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The purpose of NAAA shall be to advance the aerial application industry and its members in their efforts to enhance agriculture, and to protect the public health and the environment.

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As part of their work on biofuel conversions, researchers at South Dakota State University have converted the Ag-Cat pictured above to ethanol power.

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Agricultural Aviation is the Official Publication of The National Agricultural Aviation Association

President's Message

Doug Chanay

Beginning A Safe and Prosperous New Season

The 2009 season is underway in most areas and has been going on for a while in some areas. I urge everyone to be extra cautious in planning job operations for the day. Take a little extra effort in consideration of weather, TFR's, FARs, obstacles, job sites, terrain and equipment. Any one of these items could make a good day go bad. All pilots, new and experienced, need to be reminded how important these items are.

Check lists are a very good tool to have in the cockpit, for preflight, pre-start, and prior to takeoff. They could be as brief or as wordy as one prefers, just personalize the reminders to fit your individual needs and desires.

We need to continue to help mentor all new pilots, to make sure that they are able to make the best decisions in all aspects of their tasks. Even the more experienced pilots sometimes have to stop and think of a way to evaluate the details at hand for the operation. Some of the details of an operation are so automatic for the more experienced pilots that we have to consciously think of all of the small important parts to the job to make sure we don't leave anything out. It is our responsibility as mentors to make sure we do things correctly.

Check for changing weather conditions before takeoff.

There are always a lot of unknowns and tasks when beginning a new year such as the conditions of the ground support equipment, and ensuring that all licenses, pilot information and aircraft documentations are in order. Security for the aircraft must be in place as well as security for the products to be used for the operations. Another task is checking for new pesticide regulations, FARs and new product labeled uses on crops intended to be sprayed. All of us have to take responsibility to ensure that these topics are covered throughout the year.

One of the most important items we all should have done either in the fall or spring is to have participated in an Operation S.A.F.E. pattern test, another NAAA sponsored event. This will make sure all our equipment is in its optimum operating condition. Checking all nozzles for condition and detecting any pattern problems will help minimize potential off target issues. By having the pattern testing done, one will see if any potential problems exist before they become an issue. This will help all of us to keep our equipment in the best working order possible.

We should also stop and reflect on what we have learned and experienced at our state conventions through NAAREF programs (PAASS, Com*paass* Rose). We should always think of safety for all aspects of day to day operations. Remember to consider all topics covered during the seminars such as stress, causes and cures.

I would like to take the time to say thanks for everyone's current membership. I strongly encourage everyone who is not a member to step up and become a new member. Without everyone being involved it remains a challenge to accomplish our goals. Use the membership form in back of this magazine, join online at NAAA's website www.agaviation.org, or simply call us at (202) 546-5722.

Executive Director's Message

Andrew Moore

Perhaps the Economy Isn't Agriculture's Long-Term Fear, But Rather Government Actions

The news of the day is the economy, understandably. If people can't earn they can't live. I believe that for agriculture the short term economic indicators show some potential challenges but the long-term forecast still looks fairly promising. The real set-backs that agriculture may face don't appear to be from weak demand on the economic side of the equation, but from costly policies trickling down from regulatory bodies.

At present international credit woes are dimming demand for sales abroad and leaving more food at home. As a result, projections are that U.S. '09 ag exports will tumble $20 billion from '08, but let's remember that USDA projects 2008 farm income will total $86.9 billion, which is 42 percent above the average of the last 10 years and one of the top three years in U.S. history. The credit concerns don't appear to be domestic for agriculture. In fact, debt to asset ratios are in the best shape since the government began tracking agricultural finances in 1960. According to the American Farm Bureau Federation, farming and ranching are in better shape than other sectors because they learned the lessons of the 1980's farm crisis when debt-to-equity ratios were 20 percent, which forced farm bankers to demand strong balance sheets. Today these ratios are 10 percent of a farming operations total equity.

Global stocks of ag products are low, fueling demand

Other promising out-year economic indicators for agriculture come from the agricultural chemical manufacturers. Research and development spending has not been reduced for new agricultural chemistries by these crop protection product manufacturers. Furthermore, carryover stocks are still relatively low and the manufacturers believe that the underlying fundamentals of a growing population, plus dietary shifts toward higher fresh fruit, vegetable and protein consumption continue to support strong growth in the ag economy, particularly in places like China, Brazil, and Eastern Europe. Again, the economic indicators for agriculture are still pretty good.

Unfortunately, global government actions that have taken place recently don't favor agriculture's ability to meet growing demand. In December European Parliament and European Council representatives clinched a deal to ban a number of different classes of pesticides. In addition, aerial crop spraying will be banned in the European Union, but with waivers possible, subject to prior approval by the authorities. Requests to use aerial spraying must be submitted in due time to the authorities, which then have a set time to reply, or the application is considered approved.

These actions aren't isolated to foreign governments either. A three-judge panel of the U.S. Court of Appeals for the

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Sixth Circuit, on January 7th, nullified an Environmental Protection Agency rule exempting certain applications of pesticides from the requirement for Clean Water Act pollution discharge permits. An environmental coalition that sued to overturn the rule said in a statement that the decision means that virtually all commercial pesticide applications to, over, and around waterways will now require National Pollutant Discharge Elimination System (NPDES) permits. EPA in its 2006 rule amending the Clean Water Act revised its regulations to add an exception to the permitting requirements for the NPDES program. Specifically under the EPA rule, if pesticides were used in accordance with FIFRA, no permit would be required for applications directly over waters to control pests or if the applications were near waters, such as applications to nearby forest canopies.

NAAA and a large coalition of agricultural groups have emphasized to lawmakers their opposition to requiring NPDES permits for applications made in compliance with FIFRA by stating that pesticides are tested by the Environmental Protection Agency (EPA) for water safety. It is uncertain where the issue will go from here although it is feared it will result in a number of additional lawsuits being filed by environmental activists requiring NPDES permits be obtained in order to make pesticide applications. Obtaining these permits can be time-consuming and expensive and the Sixth Circuit decision may hamper the ability to make emergency pesticide applications. NAAA, along with other agricultural organizations, such as CropLife America, will continue to fight for rules underscoring that pesticides should not be classified as pollutants as approved by the Agency under FIFRA and used according to label.

As I've written in this column before, looking forward we are faced with opposing forces. The demand for agricultural products due to the growing population is a positive for the aerial application industry because there exists no other form of application that can treat crops as quickly with the least amount of disruption to the crop. Unfortunately, government road blocks continue to be thrown before the high-yield agriculture industry handicapping our production methods. We must not be hindered and we must continue to educate the public about the crucial importance we play in food, fiber and bio-fuel development.

WNAAA President's Message

Elaine Gustafson

As the Season gets Underway…

The season will be upon us before we know it and in some cases before we are ready. I realize that for a lot of you the season is already well underway. At the beginning of each season, I promise myself that this year I am going to try to be more organized. It doesn't usually work out that way, but it is still my goal. In organizing the office, I try to make sure that the office staff and loading crew have emergency contact phone numbers close at hand in the event of an accident or other type of an emergency. It is much easier to make a call quickly if you don't have to try to think of who to contact while you're under stress. I also try to put together some thoughts about safety and how I can do my part.

When I first started working in the office, my husband told me something that I always try to keep in mind. He told me to try not to distract the pilot with unnecessary radio calls from the office with issues that do not require immediate attention, such as a message to call or see someone later in the day. Obviously if something needs immediate attention by the pilot such as spraying the wrong field, disturbing animals or people on the ground, etc. then it is important that they know about it. Sometimes I would try to be too efficient and let them know about every phone call, even though I knew it could wait until later.

Let me tell you about an incident that happened several years ago. The wife of one of our pilots called to talk to him. She was extremely upset because their son had just been in an accident. My first inclination was to let her know that I would have him call as soon as he was safe on the ground; however, one of the ground crew intercepted the call and called the pilot on the radio and relayed the information to him. He had just taken off with a full load and only just begun to spray the field. He returned to the airstrip with most of the load in the aircraft and made a bad landing with a loaded airplane, endangering himself and the aircraft. Thankfully no damage was done to him or the airplane, but there could have been. By being under stress to get back to the airstrip the pilot failed to properly mark where he left off in the field, so the only choice was for the pilot that went to finish the job to either guess at where to begin to spray or respray what had already been done to insure nothing was missed. Neither is a good option. He was worried and understandably upset. The point is that it would have been safer to let the pilot finish the job, which wouldn't have taken long, instead of risking harm to himself. Getting to the hospital fast in this case was not helpful or necessary. Luckily his son had minor injuries, so there is a happy ending. Every situation is different and you have to use your own judgment in each instance. I'm sure each of you can tell many similar stories.

If you don't hear from the pilot for longer than usual, it doesn't hurt to a make short radio call to check on him. The loading crew should know about how long a job should take, so they could initiate this call.

One other thing I do is make sure that there is water available for the pilots and ground crew. On busy days I usually take them some kind of snack and or breakfast about mid morning. Call me a mother hen, but I think it is important to keep nourished and hydrated anytime—especially during what can be long, stressful days.

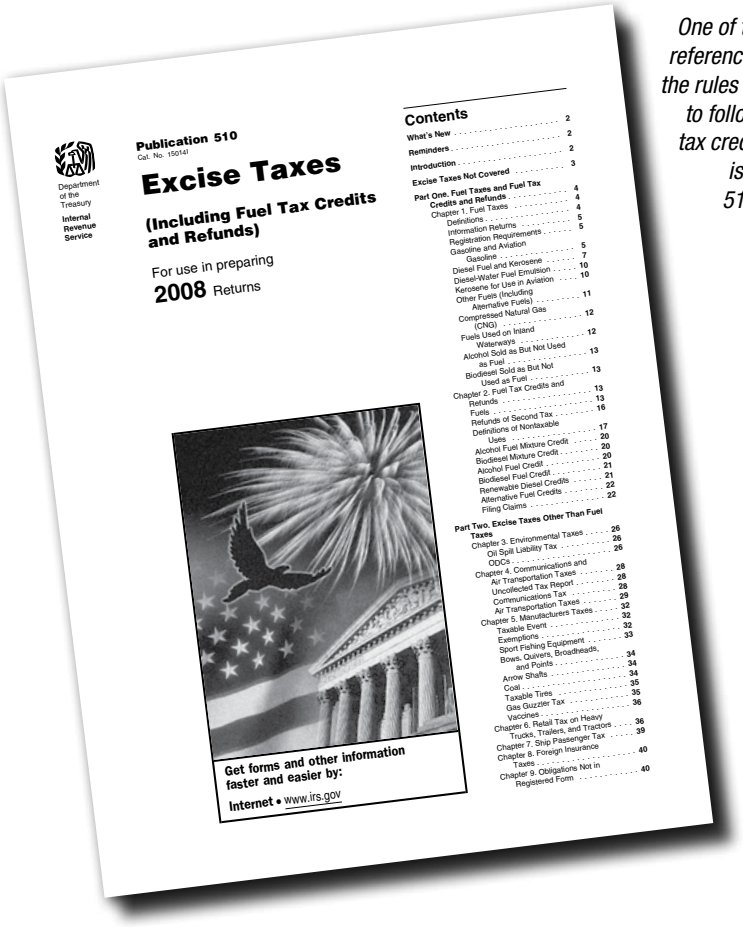
I am sure you all have your routines as well. These were just some of my thoughts.

Have a safe and prosperous spray season!

Keep communications to pilots to a minimum, keep focus on the job.

IRS Updates Tax Documents Explaining Tax Credits and Refunds Available to Aerial Application Businesses

Sharpen your pencils, it is tax time again. Remember there are a number of tax credits and refunds available to aerial application businesses that can save your hard-earned money, whether it be tax exemptions on excise taxes levied on aviation fuels, or tax credits for security enhancements made to your facilities. The IRS has updated a number of its tax forms pertaining to these tax credits and refunds. Those tax relief provisions, the IRS publications and forms associated with them and a brief description of their contents are as follows:


Publication 510
Cat. No. 15014I

Excise Taxes

(Including Fuel Tax Credits and Refunds)

For use in preparing 2008 Returns

Department of the Treasury
Internal Revenue Service

Contents

Get forms and other information faster and easier by:

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One of the updated IRS references that explains the rules and procedures to follow in taking fuel tax credits and refunds is IRS Publication 510-Excise Taxes.

Tax Credits and Refunds for Aviation Fuels

Remember, federal excise taxes levied on fuels used on a farm for farming purposes, such as fuel used in the application of fertilizers, pesticides, or other substances, including aerial applications, qualifies for either a full tax credit or refund. The updated IRS reference that explains the rules and procedures to follow in taking these fuel tax credits and refunds is *IRS Publication 510-Excise Taxes*, specifically Chapter 2 of the document (see http://www.irs.gov/pub/irs-pdf/p510.pdf). *IRS Publication 225-Farmer's Tax Guide*, also provides instructions explaining the rules and procedures to follow in taking these credits and refunds, specifically *Chapter 14 on Excise Taxes* (see http://www.irs.gov/pub/irs-pdf/p225.pdf).

The rules in taking the tax credits or refunds are different depending on the fuel used. As stated in *IRS Publication 510 and 225*, for aviation gasoline, the aerial applicator may claim a tax credit as the ultimate purchaser of the fuel, but cannot claim a refund. Aviation gasoline users may take a tax credit using *IRS Form 4136, Credit for Federal Tax Paid on Fuels* (see http://www.irs.gov/pub/irs-pdf/f4136.pdf).

According to *IRS Publication 510* "for kerosene used in aviation [Jet A], the ultimate purchaser may make the claim or waive their right to make the claim to the registered ultimate vendor [fuel supplier]." A registered ultimate vendor may sell kerosene used in aviation free of excise taxes and make the claim with the IRS himself—if he chooses to do so; however, he is not obligated to do this. In order for the registered ultimate vendor to make this claim he must obtain a waiver from the ultimate purchaser. A sample waiver is included as *Model Waiver L* in the *Appendix* of *IRS Publication 510*. The registered ultimate vendor must have the waiver at the time the credit or payment is claimed. Only an ultimate vendor that is registered can make these claims. Registration requirements are partially explained on *page 5 of IRS Publication 510*. If the ultimate purchaser of kerosene does not waive his right to make the claim, he may make a claim for a refund on the excise tax on fuel himself using *IRS Form 8849* (see http://www.irs.gov/pub/irs-pdf/f8849.pdf).

The IRS recommends that tax filers making these claims keep the following records at their principal place of business:

- the total number of gallons bought and used during the period covered by the claim;
- the dates of the purchases;
- the names and addresses of suppliers and amounts bought from each during the period covered by your claim;
- the nontaxable use for which you used the fuel;
- the number of gallons used for each non-taxable use.

NAAA was successful in providing aerial applicators full relief from the federal excise taxes levied on both aviation gasoline and kerosene used in aviation a few years ago. This includes, according to *IRS Publication 510*, "fuel used by an aerial applicator for the direct flight between the airfield and one or more farms." These taxes levied on fuels "ferrying to the field" did not qualify for tax relief until recently. These fuel tax relief provisions are estimated to save the aerial application industry $20 million a year.

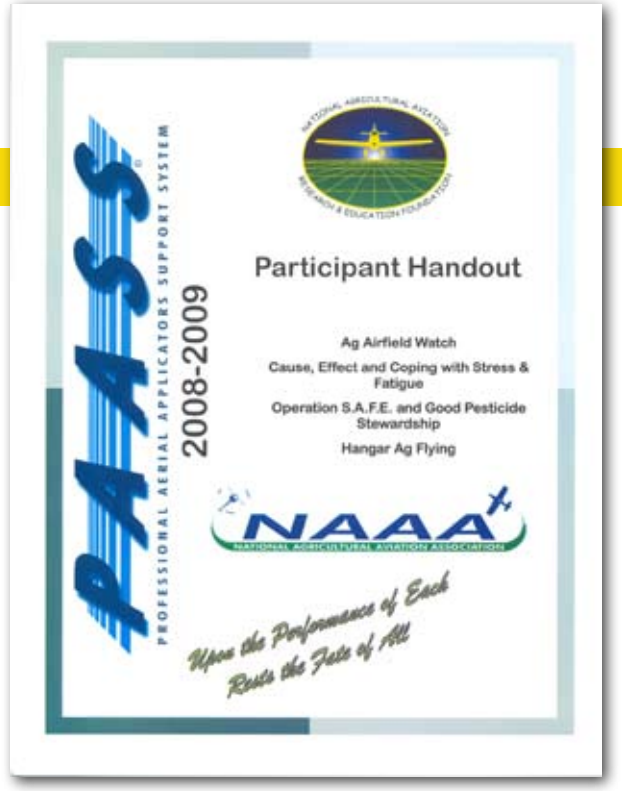
Ag Chemical Security Tax Credit

NAAA, working with a number of other agricultural organizations including CLA and ARA was successful in attaching to the enacted 2008 Farm Bill a chemical security tax credit. The credit helps to offset increased security costs incurred by "businesses that aerially apply fertilizers and or ag chemicals" resulting from the safeguarding against terrorist threats. Any pesticide classified under the Federal Insecticide, Fungicide and Rodenticide Act used for growing food, feed and fiber is covered. The credit is limited to $100,000 per facility and covers 30 percent of the amount paid or incurred for qualified security measures, but cannot exceed $2 million per company with multiple facilities. The tax credit expires at the end of 2012 and went into effect on May 22, 2008.

To apply for the tax credit an aerial applicator should use *IRS Form 8931* (see http://www.irs.gov/pub/irs-pdf/f8931.pdf). As stated on *IRS Form 8931* "taxpayers (other than partnerships, S corporations, estates, and trusts) whose only source of this credit is from those pass-through entities are not required to complete or file this form. Instead, report this credit directly on line 1v of the 2008 Form 3800, General Business Credit."

P.A.A.S.S.

– *from the perspective of a presenter trainee* –



Gaylon W. Stamps, November 13, 2006

A few weeks ago I received a call from Ken Degg, NAAA's Director of Education and Safety. After some "How-ya-doin" conversation he told me that I was being considered as a PAASS presenter.

"What?" I thought. "Me? A PAASS presenter?"

I picked myself up off the floor then asked Ken, "Are you kiddin'?" He assured me that he wasn't and we continued a conversation that explored the possibilities.

Since the beginning of PAASS I have had a great respect for the presenters. I have believed that the presenters can make or break the PAASS program. I suppose that's why I was so honored and humbled to be asked.

I was invited to St. Louis to the "Train the Trainer" meeting. As Ken said, "There, you can look at us and we can look at you. Either of us may say, 'No' at that point." That sounded good to me, so I made the travel arrangements.

In the "Train the Trainer" meeting I met all the guys I'd known before and a few I hadn't met… some already presenters and some trainees, like me. I also got to meet the authors of the modules. I was somewhat overwhelmed by the amount of research and writing evident in the production of each module, and impressed by the education of the writers. The folks who put the PAASS programs together really need to be thanked and honored for the work they put into the program each year! My thinking was, looking at this mountain of information, 'How will I ever be able to learn all this?' And furthermore, 'How will I be able to communicate it?' I saw it as an awesome responsibility.

My friends saw my hesitance and encouraged me. Guys who had been there "forever" like Ronnie Taylor and Rod Thomas, Arlen Olson and Dennie Stokes - they all told me they had confidence in me! Harley Curless and Matt Crabbe said, "If I can do it, YOU can do it!" That encouragement helped so when Ken asked, "Are you in?" I answered, "I'll give it my best shot."

When I got home from St. Louis I loaded my computer with the software and started studying. Before long, I had more questions than answers! I started searching the Internet for additional and explanatory information, and more importantly, started making phone calls!

I called Dr. Dennis Gardisser, of the University of Arkansas, and Carol Ramsay, of Washington State University, with questions on the Labels module. In the "Train the Trainer" sessions we experienced the teaching of each module by the professor and authors. They "trained" us with the material, impressing on us the points they hoped would be stressed in our presentations. All the authors invited us to call at any time with any question, and I cashed in that chip!

When I started studying the Structural Failures module I got in (I thought) over my head in a heartbeat! I am not a mechanic. I *did* know what an Airworthiness Directive was, but I was unfamiliar with C.A.M. (Civil Aeronautics Manual) and C.A.R. (Civil Aeronautics Regulation) and didn't know much about spar caps and metal fatigue, so I had to ring up Dusty Dowd. Through some long telephone conversations and some emails back and forth, I've become pretty good friends with Dusty. His readiness to "splain stuff to ya slowly Texan-style" had me in awe. I was looking for technical knowledge, but all Dusty wanted to do with his module was to encourage all of us to be kinder to our airplanes. And after all, Dusty is a crop duster too!

After my research, phone calls and study of the prepared material, I thought I was ready for my first assignment. It came sooner than I expected! Ken called and asked, "Can you go to Kansas in a week and present with Rod?" After a pause I replied weakly, "Sure, Ken - Whatever you need."

Rod Thomas was scheduled to present PAASS with Ron Taylor, but Ronnie had to go to the hospital for a minor 5-bypass heart surgery ("minor" written tongue in cheek). When Ken had asked Rod who he wanted to be with him in Kansas since Ronnie was out of pocket, I found out later Rod had said, "Nobody. Gaylon and I can handle it." Now there was a newsflash! I was supposed to be a trainee, and here I was going to present my first PAASS program as the number two guy! Oh well! If they thought I could handle it, I was game.

"The PAASS Participant Handout is a valuable tool for understanding the presentation which is distributed to each PAASS attendee."

Rod and I talked on the phone getting prepared for the Kansas presentation, then we met at the convention the day before PAASS and spent a nice evening with the guys from KAAA. The next morning we met early and made all the final preparations. Finally, we started the program. I'll tell you, standing up there with Rod made my life a lot easier. He has long been one of my favorite presenters and I was honored to stand next to him. He invited (and expected!) me to interrupt at any time to make comments, which I did. When I realized that I was as old and experienced as the old-timers in the audience, I was more at ease.

I made the comments I had and when it was all said and done, we got through it - and the evaluation sheets were mostly all positive. Dusty had been in the audience (being from Kansas) and encouraged me with kind, positive words. Rod gave me a positive critique with only a couple of suggestions for improvement.

In Kansas, I'd made some new friends and rekindled some old acquaintances. I left the convention with a certain amount of confidence, and I was glad my first PAASS presentation was under my belt!

I went home. An interesting thing... The morning after returning home I had a giant 34-acre field to spray. That morning, from the time I cranked my plane, during the taxi, the takeoff, the ferry, the spray job, the trip home, the landing and the shutdown, I thought about Dusty and his wanting me to, "Just be kinder to my airplane." I turned slower. I flew smoother. I was more careful on my landing. I knew right then that if I paid attention, the PAASS program could change my life!

I shared those experiences and thought processes with Dusty on the phone and gave him the credit for my mind-set. He was glad the training had affected me in that way, and expressed hope that others were changing their thinking as well. Again, I thought, what an awesome responsibility I had as a PAASS presenter, to communicate and make a difference.

A week or so went by. I had talked to Ken, Rod, and Dusty a few times. Then Ken called and asked, "You ready for your next program?"

"Sure," I replied. "Where to this time?"

"Moline, IL. It's the Mid States Ag Aviation Conference. Harley and Matt are scheduled to present there and you can work with them as the third man and the trainee. I was ready. I knew both those guys and was anxious to work with them.

– CONTINUED ON PAGE 12

I studied more on the points I thought were my weakest, and talked more on the phone with Dusty. I felt like I was getting a better handle on his material all the time. I seemed more at ease with the other three modules as well. I talked to Harley a couple of times and Matt once before the presentation. I was looking forward to this meeting.

The short of the story here is that on the day of the presentation, all the little details taken care of, we got started with the presentation. We had four hours to present the material with a lunch in the middle. We finished only 5 minutes overtime, and I think those 5 minutes were mostly because we had a Virginian and a Texan up there slow-talkin'!

One comment from the evaluations was from an old gentleman who had been to every PAASS program since it started. (I have too for that matter.) But he commented that since the PAASS program started, this year's material was the best… bar none.

I agree with him! But the important fact is that Harley, Matt and I had "communicated". We had gotten across the points the writers wanted stressed. Dr. Scott Bretthauer, co-author of the Labels module was in the audience that day and he was complimentary of our presentation of his section.

The next day in telecommunication with Ken, he told me that he had spoken to both Matt and Harley, and in essence, he was awarding me my stripes! I was no longer a trainee! That gave me a sense of accomplishment, but still, I critiqued myself thinking of things I might present better. I suppose the next time will tell.

After the banquet of the Mid States Ag Aviation Conference, the night before PAASS, we were privileged to hear Ret. Col. Kevin Sweeney, USAF. Colonel Sweeney had been a KC-135 pilot. While on a refueling sortie in Saudi Arabia he lost both engines on the left wing of his bird. When I say, "lost them", I mean, THEY CAME OFF HIS PLANE! He told us in great detail that hair-raising story. But along the way he gave us five words that he claimed if one mastered, he could not fail. Those words were ***preparation, passion, focus, team and confidence***.

After his speech, and since then, I've thought about how his ideas relate to the PAASS program. To have a successful PAASS program we must have proper **preparation**. And we have that! The writers of these modules (as I've said before) have spent countless hours in research and writing to hand the PAASS presenters something our industry truly needs to know. "Train the Trainer" was the second step, and the individual preparation of the presenters is the third and final step.

Next is the **passion**. There is no doubt that all of us in this business have a passion for aircraft, for flying, for service, and for providing for our families and others. That passion takes us to state and national AAA meetings where we can learn and share with our like-minded fellows. With all the issues that confront us, without that kind of passion none of us could continue in this business.

Third is **focus**. All pilots know that when we have had or come close to an "incident", when we reflect, we realize we'd lost our focus. It's the same in PAASS. If the presenters lose focus on the material in hand, they may get sidetracked and fail to communicate what was intended in the material. I have learned that focus, in study, and in presentation is an absolute must. I'm certain I will learn that more completely as time goes on.

Fourth is **team**. The entire Professional Aerial Applicator Support System is comprised of a giant team starting with the NAAREF board members who help come up with the program's subject matter, followed by the professors and professionals who research and compile the data, then mold it into a program suitable for presentation. Then we have Ken who is the coach. He is the one who puts it all together, hands the "play-book" to the presenters, and then lets the presenters run the plays. Each team member is just as important as the other, and without this consolidated team effort PAASS could never happen.

Finally, there is the **confidence** that team players have to have. The writers have to have confidence that they are writing truth. The coach has to have confidence in the presenters, and the presenters have to have confidence in themselves before they can, again, *communicate*.

I think Col. Sweeney gave us some excellent food for thought. This formula for guaranteed success; ***preparation***, ***passion***, ***focus***, ***team*** *and* ***confidence*** may be applied to any walk of life. Think about it. Could you apply it to your business? Could you apply it to your personal challenges? Surely you could!

I am proud to be a new member of the PAASS team. I have a newfound respect for NAAREF, PAASS and the entire production and training process. PAASS can be life changing. It has changed mine. I trust it will change yours!

Gaylon Stamps

Addendum: This article was written over two years ago, but proof-reading it for publishing this year; I still feel much the same. I still feel honored and proud of being a PAASS presenter, and I still feel I've been given an awesome responsibility. By the time this article is published I will have co-presented PAASS approximately 15 times, and though now a "slightly seasoned" presenter, when realizing the importance of communication, sometimes I feel just like a rookie again!

Consider the program's wheels of production. They're impressive! With the leadership of NAAREF, the foresight the Program Development Committee, production by Ken Degg, staff and hired professionals, and finally, Train the Trainer, I see the PAASS program as having something important to offer our industry for many seasons to come. May PAASS always uphold its original goals: ***"Through training, aid in the prevention of accidents and the minimization of drift incidents"***. And may her presenters always "communicate" to make that happen.

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AERIAL APPLICATION RESEARCH RESULTS FOR THE COMING SPRAYING SEASON

By Mary Lou Jay, Timonium, MD, provides research and articles for Agricultural Aviation magazine.

Delivering a drift-free application, each and every time, is the goal of every aerial applicator.

Ag researchers perform many important studies with the goal of helping aerial applicators do a better job. Unfortunately, this research often takes a while to work its way down into the field.

We asked several researchers to share the results of some of their recent work with an eye towards how it could impact aerial spraying operations in the coming season. Although many of these results are from just a few studies, and will have to be further replicated and tested, they do offer some possibilities for applicators working in the field to consider right now.

– CONTINUED ON PAGE 16

Slow Down for Drift Reduction

Researchers have previously identified lower spray height, lower pressure and increased nozzle size as a way to achieve drift reduction. A new study ("Spray Spectrum Modifications through Changes in Airspeed to Minimize Drift") has found that slowing the plane's speed for just a few passes at the edge of the field could also help.

Brad Fritz of USDA-ARS and his co-authors used AgDISP to model how the speed of an aircraft can impact off-target deposition of spray at the edge of a field. They used data from a previous study on the effect that changing airspeed had on atomization of several solutions.

Using a field 20-passes wide, the researchers looked at a number of different scenarios, starting with all passes being flown at 140 mph and then adding one 120 mph pass each time starting at the furthest slot.

"I looked at the edge of the field out to 50 and 100 meters downwind," says Fritz. "The bottom line was that with a speed of 120 mph for two or three passes at the edge of the field, you have about a six to 10 percent reduction in drift. In other words, if you did the first three passes at 120 mph and then the next 17 were done at 140 mph, you would reduce the chances of off- target movement of spray by about 6 to 10 percent as compared to doing the entire field at 140 mph."

The nozzle setups and formulations used in the study (see chart) were fairly typical setup for aerial applicators, Fritz says.

Setup:

Aircraft: AT-402B
Spray Formulation: PowerMax at 1 quart/acre rate
Application Rate – 2 gpa
Nozzle – CP-11TT 4008 at 35 psi
0° deflection
65 percent effective boom
Nozzle flowrate at 35 psi = 0.75 gpm

This suggests lower speeds could give pilots a potential tool when they are spraying a field next to a sensitive area and the winds are higher than they'd like. "Instead of getting out and changing the nozzle for bigger droplets, they could try reducing air speed by just 20 mph at just those furthest passes, right at the edge of the field," says Fritz. That will give them the bigger droplet size, which could help reduce off-target movement of spray.

If pilots do reduce their speeds, however, they should make sure that they're not decreasing speed so much that they're off-label in droplet size, Fritz cautions.

Fungicide Application: Better Alternatives to Crop Oil?

A study entitled "Enhancing Low Volume Fungicide Applications on Corn with Additives" has suggested that crop oil concentrate may not be the best choice as an additive for maximum coverage.

Researchers applied seven to nine different adjuvant mixes in nine different locations in four states, using a rate of 2 GPA to corn at tassel emergence. While they found no differences in applications from location to location, they did find differences in deposition depending on what adjuvant was used.

"We saw that crop oil concentrate was one of the worst performers in terms of coverage," says Dr. Scott Bretthauer, one of the study's co-authors. "What it looks like is happening—and we don't know for sure, because we're still doing the droplet size analysis—is that the crop oil concentrate might be making the droplet size smaller. If you run one setup with just water but then you add the crop oil concentrate, you're reducing the droplet size just because of that additive. "

Coverage might be impacted because of evaporation of smaller droplets, and there's also the possibility that the poor deposition is due to the potential increase in drift. But it could be just that these droplets are not penetrating the canopy and are staying in the upper part, he adds.

The bottom line is that applicators may want to look at something besides crop oil when applying fungicides to corn this year. "They have to follow label instructions for the product they're using, but it looks like some of the deposition aids or drift reduction additives might be a better solution than crop oil concentrate for the low volume applications," Bretthauer says.

The nozzle setups used in the study were:

Nozzle	# Nozzles	Rate (GPA)	Orifice	Deflection	Pressure (psi)	Airspeed (mph)
Electrostatic	100	1	TXVK-8	0	70	130
CP-11TT	21	1	8	90	45	
CP-11TT	39	2	8	90	50	127
ASC Rotary	6	2	D12	#4	21	120
ASC Rotary	6	1	D8	#4	21	120
Micronaire	8	1	VRU=11	60	25	120
Micronaire	8	2	VRU=13	60	40	120
Check	8	2	VRU=13	60	40	120

Best winds for canopy penetration

To get the best deposition of materials in the canopy, aerial applicators should try for a mid-morning application with a light wind, according to a one-year timing study by Dr. Dennis Gardisser of the Biological & Agricultural Engineering Division of the University of Arkansas' Cooperative Extension Service. He and his co-researchers looked at how temperature, relative humidity and wind speed affect deposition in early morning, mid-morning and mid-day.

"What we're seeing in the preliminary results is that in order to make applications in the plant canopy, three to eight mph winds would be suggested to try to help incorporate the material into the canopy, move that canopy around a bit, help break down the energy at the top," says Gardisser.

"Once above 8 to 10 mph, we start to get more off-target movement or potential of off-target movement. But we certainly wouldn't suggest any winds lower than 3 mph to get that good canopy penetration," he adds.

Results showed that the 10 a.m. applications were the best of the three times, Gardisser notes. Applications during the later time, with 90 degree temperatures, probably showed some effects of evaporation, he said. "The early applications had very little wind movement, so they were, of the three times, the worst case scenario," he adds. This study goes along with others that have been done that show that air movement helps mix the material down in to the canopy.

Gardisser thinks—but can't verify with the data from this study--that the differences they found were more wind-related than temperature-related. He believes canopy penetration would have been just as good if there had been winds at 70 degrees [the early morning temperature] as they were at 80 degrees (mid-morning).

Looking at crop fungus

Marketing Aid: Fungicides Increase Corn Yields

With corn prices uncertain, aerial applicators' customers may question the benefits and expense of applying fungicide to cornfields. Now applicators can reassure them—and possibly keep and increase their business—by mentioning a study that shows fungicides are a definite plus in increasing yields.

The research, "Improving Canopy Coverage by Using Deposition Aids in Low Volume Fungicide Applications in Corn," was conducted by Dr. Robert Wolf of Kansas State University's Biological and Agricultural Engineering Department and Dr. Scott Bretthauer at the University of

– CONTINUED ON PAGE 18

Illinois's Department of Agricultural and Biological Engineering. Its purpose was to determine which of ten different adjuvant mixes could increase the deposition of a fungicide into the corn canopy, enhance yields and control disease.

When comparing areas treated with fungicides versus untreated fields, researchers found the average yield for the test field (an actual production field) was 263.1 bushels/acre for treated fields versus 244.5 bushels per acre for untreated fields. "We were able to show, in a study done with multiple replications, that there was a statistically significant difference in yields when corn was treated with fungicide and when it was not," says Wolf. There was no significant difference in yields among the various adjuvants, however.

Wolf says this study could be good news for aerial applicators who had wondered if farmers would spend the money for fungicide applications in 2009. "There were many aces treated in '07 and a lot more in '08. But there was some concern, as the prices of the commodity was falling, that it might not be such a big deal in 2009. But in many situations, it doesn't take that big a yield difference to convince farmers that treatment is a good idea."

Crops treated with the fungicide showed no significant decreases in the severity of disease (primarily rust) compared to those that received no treatment, however. "But there was a low level of disease overall; there might be a different result if that overall level of disease was greater," says Wolf.

The researchers conducted their study using an Air Tractor 502 equipped with a touch screen Air M3 with IntelliFlow® flow control to apply the treatments. Target droplet size was 275 to 300 microns. The pilots made the applications two to three days after tassel emergence at a rate 2 gallons per acre on a single variety of corn. Each treatment (and the untreated check area) consisted of a single 65-foot swath approximately 1,000 feet long in a field in western Illinois. Each adjuvant was applied to three different randomly selected areas.

The research's primary purpose was to determine if there was an increase in canopy coverage (top, middle and bottom) according to the type of adjuvant used. While the study did find differences in applications, most of the products used were experimental, so they are not yet available to applicators.

The results of the studies profiled above do not apply to every situation, but they can be helpful in giving aerial applicators new insights and new methods that they can try. Progress in the field rarely comes from giant steps, but from small, incremental ones as researchers and applicators work together to improve the safety and efficacy of the ag aviation business.

Fungicide application is a definite plus in increasing yields.

Research Sources for this Article:

Spray Spectrum Modifications through Changes in Airspeed to Minimize Drift
(Paper AA08-002, presented at the 2008 ASABE/NAAA Technical Session)

Authors:

Bradley K. Fritz, agricultural engineer, USDA-ARS, College Station, Texas

Bill Bagley, manager, Wilbur-Ellis, San Antonio, Texas

W. Clint Hoffmann, agricultural engineer, USDA-ARS, College Station, Texas

Yubin Lan, agricultural engineer, USDA-ARS, College Station, Texas

Enhancing Low Volume Fungicide Applications on Corn with Additives

(Paper Number: AA07-1, ASABE Section Meeting Presentation,)

Authors:

Dennis R. Gardisser, PhD, P.E., professor & associate department head Biological & Agricultural Engineering, University of Arkansas Division of Agriculture,

Robert E. Wolf, PhD, associate professor and extension specialist, Kansas State University, BAE Department, Manhattan, Kansas

Scott Bretthauer, PhD, extension specialist, Pesticide Safety Education, University of Illinois, Department of Agricultural and Biological Engineering, Urbana, Illinois

Andy Mauromoustakos, PhD, professor, Agricultural Statistics Laboratory University of Arkansas Fayetteville, Arkansas

Lynn Baxter, extension technician, Biological & Agricultural Engineering, University of Arkansas Division of Agriculture, Little Rock, Arkansas

Improving Canopy Coverage by Using Deposition Aids in Low Volume Fungicide Applications in Corn

(Paper Number AA08-007 presented at the 2008 ASABE/NAAA Technical Session)

Authors:

Robert E. Wolf, PhD, associate professor and extension specialist, Kansas State University, BAE Department, Manhattan, Kansas

Scott Bretthauer, PhD, extension specialist, Pesticide Safety Education, University of Illinois, Department of Agricultural and Biological Engineering, Urbana, Illinois

New equipment of note By Mary Lou Jay

There's some new equipment available that aerial applicators might want to consider when they're planning their purchases for the coming year, according to Dr. Dennis Gardisser of the Biological & Agricultural Engineering Division of the University of Arkansas' Cooperative Extension Service.

The first is a variable rate applicator. "There's still a lot of interest in that in some regions, particularly with fertilizer applications since fertilizer got to be so expensive last year," he says. "People wanted to be more accurate in placing the amount of plant nutrient that was needed."

Equipment manufacturers have produced a device that is a rate controller that modifies the application as airplane speed changes. "It's not a changing rate, it's a single rate with a hold function. So if the airplane is doing 130 mph, the gate is not opening as wide at it would be if it were going 140 mph," he continues.

Using GPS units, pilots can feed travel speed information into the mechanism and allow it to adjust the flow rates so they e get the same dosage at every location.

"That in itself is going to be something that will help us be more uniform, but added too that, we're also seeing an interest in looking at fields and varying the plant nutrient rate across the field based on the need. Some portions of the field simply need more fertilizer or more plant growth regulator than others," Gardisser says. Automated systems now used by some growers allow fast sampling of the field with tags that include GPS coordinates; the variable rate applicators can use that information to change the amount of material sprayed in different areas.

Another innovation, one that appeared at the NAAA convention, is air bag systems that are being incorporated into the straps of a harness. "In the event of a crash we would have the same sort of airbag protection that we would have in an automobile," Gardisser says, pointing out that pilots in a crash usually end up hitting knees, elbows or legs on the aircraft's dash. "If we can avoid those issues we can certainly save a lot of injuries and potential deaths."

General aviation GPS systems are now incorporating two new features that could be very helpful to pilots. "One is XM radio. With noise- canceling headsets, being able to listen to the music of your choice during long-hour days is really quite nice. Studies will show that if you're in a relaxing atmosphere, you're not as stressed and tired. So I think that may be a safety feature, more than just a luxury," Gardisser continues.

"In addition, those units have real time weather updated at five-minute intervals. There are many days in the Delta region and other parts of country as well where you're working hard and there's a system change and some weather is moving in," he says. If pilots can find out that rain is due in less than an hour, they can delay spraying fields. "It gives them the ability to monitor and be up to date on the weather at all times."

By Austin O'Brien

Women's Involvement in Today's Agricultural Aviation Industry

The Women of the National Agricultural Aviation Association 26th Annual Essay Competition, winner of a $2,000 college Scholarship is Austin O'Brien. Here is his winning essay. Check the WNAAA Website for rules and the 2009 essay topic. http://www.agaviation.org/scholarship.htm

Agricultural Aviation, what do those words bring to mind for you? How about precision aerial application? Just the words bring to mind, low-flying planes and daredevil men. How often have you stopped to admire the plane flying low over a field of crops? Travel any of the back road or state highway across America and you will see a long air strip, a small office, and large hanger, the staples of agricultural aviation.

If you look close at aviation history you will find women throughout it. There are the great ones, names we all know, Amelia Earhart, Harriet Quimby, Bessie Coleman, and Captain Emily Warner, to name a few. But where are the women in agricultural aviation?

As I wondered how to write this essay and find women in agricultural aviation, I stumbled upon a few female pilots in the early days of aviation that are linked to agricultural aviation.

One of major note to United States aviation history is Geradyn "Jerrie" Cobb. Jerrie took her first flight at twelve years old in a Waco biplane flown by her father. She earned her private license at sixteen and her commercial license at eighteen. After she graduated from high school she earned her living by crop dusting and teaching navigation[1].

Jerrie was selected to compete in the same testing and regiment as the Mercury Astronaut. She passed with flying colors, technically becoming the first women in history to be an astronaut. Even though Jerrie Cobb went on to distinguish herself in different areas of aviation, she had her start in agricultural aviation.

In Australia in 1949 Margaret Clarke was appointed by the government as the first woman crop-duster and aerial spraying pilot. Ms Clarke was a trail brazier in Australia, but she did not receive equal pay for her work. She was classified as an unskilled worker because no wage had been set for female crop-duster and she could not earn what a man earned.

While these ladies are an inspiring part of agricultural aviation, they are historically important and the pioneers for all women in any field of aviation; but are they the face of agricultural aviation today?

Have you ever heard of Pauline Hawks of Bruning, Nebraska? She and her husband are charter members of the Nebraska Flying Farmer Association. She was president of the Nebraska 99ers. [The Nebraska 99ers are an international organization of women pilots providing networking and scholarship opportunities for women in aviation.] The Hawks' ran a flight school and a crop-dusting service. Pauline Hawks believes she was the first female agricultural aerial applicator in Nebraska, the year was 1951[2].

Have you ever heard of Ruthanne Koch or Cynthia Schreiber-Beck? As members of the Women of the National Agricultural Aviation Association (WNAA), they were instrumental in developing educational material for elementary and secondary schools. Through their efforts schools can download material that explains the mission of aerial application. As we well know, the aerial application industry does not always get favorable coverage in the media. The material that was developed by these two women explains the whole process of aerial application. Through integrated work assignments that can be used in math or science classes' students learn how to figure a spray job or how to calculate the product needed on a field. The materials explain, on grade level, how well trained aerial applicators are and how states have standards these professionals must adhere to. Through their efforts positive, informative packets of information are available for students to learn about and hopefully understand the agricultural aviation industry.

Have you ever heard of Carolyn Baecker of *CP Products Company, Inc* in Temple, Arizona. Ms Baecker is president and majority owner in the company her father, Bob Evans,

– CONTINUED ON PAGE 22

1 *http://space.about.com/od/astronautbiographies/a/jerriecobb.htm*

2 *Those who flew: Aviation History of Thayer County Nebraska By Virginia Priefert, Turner Publishing Company published 2002; pages 304–307*

and G.O. Christopher started. The company engineers and designs spray nozzles for agricultural airplanes. Dick Reade of Mid-Continent Aircraft Corp says, "CP® Products has revolutionized and simplified operations for ag pilots."[3] Ms Baecker is carrying on the family and company tradition by providing award winning, innovated nozzles that allow agricultural aerial applicators to meet the high standards placed on them by state and federal regulations.

Have you ever heard of Mary Turner? Mary Turner is owner and partner in *S and T Aircraft Accessories* in New Braunfels, TX. Mary took over running the family business when her husband, Orville, passed away in 1998. *S and T Aircraft* rebuilds and overhauls engine parts and accessories, specifically radial engine accessories for agricultural aircraft. Mary and her sons learned from Orville, his high standards and the dying art of overhauling radial engine parts. Today they have 13 employees and stay busy keeping agricultural aircraft in the air.

Have you ever heard of Susan Crawford? She is a soon to be veterinarian in Wisconsin. While attending veterinary school, Susan helps her husband Clarke run the family business, *Crawford Aviation Service*. Now Susan is one of those novelties, you know a female Ag pilot! That's right Susan is not only going to veterinary school she is a full partner and pilot in the family business.

3 *http://www.cpproductsinc.com/ground/about.html*

Have you ever heard of Karen Plath? Karen of *Plath Aviation* lives in North Dakota and she is concerned about guy wires and how dangerous they are to Ag pilots. She wants these wires marked so pilots can see them from the air. Karen talked with utility companies who at best offered her the same markers that can not be seen from a plane in the air. She talked with her state legislative representatives and found it was not a major concern for them at this time. Karen approached the National Agricultural Aviation Association (NAAA) for help. The NAAA has spearheaded a national contest for better guy wire markers. This is a current effort by the NAAA. Here is a woman in agricultural aviation who is trying to make a difference for the industry.

As I thought about the role of women in agricultural aviation I realize there are many who blazed the path not only in the air but on the ground. From the still novel female aerial applicator to the female A&P mechanic, women have made inroads into this traditionally male oriented field. As I wonder about the women of today's agricultural aviation industry, I realize most of the women in agricultural aviation are everyday women.

They are the wives, daughters, sisters, business partners, secretaries, or office managers. They are the ones who get up *before* the crack of dawn to make breakfast, and sack lunches. They are the ones who will come in and answer the phone, send out bills, or talk to school kids on a field trip. They are the ones left to manage the home while their pilot husband travels to where the jobs are during the season.

Austin O'Brien
WNAAA Scholarship Essay Winner

Austin is the son of NAAA and WNAAA members Dwayne and Ramona O'Brien of O'Brien Flying Service in Iowa, Louisiana and the grandson of past NAAA and WNAAA presidents Zoren and Joan O'Brien. He has worked for the family business since he begged his Papa for a job when he was 10 years old. He started out pushing a broom and washing airplanes. Austin has graduated to driving a truck and being an important part of the business. He loves baseball and was a player on the 2007 State Championship Baseball team for Iowa High School. Austin also loves running and was a member of the track team at IHS and a 2 times state runner-up for the cross-country team. Austin loves football, friends and having a good time. Austin graduated with honors from Iowa High School this May. He will attend Northwestern State University in the fall. Austin's major is biology and aviation science. His future plans include getting his commercial pilot license and becoming a medical doctor.

Today's women in agricultural aviation are involved in everything from the daily operation of the business to recommending new laws for the industry. They are the members of the national and state organizations that promote the betterment and the understanding of agricultural aviation. Today's women in agricultural aviation do what needs to be done. They are women like Patti Cline, the current president of the WNAAA or Kristine Edwards, or Joan O'Brien or Laurie Felix past presidents of the WNAAA or Julie Broussard and Janice Evertt and Pat Stamps presidents of their states' women's agricultural aviation association[4]. You don't have to look far to find the women of today's agricultural aviation industry and see how they are involved. They run flying services, they fly planes, they build nozzles, and they rebuild airplane parts. The women of today's agricultural aviation are sitting on this scholarship committee, and they are concerned about guy wires, unfavorable imagines, educational material and the promotion of the industry. They are everyday women making a difference in the often misunderstood, under appreciated, sometimes trying, most times rewarding industry of agricultural aviation.

4 *http://www.agaviation.org/wnaaaboard.htm*

Biography

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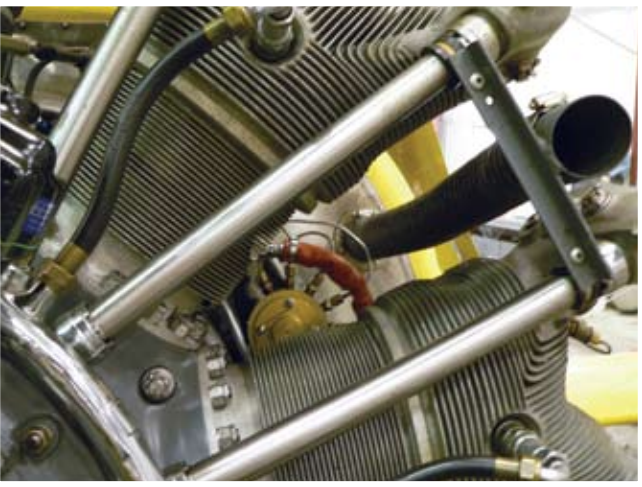
By Lindsay Byrne,
former NAAA Employee



A radial engine on an Ag-Cat, similar to those being converted for ethanol use. Insert photo: Modified fuel injector allowing for the use off bio-fuels in radial engines.

As everyone knows, corn is being converted into ethanol for a more environmentally friendly gasoline. According to the American Coalition for Ethanol (ACE), ethanol fuel is currently available to vehicles at 1,300 gas stations across the U.S. and an ethanol fuel for aircraft will, hopefully, soon be available to pilots. Ethanol is important because we cannot depend on non-renewable fossil fuels; ethanol is sustainable and renewable. As long as corn, wheat, barley, sugar cane and other commodities can grow, there will always be a way to produce ethanol.

Aviation Grade Ethanol

A NEW GASOLINE FOR AVIATION AIRCRAFT

Ethanol Background

Ethanol is an alcohol produced by fermenting sugar or converted starch, usually from grains such as corn or wheat. It can also be made from 'cellulosic' feedstocks, which are corn stalks, grain straw, pulp, wood waste and municipal solid waste. Cellulosic is not a common way to produce ethanol in today's world because it is an expensive technology, but research efforts are underway to make it more cost-effective.

According to the National Corn-to-Ethanol Research Center in Illinois, dry-mill for corn is the most common type of ethanol production in the U.S. In the dry grind process, the entire corn kernel is first ground into flour and the starch in the flour is converted to ethanol via fermentation.

There are a number of reasons why ethanol is used in fuels. Ethanol is a stable and renewable fuel. Ethanol reduces greenhouse gas emissions that contribute to global warming, Ethanol contains oxygen and promotes a cleaner and more complete combustion when added to gasoline. Ethanol acts as a natural gas line antifreeze in the winter and ethanol has a high octane rating and therefore is useful in increasing the octane level of unleaded gasoline.

ACE states that U.S. ethanol production is reaching unprecedented levels, growing America's ability to supply a portion of its own transportation fuel. Corn is the primary feedstock for U.S. ethanol production and some grain sorghum is also used. In 2006, 20 percent of the U.S. corn crop was used for ethanol production; up from 14 percent in 2005 and 12% in 2004. One billion bushels of corn were used in 2002 and 2003 for ethanol and USDA's Economic Research Service (ERS) projected that 3.1 billion bushels were used in 2007 and 2008.

The root of the cassava, a woody shrub native to South America, can be used in the production of ethanol.

What Countries Produce Ethanol?

The U.S. and Brazil account for most of the world's ethanol production. While the U.S. uses corn for ethanol production, Brazil uses sugarcane. According to USDA's Economic Research Service (ERS), a number of other countries have policy initiatives designed to increase ethanol production, but no country has come close to producing as much ethanol as the U.S. and Brazil. China is currently focusing on trying to produce ethanol from cassava (a cultivated South African Shrub) and sweet potatoes.

In regards to finding alternative fuels, the European Union is the largest biodiesel producer using rapeseed oil as its main feedstock. Brazil and Argentina are using soybean oil and Canada is also using rapeseed oil as a feedstock to expand their biodiesel production.

Aviation Grade Ethanol

Aviation Grade Ethanol, also known as AGE-85 or just AGE, is a high performance fuel, which is 85 percent ethanol-blended fuel for use in aircraft. Researchers hope that this fuel will replace 100 low lead (LL) aviation gasoline (avgas). According to ACE, more than 300 million gallons of avgas are used each year by the piston engine fleet in the U.S. Though avgas is the single largest contributor of lead in the atmosphere today, the Environmental Protection Agency (EPA), for the time-being, has allowed its unregulated use in aviation until a suitable unleaded replacement can be found. Researchers are hoping that AGE is that replacement.

In July 1996, the AGE project was started to develop a fuel based ethanol that could serve as a viable replacement for 100LL aviation gasoline. The South Dakota Corn Utilization Council provided funding

According to a brochure called "Getting the Lead Out" by the National Corn Grower's Association (NCGA), it is relatively inexpensive to convert an engine to be compatible with ethanol-blended fuels. For blends higher than 85 percent, the modification simply requires allodizing (converting surfaces to be more resistant to corrosion and abrasion) any aluminum fuel-wetted parts, ensuring any rubber parts that come in contact with fuel are ethanol-compatible and modifying the fuel injector unit. If a pilot modifies his engine to burn ethanol, but then decides to go back to avgas, only a simple adjustment to the mixture control is necessary.

to South Dakota State University (SDSU) to pursue this goal. To start the project, SDSU acquired a 1962 Cessna 180 through federal surplus property to serve as a prototype aircraft for the project. Comprehensive flight tests were conducted and FAA Supplemental Type Certification (STC) was obtained to certify Cessna 180s and 182s on AGE fuel. The AGE project at SDSU has also converted an Ag Cat to ethanol power, but they have not yet received an STC for the Ag Cat.

According to Dr. Dennis Helder, Director of Engineering Research at the SDSU and Project Manager Engineer of the AGE project, "We started working on the AGE project with the South Dakota Corn Utilization Council. They purchased the Ag Cat and ultimately donated the aircraft to the University. We decided to do testing with an ag plane because we saw a lot of synergy between the industry and ethanol fuels. It seemed obvious to do testing with an ag plane because applicators spray corn and corn is turned into ethanol. We also thought that we would receive a positive response from the aerial application industry and that they would have a strong interest in ethanol powered aircraft."

From the researcher's perspective, "There are significant benefits to the aerial application industry if aircraft are converted to use AGE. Ethanol allows engines to run cooler and it produces a higher horsepower for aircraft than 100LL. We believe that ethanol will extend engine life, which will save money for the operator," stated Helder. Tests have shown a power output of 600 horsepower on 100LL will increase to 650 horsepower on ethanol. At this time there is not an exact cost available for converting a plane, but Helder thought it might be in the $5,000 range, although this could change based on many different factors, including the type of aircraft.

"The Ag Cat performance has been great on ethanol. Not only do the engines run better, but they will run longer, will be more reliable and will hopefully save lives," expressed Helder.

Helder added, "There are two procedures for converting a radial engine aircraft from 100LL to AGE. One is to modify the fuel delivery system to allow the flow of 20 percent more fuel. More ethanol is needed per volume of air for the combustion process. As of right now, the only drawback that we can see to AGE is that fuel flow is higher and because of this, pilots do have to fill up more often, but if pilots are doing short duration loads, this would not be as big of an issue. This is an issue that we're continually working on because we want this fuel to be financially rewarding to pilots. The second step in conversion is to ensure that everything touched by the fuel is ethanol compatible, whether it's rubber or another product." According to Dr. Jim Behnken of SDSU, while costs related to *fuel consumption* may go up after ethanol conversion, fewer deposits and less wear on the engine will result in lower *overall* operational cost such as maintenance expenses – the related costs of which will typically be less.

An FAA STC for Cessna 180 and 182 aircraft has been obtained, but the FAA has informed the researchers that they would not grant any further STCs for aircraft before working on a specification for the AGE fuel. Based on FAA's response, Helder stated that they are moving forward to finalize specification of AGE with the American Society for Testing and Materials (ASTM). While the fuel specification is being developed, they hope to recruit some additional ag pilots to conduct beta testing.

The only AGE fuel currently available is in South Dakota and is not available to the public or for sale since it is still being tested.

South American Ethanol-Powered Ag Planes

While there are no U.S. manufacturers currently producing ethanol-compatible engines, in 2004, Industria Aeronautica Neiva of Brazil offered the world's first factory assembled Ipanema ag aircraft to be supplied with a factory-fitted and certified kit as an option to convert a plane to

– CONTINUED ON PAGE 28

burn ethanol as it's primary fuel. Some pilots still have planes that use non-ethanol, so the manufacturer leaves it up to the person buying the plane whether or not they want to convert their aircraft to use ethanol fuel.

According to Alan McCracken, an agricultural engineer and independent consultant who provides support to many applicators in Brazil through his company BDM, "Brazilian Ipanema ag planes are running on 100 percent ethanol with a small gasoline tank for start up only. When a pilot buys an aircraft from Industria Aeronautica Neiva, the factory offers its customers the ethanol conversion kit as an option to operate on pure ethanol. Pilots who already own Ipanema aircraft can also purchase the kits. It is easy and cost effective because pilots are saving a lot of money using ethanol."

While SDSU scientists advocate reducing or removing water in US ethanol production, according to Helder, the South Dakota team has been following the work in Brazil. "In South America, they work with a hydrous form of ethanol, meaning that their processing does not remove water from ethanol. The main reason for this is that it's cheaper to keep water in the ethanol. We are concerned about testing with ethanol that contains a significant amount of water because the ethanol contacts all fuel system components, which could lead to corrosion. The South Americans are ahead of U.S. in the number of aircraft certified for using ethanol, but we hope to get more agricultural and general aviation industry support for our project and receive certification for ethanol fuel in other aircraft."

According to the Industria Aeronautica Neiva website, as translated by McCracken, the advantages of running an engine on ethanol includes the aircraft are environmentally friendly, the engine runs cooler, there is a possible extension of time between engine overhauls, the power is increased by 7 percent and there is a considerable reduction in operating costs. McCracken further stated that according to ag pilots in Brazil, "The engines in Brazil are lasting longer, running much cleaner, the oil is cleaner and the engines are requiring less maintenance."

Also stated on the Industria Aeronautica Neiva website, when considering a fleet of 600 aircraft in Brazil, 4.4 million gallons of Avgas will be eliminated, and there will be a demand for 5.7 million gallons of ethanol. Despite the rise in fuel costs, there will be a reduction in overall operational costs of nearly $13.5 million per year.

Additional Potential Fuel Options for Aircraft

In an effort to continually find new sources of fuel for airplanes, researchers have found that the Jatropha plant, which is actually a weed, can produce Jet-A bio-fuel. The Jatropha plant has poisonous seeds, which contain 30% to 40% oil that may be refined at a significantly lower cost than crude oil. The plant can grow almost anywhere, it does not need a lot of rain, it is resistant to drought and pests and it can produce seeds for up to 50 years. One hectare (or 2.47 acres) of Jatropha can produce up to 500 gallons of fuel.

Pratt & Whitney Canada announced in July that they are seeking to find alternate biofuels that do not compete with human food sources to fuel their engines. The company is looking into Jatropha plants, as well as algae and biobutanol, which is derived from corn, wheat, sugarcane and beet/cane. It is important to Pratt & Whitney Canada's objectives in identifying and assessing appropriate biofuels, studying their effect on engine components such as combustors and fuel systems, developing appropriate technologies and design changes to accommodate them, and conducting tests comparing current jet fuels

Why use ethanol in fuels?

Ethanol is a sustainable, renewable fuel that can help reduce our dependency on non-renewable fossil fuels.

On a life-cycle basis, compared to gasoline, ethanol reduces greenhouse gas emissions.

Ethanol contains oxygen and promotes a cleaner and more complete combustion when added to gasoline.

Ethanol has a high octane rating and therefore is useful in increasing the octane level of unleaded gasoline. This in turn reduces pre-ignition or engine 'knock,' which under severe conditions may result in serious damage, especially to high performance engines.

Ethanol also acts as a natural gas line antifreeze in the winter.

Courtesy of Ontario, Canada Ministry of the Environment

with first generation ethanol, as well as second generation biofuels. First generation biofuels are limited, according to Pratt & Whitney Canada because they cannot produce enough biofuel without threatening food supplies, they are not cost competitive with existing fossil fuels such as oil, and some of first generation biofuels produce only limited greenhouse gas emissions savings. Second generation biofuels can help solve these problems by supplying a larger proportion of fuel supply affordably, and with greater environmental benefits.

Air New Zealand has been at the forefront of looking for alternative fuels and they believe they have found a great option in the Jatropha plant. Air New Zealand's criteria for sourcing the Jatropha oil was that the land that the plant is grown on could not be a forest or new grassland area within the previous two decades; the quality of the soil and climate is such that the land is not suitable for the vast majority of food crops because they do not want to take land away for producing food; and that plantations are watered by rain and not mechanically irrigated. Air New Zealand, along with Boeing and Rolls-Royce PLC, had test flights scheduled for November 2008, in which they planned to use Jatropha fuel in four aircraft engines of a Boeing 747 powered by Rolls Royce engines.

For more information:
- AGE-85 *www.age85.org/*
- National Corn-to-Ethanol Research Center *http://www.ethanolresearch.com/*

RECENT LEGAL CHALLENGES
In Aerial Application Drift Litigation

By Geffrey W Anderson Attorney At Law, Anderson, Smyer, Riddle & Kuehler LLP., Fort Worth, TX.

It has been eight years since we updated the NAAA membership on the changes in drift litigation. In the Federal arena, creative plaintiffs have attempted to broaden the scope of Federal Statues to encompass aerial application. These attempts have largely failed because the intent of the Federal Statutes asserted by the plaintiffs was not intended to impose liability on aerial applicators. In the state arena, the decisions involving aerial application have generally favored heightened evidentiary standards in order to hold an applicator liable for drift.

FEDERAL REGULATORY SCHEME

The FAA imposes certain standards on the aerial applicator through the Federal Aviation Regulations (FARs). The FARs do not create a cause of action (empower a private individual to sue for a violation) against an aerial applicator. The Federal Insecticide, Fungicide and Rodenticide Act governs the use of pesticides. According to the FIFRA, the EPA must make a required finding of "no unreasonable risk of adverse effects" before approving a pesticide. To assess the adequacy of proposed products, the EPA requires the submission of extensive scientific data demonstrating the safe use of the pesticide. Like the FARs, FIFRA does not provide a private right of action for citizens with grievances against a pesticide manufacturer or an applicator.

Like the FARs, FIFRA does not provide a private right of action for citizens with grievances against a pesticide manufacturer or an applicator.

The Resource Conservation and Recovery Act and Clean Water Act

Unlike FIFRA, the Resource Conservation and Recovery Act (RCRA) provides a private right of action under its concerned citizen suit provision. 42 U.S.C.§6972(c)(1)(A) and (B). This provision provides for an injunction and attorney's fees when the past or present handling, storage, treatment, transportation or disposal of any solid or hazardous waste may present an imminent and substantial endangerment to health or the environment.

The Clean Water Act ("CWA") prohibits "discharge" of "any pollutant" into "navigable waters" without a permit issued by the United States Environmental Protection Agency ("EPA") under the National Pollution Discharge Elimination System ("NPDES") or under a federally approved state permit system ("SPDES"). *See* 33 U.S.C. §§ 1311(a) , 1342 . The CWA also authorizes any citizen to sue to enforce its provisions.

The statutes have been used with mixed success to attempt to enjoin aerial application of pesticide. *No Spray Coalition, Inc. v. The City of New York,* 252 F.3d 148 (2nd Cir. 2001); *Headwaters, Inc. v. Talent Irrigation District,* 243 F.3d 526 (9th Cir. 2001). In *No Spray Coalition, Inc. v. City of New York*, 252 F.3d 148 (2nd Cir. 2001), the plaintiff attempted to enjoin Malathion application to control mosquitoes and the transmission of the West Nile Virus. *No Spray Coalition, Inc. v. The City of New York,* 252 F.3d 148 (2nd Cir. 2001). In order to succeed the Plaintiffs had to show that the City of New York had "discarded" the insecticides. *Id. at 150.* Since the application Malathion into the air for the purpose of killing mosquitoes was the intended purpose of the pesticide, the Court denied the injunction, effectively mooting future challenges to pesticide application under RCRA, by finding that such applications do not involve discarding "hazardous" material. The Court noted that even though the spraying of Malathion on streets was technically a violation of the product's label and potentially a violation of FIFRA, Congress had expressly refused a private cause of action amendment to FIFRA and RCRA could not be used to create one. *Id.* However, the same claims could be pursued under the CWA. *No Spray Coalition, Inc. v. City of New York,* 351 F.3d 602 (2nd Cir. 2003).

The United States Constitution

A group of individuals living in the Western part of Tennessee filed an alleged class action against the Southeastern Boll Weevil Eradication Foundation and all of the pilots who were performing the aerial application of Malathion. *Perry v. Southeastern Boll Weevil Eradication Foundation, Inc.* 154 Fed. Appx. 467 (6th Cir. 2006). Since FIFRA and RCRA would not assist them and no navigable waterway was involved, the individuals were left to fashion

their own ideas for a Federal regulatory scheme under which to bring suit. They settled on alleged violations of the United States Constitution. Specifically, they alleged that: 1.) the applications violated the 5th amendment to the Constitution in that the drift onto their property was a "taking" without just compensation; 2.) that the applications forced them to stay inside their homes and constituted an unreasonable search and seizure in violation of the 4th amendment to the Constitution; 3.) and that the program and pilots conspired to deprive the Plaintiffs of equal protection and the privileges and immunities provided by the Constitution in violation of 42 USCS 1985. Id.

The District Court dismissed all of the Plaintiff's claims and the dismissal was affirmed by the 6th Circuit Court of Appeals. *Id.* The Court reasoned that none of the activities involved in aerial application amounted to violations of the Constitution. Instead, the claims that were plead amounted to nothing more than state tort law claims and as such they failed to state a claim upon which relief could be granted in Federal Court. *Id.*

STATE REGULATORY SCHEME

State law imposes liability on aerial applicators based on four types of standards: 1.) nuisance; 2.) strict liability; 3.) negligence; and 4.) trespass. However, the prevailing trend is to only allow negligence claims supported by expert testimony. It is simply not enough to prove that the crop or individual was damaged. Essentially, the Plaintiff must prove that the aerial applicator breached his professional duty.

Nuisance and Strict Liability

A nuisance is "any damage caused by conduct that is abnormal and out of place in its surroundings." William Prosser, Torts § 87, at 583 (3d ed. 1964). In the first reported case involving aerial application of a chemical, *S.A. Gerrard Co. v.Fricker*, the Arizona Supreme Court ruled that the application of chemicals by airplane to aid agriculture was an inherently dangerous activity. State courts that utilize the nuisance doctrine to determine liability base their decisions on the presumption that aerial application of pesticide to crops are inherently dangerous.

Strict liability is the legal doctrine that makes a person responsible for the damage and loss caused by his/her acts and omissions regardless of culpability or negligence. For instance the Oklahoma Supreme Court in 1961 stated that "The use, by the defendant, of a poison on his land, which, if it escaped, would cause damage to plaintiff, was done at defendant's peril. He is responsible for its drifting and thereby trespassing on plaintiff's land where it damaged the cotton. Any precautions defendant's agent may have taken to prevent the injuries to plaintiff's cotton, in view of the results, do not serve to extinguish his liability. The question in general is not whether defendant acted with due care and caution, but whether his acts occasioned the damage." *Young v. Darter* 363 P.2d 829, 833 -834 (Okl.1961). The theories of Nuisance and Strict Liability have been rejected by most states, because the pesticides used in aerial application have been through the vigorous FIFRA requirements mentioned earlier and are not inherently dangerous.

Negligence and Trespass

Generally speaking, negligence is the failure to act as a reasonable person would in the same or similar circumstance. In a professional liability case such as medical or legal malpractice, Courts require expert testimony that the professional breached his duty or the "standard of care." A growing trend among states, such as Texas, apply this rule to aerial applicators. This issue was first addressed in *Hager v. Romines*, 913 S.W.2d 733 (Tex. App.- Fort Worth 1995, no pet.). *Hager* involved property damage and lost profits claim to a neighboring crop. The Court in *Hager* required expert testimony from a licensed aerial applicator in order to hold an applicator liable for negligence. The same requirement applies to a personal injury lawsuit. *Parker v. Three Rivers Flying Service, Inc.,* 220 S.W.3d 160 (Tex. App-Eastland 2007, no pet.).

Trespass to land is a common law tort that is committed when an individual or the object of an individual enters the land of another without a lawful excuse. This theory was utilized in *Schronk v. Gilliam*, 380 S.W.2d 743 (Tex. Civ. App.--Waco 1964, no writ), where a Texas court held that plaintiffs could assert a cause of action for overflight of their fields if the flight enters the immediate airspace adjacent to the plaintiff's property and the flight of the aerial applicator unreasonably interfered with plaintiffs' enjoyment of their property. In the context of aerial application, a plaintiff must still introduce expert testimony to establish the trespass.

SUMMATION

The good news in this brief update is that most of the attempts by Plaintiffs to utilize Federal Statutes to bring suit against aerial applicators have failed. Additionally, the different states have begun to treat claims against the aerial applicator just as they would treat any claim against a professional. The claim must be supported by expert testimony identifying the breach of the standard of care. Since the law treats you like a professional, you must conduct your operations in a professional manner.

NAAREF PROGRAM SPONSORS 2008-2009

Operators and Pilots, Federal and State Agencies, Insurance and Service Providers, Aircraft and Equipment Manufacturers, Chemical Companies, Academic Institutions, and State Associations sponsor the NAAREF projects, including the PAASS Program.

Donations are at the category level unless individually noted. Donors that have pledged for 3 to 5 years or have donated the last 3 years at that level are shown in bold print.

STS Enterprise — $50,000

National Agricultural Aviation Association

F-22 Raptor — $40,000

X-1 Glamorous Glennis — $30,000

National Association of State Departments of Agriculture Foundation

P-51 Mustang — $25,000

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Nolen Ag Services Inc
Stamps Spraying Service Inc
Stokes Flying Service
Sun Valley Dusting Company
Thomas Helicopters Inc
Lee & Nancy Turnquist
Women of the Tri-States (MN-ND-SD)

Graf Zeppelin — $250

Bell Flying Inc
Carroll Flying Service Inc
Crop Air Inc
Everett Flying Service Inc
Lakeland Dusters Aviation Inc
Riceland Aviation Inc
Rucker Flying Service Inc
Jayne Rucker
Runsick Flying Service
Sky Tractor Supply
Thiel Air Care Inc
Western Helicopter Services Inc
Women of the Louisiana AAA
Yellowstone Air Service Inc

Chuck Stone

HONORED BY THE FAA

NAAA President Doug Chanay, Chuck and Marie Stone and Mark Laughridge, FAA

Long-time Florida operator and aircraft dealer, Chuck Stone was honored at the Southeast Aero Cultural Fair (SEAF) convention on February 3, 2009 in Tallahasse, Florida with two prestigious awards from the Federal Aviation Administration (FAA). Charles "Chuck" Stone, Jr. owns and operates Southeastern Aerial Crop Service, Inc. in Ft. Pierce, Florida which is an aerial spraying business and an Air Tractor dealership. Chuck has been a member of the NAAA for many years and served on the Board of Directors representing the Florida Agricultural Aviation Association.

FAASTeam member Mark Laughridge of Orlando FSDO presented Chuck with both the "Master Mechanic" and "Master Pilot" Awards. The Charles Taylor Master Mechanic Award, named in honor of Mr. Charles Taylor, the Wright brothers' mechanic who is considered to be the first aviation mechanic in powered flight, recognizes the lifetime accomplishments of senior mechanics. To be eligible for this award, a recipient must have 50 years in aviation maintenance as an accredited mechanic or repairman and be an FAA-certificated mechanic or repairman for a minimum of 30 years.

The second award titled the Wright Brothers Master Pilot Award is awarded to acknowledge individuals that have 50 years of consecutive U.S. safe piloting experience. The award and lapel pin is given to recognize pilots that exhibit professionalism, skill and aviation expertise. Chuck's wife Marie was also awarded a lapel pin.

Chuck was honored by induction into the National Agricultural Aviation Hall of Fame in 1999 for his contributions to the aerial application industry. He has also been awarded the NAAA Agrinaut Award for outstanding contribution in the field of ag aircraft operations and the Outstanding Service Award for outstanding service to the industry or its organization.

Welcome to New NAAA Members

AFFILIATED ALLIED

Scott Stout
BASF
Bourbonnais, IL

Todd R. Allen
Wilber Ellis Air
Watertown, SD

Mark Whalen
Syngenta Crop Protection
Millington, MD

AFFILIATED-OPERATOR

Richard A. Santos
Rusty's Flying Service
D'Hanis, TX

Jake Crockett
Devil Dusters, Inc.
Artesia, NM

Timothy B. Folk
Folk's Ag Service
Martinsburg, WV

AL-CHEMICAL #5

Dave Gustafson
Monsanto
St. Louis, MO

AL-DEALERS/PARTS #1

Roy Scott
Aviation Products
Systems APS, Inc.
Granite City, IL

David Blakeney
Arkansas Turbine Services Inc.
Walnut Ridge, AR

Larry Neal
Neal Aircraft, Inc.
Slaton, TX

AL-DEALERS/PARTS #2

Mark Hutton
A & M Aviation LLC
Burlington, CO

AL-INSURANCE #1

Jonathan Doolittle
Sutton James Incorporated
Hartford, CT

AL-PROPULSION #1

Donnie B. Clark
Texoma Turbines, Inc.
Durant, OK

AL-PROPULSION #2

Joe M. Arismendez
Galaxy International, Inc.
Goodyear, AZ

AL-SUPPORT #1

Richard Gross
OctaFlex Environmental
Systems, Inc.
Timber Lake, SD

Ryan Taylor
Vizual Systems
Seattle, WA

Marc J. Horrell
Jet A USA
Cave Creek, AZ

Cindy Schreiber-Beck
Tri-State Aviation Inc.
Wahpeton, ND

ASSOCIATE

Kenny Schilke
Steggs Aerial Spraying Inc.
Imperial, NE

Robert Chenard
SOPFIM
1780 Semple, QC, Canada

Chip Echt
Raymax Enterprises, Inc.
Los Alamitos, CA

James Gannone
Villas, NJ

Brian R. Gee
Arkansas Turbine Services Inc.
Walnut Ridge, AR

Michael Hahn
Aero-Nautical
Oshkosh, WI

Brett Holzwarth
Chuck Holswarth Flying Service
Virden, IL

Paul Hultman
Crystal Gliderport
Llano, CA

Joe H. Hultquist
Minden, NE

Randy Nichols
Traction Marketing Group
Oklahoma City, OK

Charles Poole
North Beach, MD

Austin Richardson
Midwest Airspray, LLC
Marshalltown, IA

Charles Slough
Myrisen Air Corp.
Waco, TX

Aaron Wells
Wells Air Service
Lincoln, NE

Jordan C. Witrado
American West Aviation
Five Points, CA

INTENATIONAL

Shaun Kinniburgh
Kinniburgh Spray Service Ltd.
Taber, AB, Canada

James Wood
Provincial Airways
Box, Canada

Morley Woods
Champion Farms Ltd.
Elgin, MB, Canada

OPERATOR

Matt N. Aubuchon
L & L Helicopter
Elma, WA

Charles Landells
L & L Helicopters
Mesa, WA

Luke Boedeker
Boedeker Flying Service, Inc.
Childress, TX

Matthew Brignac
Brignac Flying Service
Columbus, MS

David Edwards
Midwest Spray Service LLC
Stanberry, MO

Craig T. Fountain
Fountain Flying Service LLC
Moscow, ID

Robert W. Gudgel
Gudgel's Aero-Ag
Chowchilla, CA

Bruce F. Hubler
Valley Air Service, Inc.
Caldwell, ID

Paul Kruse
Aerial Crop Service
Colfax, IL

Dirk Merrill
Merrill Aviation, Inc.
Dothan, AL

Lawrence J. Vieck
Vieck Flying Service LLC
Vincennes, IN

Waylon J. Woods
Wood's Aviation Inc.
Kearney, NE

PILOT

Carl Brumm
Stacyville, IA

Anthony Sturgeon
Farmer's Spraying Service, Inc.
Haviland, KS

Thomas A. DePriest
McCarley, MS

Greg D. Allen
Tri County Ag
Wray, CO

Patrick Andrews
Bruce's Flying Service
Arlington, GA

Scott A. Bagley
Grant County
Mosquito Control
Moses Lake, WA

Jess Baker
Bakersfield, CA

Brian Bishop
Mellwood, AR

Susie Crawford
Crawford Aviation Services
Oregon, WI

Jason F. Davis
Stamps Spraying Service
Panhandle, TX

Paul Detrixhe
Flying Tiger Aviation LLC
Oak Ridge, LA

Jon E. Edge
Strohl Aviation LLC
DeValls Bluff, AR

Joseph Farwell
Triple F flying, Inc.
Benton, PA

Pete Fountain
Fountain Flying Service
Genesee, ID

Robert J. Garrett
Flying Tiger Aviation LLC
Oak Ridge, LA

Brian B. Gibbs
Gibbs Aero Spray Inc.
Fremont, OH

Tim Grayson
Dakota Air Spray
Huron, SD

Arland R. Hansen
Flight Level Zero
Warden, WA

Curt E. Hill
Hill Ag Air
Soda Springs, ID

Danny Jeske
Hazelton, ID

Brad Kober
Cedar Springs, MI

Tony Koehn
Bakersfield, CA

James A. LaFavor
Curless Flying Service, Inc.
Lonoke, AR

Dennis Lohse
JHS Inc.
Helena, MT

Ryan McBoyle
Grangeville, ID

Jeff Montgomery
Pence Aerial Service
Richmond, MO

Jessy Panzer
Fry's Electronics
LaSelva Beach, GA

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Peden Aviation
Mauldin, SC

Travis L. Perkins
T & T Aviation
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Tommy H. Phillips
Williamsburg Air
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Bill A. Rose
Ice Flying Service
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Richard A. Roush
Wallace Aviation
Wallace, NE

Wade Schultz
Dakota Air Spray
Huron, SD

Allen Soll
Har-Mor Ag Air
Tekamah, NE

Adam Tucker
Mountain Air Spray
Craig, CO

Chad J. Tupper
Chuck Holzwarth Flying Service
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William Allen Whitfield
Tim Whitfield Aviation, Inc.
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Dan's Flying Service INC.
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WNAAA

Leslie Craft
Craft Air Services, LLC
Hertford, NC

Graciela Jordan
Jordan Air Inc
Okeene, OK

Fly Safe for 2009 Coming Soon

By Ken Degg, NAAA Director of Education & Safety Programs

NAAREF will again bring you the Fly Safe program of safety messages sent to your fax or e-mail. Fly Safe will be distributed, at a minimum, every other Monday during April, May, June; every Monday in July; and every other Monday in August.

These helpful and timely reminders are designed to keep your thoughts on safety as you go about your day-to-day tasks in an aerial application business. Print out these messages and post them for all employees to read and think about. Strive to make everyone a part of the company safety program.

You will be reminded to take the time to keep your body healthy by eating right, getting sufficient rest and drinking plenty of fluids; minimize stress; maintain equipment properly; plan your flights to leave a way out of potential trouble; avoid ground based obstructions like power lines, trees, towers, and wind generators; whenever possible, remember and follow the motto "Ferry above 500 and stay alive"; and above all – recognize and heed your gut feeling!

Make a "Fly Safe" Resolution This Season!

Seeking Future Industry Leaders

NAAA is now accepting applications for the 2009-2010 NAAA/Syngenta Leadership Training Program. If you're interested, contact your state/regional association director today! Each state/regional association can submit only one application per year. NAAA accepts applications forwarded from a state/regional ag aviation association. The participants will be required to attend the Fall 2009 NAAA Board Meeting October 9th-11th (location to be determined) and the 2010 Spring Board Meeting in Washington, DC from February 12th-14th. The application deadline to participate in the next class is May 2, 2009.

Criteria for qualification include:

- Ag Operator/Pilot – You must be involved in an agricultural aviation business. This includes partial or total ownership of a least one agricultural aircraft; and/or a managing employee, stockholder or pilot of an agricultural aviation business.
- Leadership Involvement – You must have leadership experience developed from past involvement in regional or state industry associations, community service involvement and/or school or professional organizations.
- Industry Future – You must indicate intent of future involvement in the aerial application industry.
- NAAA Membership – You must be a member or employee of the appropriate state/regional agricultural aviation association and NAAA or WNAAA.
- Application & Photo Submission – applications are available from the NAAA Members only Website, NAAA Leadership Training section – http://www.agaviation.org/membersonly/leadtrain.cfm or call us at 202-546-5722 to request a copy.

The goal of the program is to provide training to selected individuals in the agricultural aviation industry. The program includes training that enables the participants to develop a strong ability to clearly communicate to the public, media and government the important role aerial application plays in the production of our country's

agricultural products. The training also involves teaching techniques to more effectively run and manage an aerial application business, and to more effectively serve as a leader while serving industry organizations, such as the NAAA and state/regional agricultural aviation associations.

5 Tips for Enhancing Your Business, Your Leadership Skills and the Industry

If you're asking what else you can do besides participating in the Leadership Training Program, here are several other resources.

1. Use the NAAA Media Kit to become familiar with important talking points about the industry that can be used with media, government officials, consumers and children. Some talking points include:

- Aerial application accounts for almost 25% of crop protection applications and nearly 100% of forest protection applications. Aerial application is often the safest, fastest, most efficient and most economical way to get the job done.
- Ag aviation assists in providing a safe, affordable and abundant supply of food and fiber for the world's growing population. It is also vital in protecting our natural resources and combating pests that threaten public health, such as West Nile Virus carrying mosquitoes.
- Aircraft help in treating wet fields and spraying when crop canopies (i.e. - orchards) are too thick for ground rigs. When pests or disease threaten a crop, time is critical. An airplane or helicopter can accomplish more in one hour than ground equipment can in one day. This means less fuel used, less air pollution and no soil compaction.
- To produce future food and fiber and leave room for wildlife we must increase production on the land we are now using. High-yield agriculture benefits the environment by producing maximum crop yields from fewer acres. Aerial application is a critical component of high-yield agriculture.

2. Attend the PAASS program each year to learn the most up-to-date safety, security and drift mitigation measures. Maintaining PAASS participation keeps you knowledgeable about the changes in the industry. Take advantage of the educational opportunities in the industry because the more you learn and understand, the more you can speak on behalf of the industry as a credible source. Also, by attending

PAASS, you become more credible if a drift claim or another lawsuit is brought against you or your business. Check with your insurance carrier about a potential discount for PAASS participation and NAAA membership.

3. Serve on NAAA and/or your state/regional agricultural aviation association Board of Directors. Learn the big industry issues by serving on Boards and committees.

4. Host field days by inviting school children, government officials and media to your operations to properly educate them on the aerial application industry. Americans are now several generations removed from agriculture and it's our responsibility to make sure they understand the industry's important role in agriculture.

5. Volunteer at churches, schools, farmers markets and local events in your area.

Membership Application

Mail to: NAAA, 1005 E Street St., Washington, DC 20003
Ph: (202) 546-5722 Fax to: (202) 546-5726
Join Online – www.agaviation.org

Membership Categories: (please select one)

Dues amounts are subject to change by NAAA Board. Operators & Pilots who do not belong to a State Aerial Application Association must pay Participating Operator & Pilot dues.

$450	___ **Operator**	$850	___ **Allied (51-100 employees)**
	___ $10 each aircraft over 3	$1000	___ **Allied (101-500 employees)**
$170	___ **Affiliated Operator**	$1700	___ **Allied (500+ employees)**
$900	___ **Participating Operator**	$170	___ **Affiliated Allied**
$170	___ **Pilot**	$85	___ **Associate**
$340	___ **Participating Pilot**	$225	___ **International**
$450	___ **Allied (1-10 employees)**	$680	___ **State/Regional Association**
$680	___ **Allied (11-50 employees)**	$170	___ **WNAAA**

Allied Industry: ***(indicate 1)***

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Membership Year That You're Paying _____

Name: _____

Company: _____

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Website: _____ Spouse _____

Please consider a donation to support NAAA programs.

NAAA Dues $_____ **NAAREF Donation $**_____

(NAAREF depends on your donations to pay for PAASS and other programs such as Compaass Rose, Operation S.A.F.E., Fly Safe and Athena. PAASS attendance fees do not completely offset program costs. Your additional donation, made out to NAAREF, is greatly appreciated and is tax deductible.)

Total $_____

Payment via:_____ Check Enclosed _____ Credit Card

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Dues, contributions or gifts to the NAAA are not tax deductible as charitable contributions for income tax purposes. Dues and similar payments may be deducted as ordinary and necessary business expenses subject to restrictions imposed as a result of the NAAA's lobbying activities as defined by Section 13222 – Omnibus budget Reconciliation Act of 1993 {IRS Code 162(e)}. NAAA estimates the non-deductible portion of dues paid during calendar year 2009 as 17%. ***Agricultural Aviation*** **subscription cost ($30 for domestic, $45 for international) is included in membership dues for all membership categories.**

_____ **Auto-Renewal Requested**
Entering your initials in this box authorizes NAAA to hold this credit card information on file for annual automatic payment of your NAAA dues each January until further notice. You will no longer receive yearly dues invoices, but a reminder notice will be mailed to you at the address on file 30-60 days prior to the date of payment. Those paying by check will receive renewal statements in the Fall for the next year.

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