision is final. In the event the entries received lack outstanding merit, the WNAAA reserves the right not to award the scholarship(s).


NAAA
NATIONAL AGRICULTURAL AVIATION ASSOCIATION
We get it.
You're used to flying solo. But everyone knows you can't do it alone.
And neither can NAAA.
Membership matters.
Join NAAA in its efforts to preserve and protect agricultural aviation and your way of life. Call (202) 546-5722 or visit www.agaviation.org to join the cause.

Charlie Adams, Former NAAA President and Missouri Aerial Applicator, Passes



Former NAAA President Charlie Adams, a longtime aerial applicator from Senath, Mo., passed away April 4 at St. Bernard's Regional Medical Center in Jonesboro, Ark. He was 81 years old.

From July 1999 until the end of June 2000 Adams served as the president of NAAA and was a long-serving member of the Board of Directors and member of the association. He served as president at an important time for NAAA when the association was transitioning to a new executive director. Adams was a true advocate of the importance of NAAA and its role in Washington, D.C., but also of the important role each individual agricultural pilot must play in their own community. In a 1999 article in Agricultural Aviation he said, "NAAA must present our story in Washington, but we must do what is right in our operations."

Adams built a one-man aerial application business—Senath Aviation in Senath, Mo.—into a successful corporation that includes a spraying business, chemical stores, a grain elevator, a consulting service, a parts store and a farm. He started out teaching, was an elementary school principal, a high school teacher, coached basketball, taught classes at a police academy and was sworn in as a deputy sheriff in the 1980s. He started flying in 1955 and would fly before school in the morning, then after school and on weekends. He retired from teaching in 1986 after 27 years and then put all his resources into his spraying business.

Adams was a very humble and charming man, and a family man. In the aforementioned Agricultural Aviation article, he admits that he couldn't have managed and expanded his business without his son Eddie. "What I strive for in my life is for my son and my grandsons. What I work for is my son and grandsons," said Adams.

NAAA will greatly miss Mr. Charlie Adams and extends its heartfelt condolences to the entire Adams family and the staff at Senath Aviation. ■

NAAA Gets Advance Look at Disney's Upcoming *Planes* Movie

Disney's Planes *hits theaters Aug. 9.*

Ever since NAAA first learned of Walt Disney Studios' plans to come out with *Planes*, a spinoff to the hugely popular animated *Cars* franchise, featuring a crop duster named Dusty, the Association has made overtures to Disney to learn more about the content of the film. In an October 2011 NAAA eNewsletter we reported that we were "intrigued by the notion of a crop duster being cast as the protagonist" but were taking a wait-and-see approach due to uncertainty over how agricultural aviation would be portrayed. That wait is now over! NAAA is pleased to report that any potential concerns we may have had were alleviated after viewing a private screening of *Planes* in Burbank, Calif.

Disney responded to NAAA's polite but persistent overtures—which began with a 2011 letter from NAAA Executive Director Andrew Moore to John Lasseter, creator of *Cars* and the Chief Creative Officer for Walt Disney and Pixar Animation Studios—with an invitation to attend an April 4 screening of *Planes* at Walt Disney Studios in Burbank. Moore happily accepted but was unable to go himself, so NAAA President Dana Ness and Jay Calleja, NAAA's Manager of Communications, attended the screening on the Association's behalf. Although we aren't at liberty to go into any further detail at this time, we expect NAAA members to agree with their verdict once *Planes* takes off in theaters Aug. 9. NAAA will have much more to report on the release of *Planes* in future issues of the magazine and NAAA eNewsletter.

In the meantime, you can watch the latest *Planes* trailer at *http://youtu.be/6MCW0JGZ2XI*. It's the first preview with some aerial application in it and features Dusty challenging a pair of *Top Gun*-inspired fighter jets. ■

NAAA President Dana Ness gets a behind-the-scenes look at the projector room at Walt Disney Studios prior to a private screening of the animated film Planes.

500th Air Tractor AT-802A Rolls Off Assembly Line

The Air Tractor 802A is the largest aircraft in Air Tractor's product line. Sales of the AT-802A have grown steadily during the past 10 years.

Air Tractor's single-seat 800-gallon capacity 802 series aircraft reached another milestone Feb. 19 when S/N 802A-0500 rolled off the Plant 2A assembly line for final inspections and its test flight. -0500 hints at the significance. The new plane was the 500th aircraft produced in the 802 series for ag and firefighting work.

The AT-802 has become one of Air Tractor's top selling aircraft, thanks to its 800-gallon capacity and high production capabilities. Sales of the AT-802A have grown steadily during the past 10 years, with 32 of the 802 series aircraft delivered in 2012, according to the company.

Air Tractor dealer Harley Curless of Farm Air Inc. placed the order for the 500th 802A in mid-February. Drew Spidahl, owner of Ag-Tech Air LLC in Lena, Ill., had purchased it. Spidahl is an NAAA Associate Member and co-owns Highland Chemical Inc., an independently owned chemical and fertilizer dealer based in Stockton, Ill. Ag-Tech Air LLC is a subsidiary of Highland Chemical Inc. The new AT-802 will join another AT-802 at Ag-Tech Air.

Production of the largest aircraft in Air Tractor's product line began in 1991, with two models of the 802 Series: the AT-802 for high-production agricultural applications and the AT-802F, designed as a single engine air tanker for aerial firefighting. Founded in Olney, Texas, in 1974, Air Tractor Inc. manufactures more aircraft for the agricultural aviation industry than any other company in the world. ■

Nebraska Brewery Crafts Cropduster-Inspired Beer

Why name a beer after ag pilots? Thunderhead Brewing Company's slogan says it all: Because We Can.

If you've ever perused the menu at a restaurant or pub with a deep roster of beer selections, the odds are good that you have sampled some ingeniously named choices. NAAA recently came across an ale that could be construed as the ultimate tribute to its members: Cropduster Mid-American IPA. The craft brew is one of several rugged selections that Thunderhead Brewing Company in Kearney, Neb., has concocted. The homage to agricultural aviators includes a striking label that harkens back to the throwback crop dusters of yesteryear. The company describes Cropduster IPA as an "aggressively hopped IPA balanced with full flavored floor malted 2-row barley." Other Cornhusker-inspired Thunderhead ales include Cornstalker Dark Wheat and Golden Frau Honey Wheat.

A review by beer writer Tim Hynds in the *Sioux City (Iowa) Journal*—who knew such a beat even existed?—described Cropduster Mid-American IPA as "a rather simple, yet enjoyable India pale ale that places its focus squarely on citrusy hop flavors. … Cropduster pours a hazy, golden-yellow with a medium-height, off white head. Its aroma is very pleasant, with dominant notes of orange zest, backed with grapefruit. Minor notes of slightly sweet toffee malt were also detected."

We'd drink to that, but Thunderhead Brewing Company brews are primarily local. Nebraska members should have better luck, as they are and sold throughout Central Nebraska. For more information, please visit *www.thunderheadbrewing.com.* ■

What I've Learned By Being Involved in NAAA and WNAAA

By Leslie Craft, *Craft Air Services LLC, Hertford, N.C.*

Editor's Note: *When someone joins NAAA it's like a two-for-one special because every spouse of an NAAA member, and those women who are NAAA members in their own right, qualify as WNAAA members. In addition to hosting WNAAA events and working at the NAAA Convention, the WNAAA Board meets in conjunction with NAAA's Board meetings. In this article, WNAAA VP Leslie Craft reflects on what she's gotten out of her involvement with both organizations.*

I remember my first board meeting like it was yesterday. I was very excited and a little intimidated to be among so many well-known women within the agricultural aviation industry. They quickly put me at ease with a warm welcome and immediately started providing me with the information I craved.

We've all heard the saying "ask and you shall receive." I learned this to be true when I found myself needing an overnight shipping miracle during our season. It was the middle of summer, another 100-degree day, and we lost an air conditioner component at 4:30 p.m. ET. This sure couldn't be picked up locally. I called Dona Jorden, at Lane Aviation in Texas, hoping for an overnight shipment. It was too late for overnight, but Dona referred me to the west coast, and with her referral the overnight shipment was possible. Through the WNAAA contacts I had made, I was able to jump a few time zones and our pilot was up and running the very next morning knocking out acres in cool air. This is one of many benefits of the organization.

Becoming an NAAA/WNAAA member is so rewarding, especially when I discovered I was supporting an organization that was helping my business directly. I was blown away to find that NAAA secured and maintained the federal aviation fuel tax exemption for agricultural aviation applications. That one benefit alone paid for our membership within the first 50 hours of operation. What mother couldn't find a better use for the 20+ cents a gallon federal excise tax on aviation fuels?

Even more important than the financial savings is the industry's improved safety record brought on by the PAASS Program. Since 1999, the PAASS Program has helped reduce the accident rate by as much as 20 percent. Being a mother of three, this is very important to me. It gives me an enormous sense of pride to think about the hand my husband plays in helping to put nutritious food on the tables of people around the world. However, what's even more important and what we all want is for our husbands, sons, brothers and fathers to make it home tonight to enjoy the food on their tables with their families. My husband is a safer, more effective pilot and applicator thanks to PAASS and Operation S.A.F.E.

NAAA and the WNAAA are more than a gathering of ladies and gentleman, pilots and wives. It's a gathering with purpose and a commitment to our industry. What I've learned being an involved member is that membership is not only a privilege but a necessity for our business. ■

MEMBERSHIP APPLICATION
NATIONAL AGRICULTURAL AVIATION ASSOCIATION

Name: _____ Year (1/1 – 12/31)_____

Company: _____

Street/P.O. Address: _____City, State, ZIP Code/Country: _____

Bus. Phone: _____ Home Phone:_____

Cell Phone: _____ Fax: _____

E-mail: _____ Web site: _____

Spouse:_____

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

PILOTS, AFFILIATED OPERATORS/AFFILIATED ALLIED:
List member companies you work for._____

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

MEMBERSHIP CATEGORIES: (please select one)

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

☐ **Operator**	$500, plus $100 per aircraft for every aircraft over one	Operator of Aerial Application Business (must belong to state/regional Association)
☐ **Extra Aircraft Over One**	$___	$100 per aircraft for every aircraft over one (per Operator)
☐ **Affiliated Operator**	$200	Operator Partner, Stockholder, or Non-Pilot Employee
☐ **Participating Operator**	$1,000, plus $100 per aircraft for every aircraft over one	Operator not belonging to any State/Regional Association
☐ **Extra Aircraft Over One**	$___	$100 per aircraft for every aircraft over one (per Participating Operator)
☐ **Pilot**	$200	Pilot employed by Aerial Application Business (must belong to state/reg. Association)
☐ **Participating Pilot**	$380	Pilot not belonging to any State/Regional Association
☐ **Allied (1–10 employees)**	$500	Any Industrial Organization or Firm closely allied to the Agricultural Aviation Industry
☐ **(11–50 employees)**	$750	
☐ **(51–100 employees)**	$950	
☐ **(101–500 employees)**	$1,100	
☐ **(500+ employees)**	$1,900	
☐ **Affiliated Allied**	$200	Partner, Stockholder, or Employee of an Allied Industry Member
☐ **Associate**	$95	Person interested in promotion of Aerial Application but not active in industry
☐ **International**	$250	Aerial Applicators & Pilots residing outside the USA
☐ **State/Regional Association**	$750	Organization Membership
☐ **WNAAA**	$200	Individual promoting NAAA-WNAAA Objectives

Payment Method: (U.S. Funds only) _____ Check enclosed #_____ or _____ Credit Card

Amount $_____ Card # _____ Security Code____ Exp. Date _____

Signature _____ Name on card _____

Billing Address _____ ZIP Code_____

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 2012 as 19%.** *Agricultural Aviation* subscription ($30 domestic, $45 international) is included in membership dues for all membership categories.

RETURN THIS APPLICATION TO: NAAA, 1440 Duke Street, Alexandria, VA 22314 www.agaviation.org

Or Fax to: 202-546-5726. Questions, call 202-546-5722 or email to information@agaviation.org

Welcome to New Members

As of March 14, 2013

OPERATOR

Frankie Amen
Frankie's Aerial Application LLC
Nampa, ID

Michael Clark
Mike's Flying Service Inc.
Greenville, NC

Wade Porter
P M Dusters
Durham, CA

Tyler Rice
Bi-State Air Inc.
Veedersburg, IN

John Riddell
Andy Riddell Flying Service
Helena, AR

AFFILIATED OPERATOR

Andrew Frerk
Pocahontas Aerial Spray Service LLC
Pocahontas, IA

PILOT

Robert "Bob" Black
Fort Worth, TX

Ian Brady
Los Olivos, CA

Bruce Dance
Bruce Inc.
Stone Mountain, GA

Chuck Galloway
Chuck's Flying Service
Canton, MS

Dusty Hall
Crabbe Aviation
Tabernacle, NJ

David Harrison
Grenada, MS

Ted Hicks
Statesville, NC

Mark Jackson
Jay, FL

William Moorhead
Rosedale, MS

Bradley Price
Jordan Air Inc.
Duke, OK

Chris Pulliam
Miles Flying Service Inc.
Jonesboro, AR

AFFILIATED ALLIED

Dan Comingore
Wilbur-Ellis Company
Madras, OR

Don Jones
Wilbur-Ellis Company
Grand Forks, ND

Nivine Kallab
Pratt & Whitney Canada
Longueuil, QC Canada

Fletcher Sharp
Covington Aircraft Engines
Plano, TX

HONORARY

Wayne Handley
Wayne Handley Aerosports
Groveland, CA

INTERNATIONAL

Jean-Yves Arsenault
SOPFIM
Quebec, QC Canada

Pascal Ogez
SOPFIM
Quebec, QC Canada

Jose Resende
Brazil

ASSOCIATE

Michael Knauss
Greenspire Global
Des Moines, IA

Ross Kraft
Air Kraft Spraying
Timber Lake, SD

Date	City	State	Aircraft Type	N #	Injury	Description of Accident
01/31/13	Victoria	TX	AT-401	9190B	None	Power loss–damaged on forced landing
02/10/13	Shandon	CA	Bell 206B	802KA	None	Fuel selector closed during preflight–failed to re-open
02/15/13	Fort Gaines	FL	S2R-T34	3095X	None	Power loss–damaged on forced landing
02/16/13	Jennings	LA	M-18A	4305D	FATAL	Hit radio tower guy wire
03/08/13	Paragould	AR	G-164B	6902K	Minor	Veered off runway on takeoff

Index of Advertisers

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Phone: (530) 662-6269
Fax: (530) 735-6265 Web: www.jhpfr.com

Professional Fiberglass Repair specializes in the repair and refinish of hoppers and all fiberglass components related to the ag-industry. We do structural repairs as well as offer thermoplastic welding and bonding with complete production facilities for special designs. Paved landing strip available for fly-in repairs.

BASF continues support of Operation S.A.F.E. in 2013

Collaboration with NAAA incentivizes aerial applicators to participate in S.A.F.E. Fly-Ins

NAAA is pleased to announce that BASF has renewed its commitment to offer financial incentives to NAAA members who participate in Operation S.A.F.E. Fly-In clinics in 2013. This is a continuation of a program BASF initiated in 2010 in collaboration with NAAA to provide financial support for participating aerial applicators that can be used toward membership in NAAA or for new spray equipment.

The goals of the Aerial Application Equipment and NAAA Membership Program are to encourage operators and pilots to:

- Pattern test their aircraft at an Operation S.A.F.E. Fly-In
- Provide an incentive to equip eligible aircraft with new nozzles and/or tips
- Encourage membership in NAAA
- Promote aerial application optimization and stewardship

Complete details are specified in the official program rules, but in essence, aerial application operators can earn a $225 incentive to be used to help subsidize either 2013 NAAA operator membership dues or up to $225 of the cost of purchasing new nozzles and/or tips for each eligible aircraft that they pattern test at an Operation S.A.F.E. Fly-In. Pilots participating in an Operation S.A.F.E. Fly-In may be eligible to receive a $170 rebate that would reimburse many pilots for nearly the full cost of their NAAA membership dues. The eligibility period for BASF's incentive program encompasses Operation S.A.F.E. Fly-Ins offered between Oct. 1, 2012, and Sept. 30, 2013.

Terms and Conditions

To qualify for BASF's Aerial Application Equipment and NAAA Membership Program, an operator or pilot *must* be an NAAA member and actually be the pilot flying the pattern evaluation. Although it is not necessary to be an NAAA member at the time of the Operation S.A.F.E. calibration clinic, the participant must become an NAAA member before applying for and being granted approval for the rebate. The operator or pilot must also be sure that the Operation S.A.F.E. analyst has his complete and correct information so that the analyst can provide that information to NAAA for submission to BASF. The operator or pilot must complete the application and send it to BASF to be reimbursed for a portion of his 2013 membership dues or submit receipts to receive a rebate for nozzles and/or tips purchased for the aircraft. Submissions must be received by the rebate program's auditor no later than Oct. 15. Payments will be made on or about Dec. 14, 2013.

Please visit the Membership or Operation S.A.F.E. sections of NAAA's website at www.agaviation.org for complete details about the program and to download the application for reimbursement. The direct URL for the rebate form is: *www.agaviation.org/content/basf-and-naaa-operation-safe-incentive-program-rules-application-form.*

The Aerial Application Equipment and NAAA Membership Program is part of BASF's ongoing stewardship efforts for aerial applicators and the safe and proper application of its products. Visit *www.plant-health-pilots.com* for a variety of resources BASF provides aerial applicators.

NAAA encourages every operator and pilot to participate in an Operation S.A.F.E. clinic each year. They are held regularly throughout the year and can be sponsored by a state association or company. Operation S.A.F.E. clinics NAAA is aware of are listed at *www.agaviation.org/events.* ■

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