December 21, 2023

NAAA eNewsletter

EPA Provides Update on Future of Chlorpyrifos After Court Reverses 2021 Ban – NAAA Engaging with EPA to Protect Aerial Application on Labels

In **November** of this year the Eighth Circuit Court of Appeals vacated EPA's 2021 ban on the use of chlorpyrifos on all food or feed crops. This week EPA released an update on what their next steps will be regarding chlorpyrifos. Once the Eight Circuit's court mandate is officially issued, which at the time of this writing hasn't occurred, EPA intends to reinstate all chlorpyrifos tolerances, making it once again legal to apply chlorpyrifos to food and feed crops.

However, more changes to chlorpyrifos are expected in the near future. The April 2021 ruling by the Ninth Circuit Court of Appeals that resulted in EPA's ban on chlorpyrifos interrupted EPA's registration review process of the insecticide. Just before the ban, EPA had issued a proposed interim decision **(PID) in December of 2020** that called for renewing registration of chlorpyrifos. However, the PID proposed restricting the use of chlorpyrifos to only 11 food and feed crops: alfalfa, apple, asparagus, cherry (tart), citrus, cotton, peach, soybean, strawberry, sugar beet, spring wheat, and winter wheat.

The Eight Circuit's reversal of the ban specifically pointed to this PID as a path forward for the EPA to re-register chlorpyrifos in a manner that allows it to be used safely. EPA's recent update states they intend to "expeditiously" propose a new rule based on the PID to revoke all tolerances except for the 11 crops listed above.

This week's update does not indicate if any other parts of the 2020 PID will be included in the rule EPA will soon be pushing. Of concern to our industry, the 2020 PID considered banning aerial applications for most uses based on exposure risks for mixers and loaders. The use of the word "consider" is unique for PIDs, in that it implied EPA had not yet decided whether to propose banning aerial applications of chlorpyrifos.

This uncertainty was largely due to whether a final report by the chlorpyrifos scientific advisory panel would recommend a 10X or 1X protection factor for human exposure risks. If the 1X protection factor is used, aerial applications would be permitted. If the 10X factor is used, EPA was considering banning aerial applications of chlorpyrifos. At this time, it still appears the decision between 10X and 1X has not been made. NAAA responded to the 2020 PID and will continue working with EPA to ensure aerial application remains an option for all chlorpyrifos uses.

NAAA Comments on Two EPA Pesticide Endangered Species Evaluations Supporting Aerial Use Without Unnecessary and Burdensome Restrictions

This week NAAA submitted comments to EPA on the biological evaluations (BE) for two neonicotinoid insecticides – **acetamiprid** and **dinotefuran**. A biological evaluation is the first step in the pesticide registration review process involving EPA's compliance with the Endangered Species Act (ESA). Once completed, EPA sends their biological evaluations to the Fish and Wildlife Service and the National Marine Fisheries Service, who conduct their own ESA risk assessments.

The main point NAAA made when commenting on both BEs is that they are based on risk assessments conducted using the inaccurate Tier 1 model in AgDRIFT. NAAA informed EPA, as has been done on numerous prior occasions, that EPA should use the more accurate Tier 3 model in AgDRIFT with NAAA assumptions that better reflect the safety and accuracy of modern aerial applications.

Both BE's also mentioned buffer zones that were not wind directional, meaning the buffer zone would apply regardless of whether the wind is blowing towards or away from an endangered species or its critical habitat. NAAA has been successful in the past convincing EPA to make buffer zones wind directional for important ESA related projects from the EPA, including the vulnerable species pilot project and the herbicide strategy. In its comments on the BEs for acetamiprid and dinotefuran, NAAA reminded EPA of this reiterating that ag aircraft can use smokers and other technology to monitor wind direction and speed.

NAAA is optimistic that both Tier 3 AgDRIFT modeling and wind-directional buffers will become the standard for EPA's pesticide registration and registration review processes. NAAA will continue to monitor and comment on all EPA activity that involves aerial applications.

NAAA and Ag Aviation Highlighted in the Key U.S. Ag Journals The Hagstrom Report and National Journal Daily

Jerry Hagstrom, a veteran and well-respected national agricultural journalist attended the 2023 Ag Aviation Expo in Palm Springs, Calif. to learn more about the industry. Last week, **he published an article** about the industry in the National Journal Daily and The Hagstrom Report, both of which reach national policymaking audiences. Read the article **here**.

Hagstrom interviewed NAAA CEO Andrew Moore, NAAA operator member Robert Ching of Aura, LLC in Zeeland, MI and NAAA operator member Mark Frey of MF Helicopters, LLC in East Troy, WI.

Hagstrom appears frequently on C-SPAN to discuss farm issues and has appeared on National Public Radio. The Hagstrom Report is a news service providing national and international agricultural news and covers Congressional hearings and press conferences in Washington D.C., and farm meetings throughout the U.S. National Journal Daily is published and hand-delivered every day that Congress is in session and is a source for everything happening on the Hill.

Former NAAA Staffer Margaret Dea Passes

Former NAAA employee Margaret Dea passed away on Dec. 10. Margaret worked for NAAA from 2008 until her retirement in 2018. At NAAA, Margaret was a smiling face at the registration desk at annual conventions and assisting members with memberships. She was responsible for administrative staff support, registering pilots for Operation S.A.F.E., along with PAASS program administration responsibilities, computer database projects and membership services mailings.

In addition to working for NAAA, she worked as a teacher, specializing in Spanish, French, and American History at the Hun School of Princeton and Newark Academy, both in New Jersey. She also had a passion for interior design and worked with John Johnson Interior Designs and Top Treatment Windows. Margaret was a business owner, running Service Plus, Inc. and Elon Graphic Design. Additionally, she held administrative and membership positions at Arthur Murray Dance Studios, City of Cape Coral Youth Programs, VIP Realty and Sign-O-Rama. Margaret's dedication and expertise left a lasting impact on those she worked with.

Margaret was a beloved mother, survived by her daughters Francesca Meredith Dea and Vanessa Laurel Dennison. A Celebration of Life Luncheon will be held on Dec. 27, 2023 from 12-2 p.m. at The Tree House, located at 1790 Hough St., Ft. Myers, FL 33901. Read Margaret's obituary **here**. In lieu of flowers, the family kindly requests that contributions be made to the **Alzheimer's Association** in Margaret's memory.

2023 NAAA Ag Aviation Expo Survey Deadline Today!

Thank you to the attendees and exhibitors for joining us at the 2023 NAAA Ag Aviation Expo in Palm Springs. Today is the deadline to complete the survey if you attended.

We are continually working to improve our education sessions, networking, trade show and the programs/services offered to attendees. Click the link below to complete the short survey so that we have substantive input to help us continue to improve future Ag Aviation Expo.

- Attendee survey click **here**
- Exhibitor Survey click **here**

All responses are anonymous, but if you wish to share further details, please contact **Lauren Henretty**, NAAA's Associate Director of Meetings & Marketing. Thank you for taking the time out of your schedule to complete this important survey. We look forward to seeing you Nov. 18-21, 2024, in Fort Worth, Texas.

Support Your Business by Renewing Your Membership for 2024

Thank you for your support of NAAA as a 2023 member. We request your continued support by **renewing your NAAA membership** for 2024. While you have been busy aiding farmers to produce a safe, affordable, and abundant supply of food, fiber, and bioenergy, NAAA has been busy making sure low altitude airspace is safe for your aerial application business to operate, as well as ensuring that you have the pesticide products you need to do your job.

In 2024, NAAA will focus on external communications about the benefits of aerial application and hiring ag pilots to handle spraying work. One great example of our public relations, that will benefit your business, will be NAAA contributing articles and ads throughout 2024 in Farm Journal's publications promoting aerial application services and how their readers can directly search the location of your aerial application business to a potential circulation of 150,000 ag retailer, crop consultants and farmers throughout the U.S.!

Several of NAAA's services conducted on your behalf, include:

- The launch of **C-PAASS**, our professional certification program for aerial applicators that take additional steps to augment their professionalism through education and testing, positioning themselves to be recognized and rewarded by their insurance providers, pesticide manufacturers, and customers.
- Submitting no fewer than 270 comments since 2017 to the EPA to keep aerial applications on pesticide labels enabling you to keep a deep inventory of pesticide tools without unnecessary and burdensome restrictions.
- Passage of the House FAA Reauthorization bill directing FAA to broaden protections ensuring the safety of manned aircraft from drones operating beyond visual line of site in addition to those drones operating under Part 107 and those above 55 pounds.
- Actively advocating to Congress for Farm Bill inclusion of exempting NPDES Permits for pesticide applicators and other key unnecessary, burdensome, and duplicative regulatory relief provisions, in addition to continuing substantive USDA research for developing safer, more efficient aerial application technologies.

- NAAA's *"Aerial Application: Above All Forms of Crop Care"* ad campaign and accompanying **web search tool** identifying member businesses is widely circulated to hundreds of thousands of potential aerial application users.
- Development of a health care insurance policy in 2024 for NAAA members to purchase for their families and business at competitive rates.

You will also continue to receive ongoing benefits, such as legal consultation on federal aviation laws, discounts for attending or exhibiting at the Ag Aviation Expo, staying connected to members through the print and online NAAA Membership Directory and receiving Association publications and eNewsletters, social media briefings and substantive web content at **AgAviation.org**.

Please make it a priority to renew your NAAA membership---the payoff far exceeds what you will spend in dues in the form of effective advocacy that reduces regulation and taxes affecting your aerial application business and trade association membership dues are tax deductible.

Ag Aviation Expo a Radiant Success in Sunny Palm Springs

Attendees and exhibitors at NAAA's 2023 Ag Aviation Expo couldn't have asked for better weather, scenery, education, networking and friendship in Palm Springs, California in early December. The expo hosted nearly 1,300 attendees and exhibitors from around the globe eager to network with friends and peers, educate themselves at 26 education sessions and improve their businesses by visiting with exhibitors on the trade show floor.

Air Tractor and Thrush aircraft and Transland pickup truck displayed outside the convention center with the beautiful San Jacinto Mountains in the background.

The show was a success thanks to stellar programming, a most lively auction, outstanding exhibitors and a beautiful setting in Palm Springs, which hosted the Ag Aviation Expo for the first time.

Below are four metrics that speak to the success of the 2023 Ag Aviation Expo.

Exhibitors: The NAAA Trade Show featured 143 exhibitors with an Air Tractor and Thrush Aircraft outside the facility and three helicopters inside the Palm Springs Convention Center. Thank you to all exhibitors with a special shout out to Air Tractor, Thrush Aircraft, Bell, AG-NAV and Rotor Technologies for exhibiting the aircraft.

Attendance: Nearly 1,300 attendees and booth personnel registered for the 2023 Ag Aviation Expo.

Auction: The 2023 Live Auction raised important and necessary funds to support NAAA programs and services. The association is thankful for all the companies and individuals that support NAAA programs by donating an auction item. A special thank you to Pratt & Whitney Canada for donating a Best Tug aircraft tug and a brand-new PT6A-34AG engine.

Sponsors: NAAA was honored to have 37 companies **sponsor** different events and items. Thank you to them all, including Diamond sponsors BASF, Corteva Agriscience, Pratt & Whitney Canada, Syngenta and UPL.

Many great sessions took place during the week, including the Kickoff Breakfast and General Session, and below is an overview of several sessions. The Aerial Application Technology Research Session description will appear in the Spring 2024 *Agricultural Aviation* magazine, which will focus on safety and stewardship.

KICKOFF BREAKFAST

The Expo opened on Monday with a terrific Kickoff Breakfast address by Burt Rutan, famed aerospace entrepreneur and spacecraft designer, who has developed 49 types of manned (unclassified) aircraft. He soloed in an Aeronca Model 7 Champion on his 16th birthday in 1959.

Burt Rutan was excited to talk about his Model 120 Predator Ag Plane to the audience.

Rutan made the decision early on as an entrepreneur that he would only sell an aircraft to people once it had been flight tested and shown to be a safe aircraft. Rutan founded his first company in 1974 and his second company, Scale Composites, in 1984, which he retired from in 2011. About 30% of Scale Composite's work is classified, but Rutan stated that he is very proud of the national security projects they accomplished.

"My exposure to ag aviation was early on and I learned how to fly the Aeronca Champ at an airport where many crop-dusting planes flew out of," stated Rutan. "There were many Stearmanns and the accident rate at that time was horrific. I learned about the industry's current fatality statistics and calculated that the industry has lost about three-tenths of one percent, which is a reasonable risk that people take."

Rutan developed his only ag aircraft, the Model 120 Predator in 1984 and unfortunately, it was the only one built because the customer crashed the prototype. The Predator wing was optimized for canard down/up wash, which is a wing configuration in which a small forewing or foreplane is placed forward of the main wing of a fixed-wing aircraft, there was a jump seat behind the pilot, the structure was corrosion-resisting and the engine was a Lycoming 0-720 eight-cylinder 400 BHP.

Model 120 Predator Ag Plane developed by Rutan in 1984.

"It was important to make the plane do things that no other crop duster could do, and I designed airplanes with what I call natural stall proofing," stated Rutan. "At any speed, whether the plane is level flying or pulling 3G's, it doesn't matter, the pilot can go full out and the airplane doesn't stall, roll off or depart. Crop dusters do a lot of turns and at altitudes where you have a potential departure meaning you'll be in the ground before you can recover. About the first 15 airplanes that I developed had a natural stall. You can't have the aircraft do something you're not commanding it to do." In a joking tone, Rutan offered his services to help the industry design a depart-proof aircraft.

Rutan talked about his aircraft Voyager, the first non-stop and non-refueled world flight in 1986, and SpaceShipOne, the first non-government manned spaceflight, which was funded by Paul Allen, co-founder of Microsoft. Both now hang in the Smithsonian Air & Space Museum in Washington, DC.

Rutan visits with Air Tractor President Jim Hirsch.

SpaceShipOne won the $10 million Ansari X-Prize, the competition created to spur the development of affordable space tourism. SpaceShipOne claimed victory as the first privately developed spacecraft to reach the boundary of space, which is 100 kilometers, twice in five days. The craft was hand-flown and simple to fly, but Rutan stated the biggest challenge was building a motor for SpaceShipOne. The flight time on SpaceShipOne was about an hour, with most of it climbing and about fifteen minutes gliding back down to the ground.

Only two spaceships have been pilot-flown for boost and atmospheric entry; those are the North American X-15 in 1963 and SpaceShipOne in 2004. "Manned space flight is not only for governments to do," said Rutan. "We proved it can be done by a small company operating with limited resources and a few dozen dedicated employees." Learn more about Rutan at **www.burtrutan.com**.

2023 "Ag Wings" Scholarships Awarded

Thank you to BASF and Thrush Aircraft for co-sponsoring the 2023 NAAA "Ag Wings of Tomorrow" Scholarship program. Thanks to their generous support, NAAA awarded scholarships of $5,000 each to the four aspiring ag pilots as follows:

- Macy Arbuckle of Vinton, Iowa, sponsored by Mark Noe of Noe Aviation LLC in Vinton, Iowa
- Max Gschwendtner of Pontiac, Illinois, sponsored by Scott Petersen of Pontiac Flying Service in Pontiac, Illinois
- Delfino Martinez of Brownsville, Texas, sponsored by Pat Kornegay of Sun Valley Aviation in San Benito, Texas
- Saint-Andre Roux of Seneca, Kansas, sponsored by Scott Heinen of Heinen Bros Agra Services in Seneca, Kansas

GENERAL SESSION

Tuesday's General Session explored the EPA's pesticide policymaking process, adjuvants and mentoring new pilots into the industry.

Ed Messina, EPA
Ed Messina, Director of EPA's Office of Pesticide Programs (OPP) presented about EPA's work with (re)registering pesticides and labeling them for aerial use. EPA must comply with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and the Endangered Species Act (ESA) for both activities. There are currently more than 1,200 pesticide active ingredients and more than 18,000 pesticide products in the U.S. and 2.2 million farms and 1.1 million certified applicators, according to Messina. FIFRA requires the EPA to consider both the risks and benefits of a pesticide during registration and registration review. Messina stated that a product can have some addressable risks, but it may be of high benefit all of which goes into consideration during the review process.

Messina discussed the agency's work with NAAA and other associations on how EPA can improve the accuracy of their risk assessment by incorporating drift reduction technologies into its risk assessments. If EPA can be more precise about risk assessments, more products can be approved and used.

EPA's Ed Messina pictured with NAAA CEO Andrew Moore and 2023 NAAA President Craig Craft.

Regarding drones, Messina commented that UAV operators need to have all proper licensing and be talking with their state about state pesticide regulations. The agency is allowing their use, but EPA wants to ensure they follow the label, and that they are properly modeled for drift.

Messina spoke about agency efforts evaluating emerging technologies involved in pesticide applications. He also noted that the OPP is currently evaluating NAAA's recommendations for AgDRIFT Tier 3 model analysis of aerial applications that take into account more realistic technologies used in the industry today and efforts to update the AgDISP model to enable even more realistic risk assessments of aerial applications.

NAAA representatives provided Messina a tour of the exhibit floor showcasing the latest aerial application parts, equipment and services designed to make the industry safer, precise and efficacious.

Terry Kippley, Council of Producers and Distributors of Agrotechnology

The second speaker was Terry Kippley, President of the Council of Producers and Distributors of Agrotechnology (CPDA), who spoke about the importance of adjuvant use and how adjuvants can enhance a pesticide's performance and can improve the properties of the spray mixture. He discussed the CPDA's adjuvant certification program and the scrutiny these approved products must undergo to be certified under the program.

Safe Turning & Mentoring Panel
The third act of the general session was a panel discussion on how to safely turn an agricultural aircraft and how pilots need to be mentored into the ag aviation industry in a safe manner. The panel was moderated by Damon Reabe of Dairyland Aviation in Waupun, WI and panelists included Bradley Reed of Reed Aviation in Iota, LA, Cameron Hendrickson of Hendrickson Flying Service in Rochelle, IL, Rod Thomas of Thomas Helicopters in Gooding, ID and Rob Aslesen of Airborne Custom Spraying in Halstad, MN.

Reabe started off the discussion by describing how turning hard and surviving begins the process of normalization of deviance, which causes you to misjudge the risk of unsafe activities. He recommended changing the focus of ag flying from production to precision and instead of focusing on the quality of work done, focus instead on the quality of work you do. During the turn, make sure you're concentrating on entering the field right on target for the intended swath and have the aircraft level and stable. This will provide the most accurate and uniform application for your customer.

Mentoring new pilots is a hot topic and one that the General Session panel discussed, moderated by Damon Reabe.

Thomas has found at his operation that "slow is fast" and when pilots ease off from trying to make quick turns, they end up getting more work done. Turing slower is easier on both the equipment and in particular the pilot, which means they're not worn out at the end of the day.

Aslesen felt there are two main reasons pilots turn unsafely; one is they don't know any better, and the second is intentionally choosing to turn unsafe to impress others. Hendrickson talked about turning helicopters safely. Helicopter pilots should keep their speed up and avoid stopping at the end of the field. Sufficient speed is required in the event of an engine failure during the turn. He has also seen pilots who are slow and smooth get more work done than pilots who turn aggressively.

Reed talked about the importance of accuracy application and drift mitigation, which can't be accomplished when the hard turns don't allow for a smooth and coordinated reentry into the field.

Turning to mentorship, Reabe talked about the historic culture of the ag aviation industry which focused on productivity, and the need to change that to one of safety and accuracy. When mentoring new helicopter pilots, Hendrickson turns his helicopter over to them and then serves as their loader on the truck. This way, he can be constantly monitoring their flying and advise as needed. If the pilot encounters a field that was beyond their capabilities, they can switch roles and Hendrickson can fly the field. All of Hendrickson's current pilots started off at his operation as loaders.

Thomas acknowledged that mentoring new pilots means a loss of productivity. His current mentorship program involves rating all his fields on a scale from 1 to 10 in terms of difficulty and then assigning fields to pilots based on the rating and their skill level. Aslesen thoroughly evaluates his mentees individually based on the candidate's background ad skill level. He reiterated Thomas's point by stating that breaking in a new pilot is a breakeven business at best for the first couple of years. Despite this, mentoring has been very beneficial to his business because he's been able to train his pilots how he wants them to fly.

Thomas has found the pilots he's mentored to remain very loyal. Thomas brought up that not everyone may be suited to be a good mentor and you need to evaluate yourself and decide if it might be better to find someone to help train new pilots. Aslesen added to that even a good mentor might not be the best person for teaching every aspect of ag aviation and it's important to learn to utilize other people's strengths when training a new pilot.

The panel discussion finished up by talking about the fact that mentorship never really ends. Ag pilots must strive to constantly improve their knowledge and skills, and in turn pass that information on to other ag pilots.

EDUCATION SESSIONS
MONDAY, DEC. 4

Precision Ag Session
The 2023 Ag Aviation Expo Precision Ag session highlighted four emerging technologies in the ag aviation industry. For each technology, an NAAA operator or pilot who uses the technology explained to the audience how they were using it at their operation and their experiences. The goal was for the audience to hear from actual users of the technology so that they might better determine whether they wanted to investigate using it at their own operation.

Capstan's SwathPRO: Damon Reabe, owner and operator of Dairyland Aviation in Waupun Wisconsin, is using the SwathPRO on an AT-802. Reabe has found that SwathPRO has improved his aircraft's spray pattern. He was initially concerned about integrating it onto his existing spray boom as he used drop tubes on all of his nozzles, but the system has worked fine. He has not had problems with reliability and the extra weight the SwathPRO added to his aircraft is not an issue. He has found many benefits to SwathPRO, which he has dubbed "The Wonder Boom", and shows it off to his customers to demonstrate his commitment to making precise and safe applications. He said it provides the fastest nozzle shutoff in aerial application and does not drip.

Perfect Flight: Nor-Wes is using Perfect Flight software to ensure quality applications at their numerous operations in seven states. Sam Ellett, General Manager and Chief Pilot for Nor-Wes, explained how they are using the software. Perfect Flight allows pre-flight planning, a post-flight analysis, and business analytics to evaluate completed work and then make needed changes to improve efficiency and accuracy. The post flight analysis includes scores for overall success of the application, uniformity, dosage error, and waste. Accessibility to the data is customizable, and customers can access data for their work. Perfect Flight is making a positive difference in the quality of services and communications with customers and Nor-Wes, and as a result they've fully integrated Perfect Flight into their operational workflow.

Leading Edge Aerial Technologies (LEAT) Unmanned Aircraft Systems (UAS): Corey Fransen described to session attendees how JBI Helicopters, based out Pembroke, New Hampshire, is using UAS to complement their existing helicopter's operations. Corey has over 10 years of experience as a helicopter ag pilot, and he is now leading JBI's UAS forays. JBI chose Leading Edge as their UAS provider because of their years of experience in the aerial application industry. The UAS JBI is using, the PV40X, has a 4.8-gallon hopper, a maximum speed of 20 mph, and a 23-foot swath width. JBI is successfully using the UAS to treat near sensitive sites and riparian areas, drainage ditches, duck ponds, agricultural areas where safety is a concern, and to do vector control.

DropFlight: DropFlight is a new smartphone app designed to allow ag aviators to conduct their own spray pattern testing like that typically conducted at Operation SAFE fly-ins. Dominique Youakim, who owns and flies for Aerinova Aerial located in Mattoon Illinois, is using DropFlight to ensure his aircraft have uniform spray patterns and appropriate effective swath widths. He appreciates the ability the app provides him to conduct pattern testing when it's convenient for him and that he can quickly evaluate multiple nozzle types and configurations as well as what happens to his spray pattern in different crosswinds. Youakim is planning on using DropFlight to evaluate all aircraft coming to help at his operation to make sure his customers always get uniform applications.

NAAA Low Altitude FAA Update Session High on Substantive Content

Expert aviation panelists from the FAA and university academia highlighted the Low Altitude/FAA Update session.

Starting the session was Dr. Hannah Baumgartner, a human factors researcher for the FAA at the Civil Aerospace Medical Institute in Oklahoma City. Dr. Baumgartner, who received her doctorate in psychology from the Univ. of Michigan, focuses on the human aspects of aviation related to fatigue, stress, and decision making. She presented results from surveying ag pilots last year that had collisions with wires during their career. The analysis indicated that 35% of those surveyed were unaware of the wire in which they collided and 65% were aware of the wire. Dr. Baumgartner broke down wire collisions into the following two factors: situational (73% of the causes) and cognitive (27% of the causes):

Situational Factors

- Technically difficult operations: wires in the middle of the field; difficult parts of the field to reach.
- Flight stages: trim passes; entering and exiting field.
- Environmental risk factors: night flying, weather conditions, poor visibility.

Cognitive Factors

- Splitting attention: distracted by other obstacles, other property concerns, thinking about future work, distracting events such as a radio or phone call.
- Judgment error call: forgot a wire or misjudged its location.
- Performance pressure: internal pressure to rush job.
- Breaking personal minimums: not following pre-established safety rules/normalizing deviance.

Dr. Baumgartner then discussed the following assessments pilots shared about how to respond after colliding with wires:

- Try to immediately re-ground yourself and get back to the present situation at hand. The brain can take time to catch up with the situation and may enter a shock-like state after a wire collision.
- Immediately assess damage.
- Maneuver aircraft.
- Maintain airspeed.
- Observe gauges immediately.
- Communicate on radio for ground observation of aircraft's condition.
- Head to airport/landing area.
- Afterwards, assess what could have been done differently (better scouting, stayed in present moment, shouldn't have taken on field, shouldn't have deviated from plan, should have stayed with personal minimums).

Next a panel of FAA representatives including Dave Reeves, subject matter expert (SME) for manned agricultural aircraft operations; Ryan Smith, SME for unmanned agriculture aircraft operations; Derek Huffy of the FAA's UAS Integration Office; and Matt Porter, FAA Authorized and Certificated Operations Section Manager, all primarily discussed the FAA's expedited Part 137 UAS Certification Process released earlier this year as follows:

1. Uncrewed Operators (UO) now apply for a Part 137 certificate via the central UAS Operations Office (137UOO) instead of their local Flight Standards District Office (FSDO). The new office may be contacted at: **UAS137Certificates@faa.gov.**
2. The FAA determined UO are lower risk, so §137.19(e) Knowledge and Skills Tests can now be self-administered. The FAA can request documentation of satisfactory completion.

3. No Letter of Authorization (LOA) issued for UO; Operating Certificate issued by 137UOO.
4. Splitting of Flight Safety Offices:
   a) 137UOO is responsible for uncrewed-only operations.
   b) Local FSDO is responsible for mixed operations (having both crewed and uncrewed).
   c) 137UOO will specifically coordinate with FSDOs to conduct field activities on an as-needed basis (inspections, investigations, etc.).
5. No regular surveillance will be required by the FAA for uncrewed-only operations.

Documentation Requirements

1. Newly required operations manual for UO (includes safety, flight duties/responsibilities, accident reporting, HAZMAT, etc.).
2. Newly required self-created/self-administered/self-documented training program for UO.
3. (1) and (2) are not submitted to or approved by the FAA but must be made available on request.

Approved Aircraft

1. 49 USC § 44807 previously approved UA are all approved for Part 137 use.
2. All <55 lb. UA are approved for Part 137 use.

Alignment of Policy

1. Uncrewed-only operators need only a Remote Pilot Certificate (not a commercial pilot certificate).
2. Third-class medical certificate required (not a second-class medical certificate).

NAAA's response to the FAA's expedited UAS Part 137 policy may be found **here**.

Madison Dixon of the Mississippi State University (MSU) Agricultural Autonomy Institute also spoke at the session. He discussed NAAA's longstanding relationship with MSU to collect GPS data logs from ag aircraft to show their close operations to unmanned aircraft to inform FAA as the agency moves to integrate drones into the national airspace and to take necessary safety precautions to protect low-altitude manned ag aircraft. Madison thanked those that had submitted logs in the past and reminded attendees that GPS logs may still be submitted by either:

1. Requesting a secure upload link for data uploads by emailing Madison at **mdixon@aai.msstate.edu**; or
2. Mailing a flash drive or other storage device to the address below (the device will be immediately mailed back once data is received if a return address is provided):

   MSU Agricultural Autonomy Institute, Pace Seed Technology Building
   650 Stone Blvd., Mailstop #9812
   Mississippi State, MS 39762
   Attn: Madison Dixon

All data submitted is confidential and will be wiped clean of any personal information.

The last speaker was Dr. Mark Askelson of the University of North Dakota (UND), whose research focuses on national security and autonomy. Dr. Askelson discussed the survey conducted earlier this year that documents how closely manned aerial applicators come to wires, towers and other obstructions while treating cropland and making other low-altitude applications.

The UND report should be released in the next month or two and does show that manned ag aircraft are operating around wind turbines, powerline and other poles/towers, guy wires, trees/shelter belts, and bridges, These are all areas defined as shielded areas by the FAA's Beyond Visual Line of Site (BVLOS) UAS Aviation Rulemaking Committee in their 2022 report. This report recommended drones be allowed to operate within 100 feet vertically or laterally of these shielded areas without giving right-of-way to manned aircraft or being required to equip with detect and avoid technology. The UND study will be very timely to produce to the FAA to show the folly of such a suggested shielded area policy when manned aircraft are shown to be flying so closely to these shielded objects.

Insurance Session

The NAAA Insurance Sessions offers attendees the opportunity to hear from and ask direct questions to insurance brokers and underwriters in the aerial application industry. The session was moderated by Rebecca Burns, AssuredPartners Aerospace, with valuable information provided by Shane Phillips, USAIG; Josh Rittenberry, Mid-Continent Aircraft Corporation; Mary Beth Schwaegel, AIG and Jeffrey Tippins, Starr Aviation.

Operators often ask insurance agents why they begin the renewal process about half way through the year and the answer is because agents can shop the market three months ahead of time and it's a window of opportunity for them to show the operator in the best light to get the best rates. Operators should provide their insurance agent with any pilot updates, hours accrued, if an operation plans to add, remove or swap aircraft from the business and what those costs are, PAASS attendance, Operation S.A.F.E. participation and if pilots are C-PAASS certified. Operators should review the value of their aircraft and consider inflation. Maintain a file for all ag pilots at an operation including copies of medical certificates, renewals, certifications and pilot flying times.

Hull coverage is decided between the operator and insurance company on the value of the aircraft. This is unlike auto coverage where an insurance company gives you a check based on the damage or totaling the car, even if it isn't the value of the car. Operators should insure the aircraft for what it is worth and not over or under insure.

Various aircraft parts, such as a GPS system or boom systems can be excluded from a policy. The reason for this is if there is an accident and the insurance company totals the aircraft, the GPS or boom system can be returned to the operator if they are not damaged. If everything in the plane is covered under a policy and the aircraft is totaled, nothing will be returned even if there was not damage to those items.

Operators and pilots need to discuss the types of applications they conduct, such as fire suppression, if you spray near residential for mosquito abatement, timber work, etc. so that the policy has the proper coverage. If aircraft need to be ferried, it's also important that the insurance company is aware of this so that it can be added to the policy.

Insurance companies receive many requests for new pilot insurance quotes. Underwriters all take a different approach, but most of them want to see the training plan, syllabus, turbine transition training or other courses and specific details on how the pilot will work their way up to spraying.

After an accident, the first thing is to attend to any needs the pilot may have, such as medical and the second is to secure the aircraft. Contact law enforcement and your insurance company to report the accident and to ensure that you don't do anything that could invalidate your coverage and work with the FAA and NTSB if they contact you. When asked what an operator or pilot must report, it is suggested to follow FAR 830.5, which explains immediate notification after an accident has occurred. Take photographs of the aircraft and the accident site. Create a plan of what you need to provide if you need to contact the insurance company. Contact your insurance broker for more information or explanation of any of the items above.

Air Tractor Session

Air Tractor had a full room of attendees excited to hear from Jim Hirsch, President of Air Tractor. The company has seen a strong growth pattern in agricultural and firefighting aircraft, and they forecast delivering 180+ aircraft worldwide per year, for the next four years. In the firefighting sector, Air Tractor forecasts building 120 firefighting planes over the next four years. The GAMA Report of 2023 Aircraft Deliveries revealed that Air Tractor built 8% of all general aviation airplanes in the world during the first half of 2023 and the company built more single-engine turboprop aircraft than any other manufacturer on the planet, which was about 41% of the worldwide total.

Air Tractor 502 on display with the San Jacinto mountains in the background.

The company delivered 200 airplanes in 2023 (the goal was 218) and the 2024 goal is to deliver 218 airplanes. Like many industries cross the world, Air Tractor is dealing with supply chain challenges, which is challenging when trying to deliver 200+ aircraft per year.

In 2023, Air Tractor introduced modified paint schemes, which include a yellow or white base color and color choices for the main stripe and pin stripe scheme, which are the same color, are blue, black, red, and green. The firefighting scheme will remain unchanged.

In early 2023, the company released Turn Smart, which can be viewed at **www.youtube.com/airtractorinc** and the video had 114,000 views in seven months. They also launched Ag Airwaves Podcast in collaboration with Graham Lavender of AgAir Update, which hosts in-depth conversations with ag pilots, operators and industry experts and can be heard at **https://airtractor.com/podcast/**.

Air Tractor has rolled out beta testing on a marketing toolkit that operators can use to share with their farmer customers explaining the precision of aerial application, why aerial is the best choice and that ag pilots are conscientious, highly trained professionals with a deep understanding of drift mitigation, coverage, low volume and droplet density thresholds. The goal of the toolkit is to increase the number of acres treated by aerial application in the U.S. The toolkit will allow operators to customize items such as brochures, email marketing, statement stuffers and social media posts with their logo and company information that provides facts, figures and research supporting the message. Air Tractor will share more details in 2024.

Air Tractor will celebrate 50 years in 2024 and as part of the celebration, they are hoping to host an open house in conjunction with the 2024 NAAA Ag Aviation Expo, which will take place in Fort Worth, Texas, Nov. 18-21.

Chemical Session

The Chemical Session offers attendees an opportunity to hear from pesticide and adjuvant manufacturers about new products or updates to existing products. The session was moderated by Lynn Justesen of UPL, who also serves as the Allied Industry Chemical Division Board Member on NAAA's board.

There was great audience interaction and discussion on several topics of particular interest to aerial applicators. EGE Products covered the importance of using the right adjuvant system for specific product chemistries and operational conditions. Bayer Crop Science provided updates on combatting white mold in soybeans and tar spot in corn, expounding on how to solve the puzzle of timing, rates and

longevity of protection. UPL introduced three new products coming to the corn, soybean and wheat markets, two of which are entirely new active ingredients. There was also a very spirited discussion about biofungicides and natural plant protection. Vacciplant® made by UPL, for example, is a fully-labeled biofungicide with a FRAC code just like traditional chemistry and can be used to control white mold and tar spot.

Engine Sessions

The Radial Engine Session was led by Logan Simmons of Covington Aircraft. He covered how the engine is constructed and best practices for maintenance and in-field repairs. Supply chain and parts issues and availability were discussed, as well as the operations of the engine. Attendees received a detailed engine overview booklet from Covington Aircraft.

The Pratt & Whitney Canada PT6 Panel had a standing room only crowd and the panel consisted of Pratt & Whitney Canada's Peter Wilkinson, Standard Aero's Wendel Lambert, TAE Aerospace's Will Wilson and Covington Aircraft's Robert Craymer and the session was moderated by Fletcher Sharp. The panel discussed best maintenance practices, fuel nozzle maintenance, borescope inspections and prop balancing. Pratt and Whitney Canada commercial support items for the PT6A-140AG and the PT6A-67AG were also hot topics. The panel and the operators of the PT6's in the room were very engaged in the discussion of engine washing, types of oil and oil servicing, as well as engine operations.

TUESDAY, DEC. 5
Transland Breakfast

This longstanding staple to the Ag Aviation Expo provided both sustenance and substantive updates to those in attendance. The Satloc Falcon system was the star of the show, not only as their newest project, but as the integration hub for many of their other products such as the electric Wingman and gate box. The Transland crew reported positive feedback from applicators on currently fielded units and expressed enthusiasm for the continued development of features such as AIMMS-directed swath offsets, integration with Micronair rotary atomizer sensors and the addition of Canadian legal land descriptions to the mapping interface. The company also recently completed a massive in-season upgrade to their capacity to process and transfer data in the cloud as the utilization of this functionality continues to grow.

For current users of the (now retired) Satloc G4 and Bantam systems, Transland has committed to continued support for most components through December 31, 2027.

WEDNESDAY, DEC. 6
Thrush Aircraft Session

CEO Mark McDonald presented the Thrush Aircraft Session to a packed room of attendees. The session covered production updates, program status, and plans for 2024.

"2023 was a good year for us, and 2024 is shaping up to be even better," stated McDonald, citing sales growth of about 70% over the previous year. He noted that finding and retaining skilled folks to build airplanes is an industry-wide struggle, but the production environment (inflation, labor and supply chain) is improving slowly. The company's spare parts support has improved dramatically, with current turnarounds averaging less than two weeks.

Thrush's 510 P2+ was on display from Sunday through Wednesday.

Type certifications of the dual cockpit 510 P2 and P2+ are expected within the first quarter of 2024.

The 510G conversion program, wherein a GE H-80 is replaced with a PT6-34AG, is being pushed out to the service centers through training and guidance from the factory. Thrush expects that seven to eight of these conversions will be performed in 2024 and a similar number in 2025.

Dealers have already consumed all the 510 production capacity for 2024. McDonald explained that the company is carefully ramping up at a rate they can manage to ensure quality is consistent. The company is projecting about 25% growth over the next year, and he reiterated the company's strategy to "incrementally improve everything."

Helicopter Session

Longtime Helicopter Session moderator Jeff Reabe of Reabe Aircraft Improvement guided conversation starters for the attendees to ask questions, allowing everyone to learn from each other. The attendees discussed several topics of interest among helicopter ag pilots,

including the topics below.

- As seen in many sectors, attendees talked about price increases of equipment. Operating a helicopter is expensive and therefore, helicopter pilots should charge for their services accordingly.
- It was suggested that anyone interested in mentoring should obtain their Certified Flight Instructor (CFI) rating and develop a training manual. This will help with lower insurance costs, in addition to the company having a good safety record. Also, it's great for incoming ag pilots to go through simulator and recurrent training.
- Reabe talked about how he changed their helicopter's master switch to a key switch to control the safety of someone taking the helicopter. He also commented that they installed a wire cutter on a Bell 206, and it worked very well.
- A new pilot in the room asked others why they made the choice to fly helicopter versus fixed wing. A few of the comments were that it depends on the type of work an ag pilot wants to conduct because if there are large fields, you want to use a large aircraft. A helicopter is great for small fields and a pilot doesn't need a runway. A Canadian attendee commented that there is demand for good helicopter ag pilots in his part of the world.
- Attendees discussed helicopter turning, which the current PAASS program discusses. It was suggested that helicopter pilots need some speed and to stay out of the high velocity curve. Speed keeps the tail behind you. Also, have mechanical sympathy by not being so hard on the helicopter.

Support Committee Athena Presentation

The 2023-2024 Athena presentation focused on how to maintain both the physical and mental health of pilots as well as their families. Just like the prop on a high-capacity turbine ag airplane, there are five "blades" to propel health and wellness. Each blade must be attended to, to ensure pilots stay healthy, not only during the season, but year-round.

The first blade is nutrition and hydration. The old phrase "you are what you eat" is spot on and feeding your body nutritious foods will help you better manage your workload and stress level. This will in turn increase your productivity. Pilots are at risk of poor nutrition during the busy season because they have unstructured eating patterns.

Athena recommends the following for daily nutrition:

- Breakfast should contain protein and minimal carbohydrates.
- Lunch should contain proteins, fruits and vegetables, and continue to have minimal carbohydrates.
- Snacks should be healthy and eaten as needed.
- Dinner should contain proteins, carbohydrates, and calcium. Keep sugar, saturated fats, cholesterol, and refined food to a minimum.
- Don't stray from these recommendations when eating out.
- Stay hydrated by drinking 64 fluid ounces of water every day.

Physical health is the second blade and this includes having a good relationship with both your family physician and your flight medical examiner. Ask your doctor to speak "off record" about conditions and medications that might affect your flight physical. Find an FAA medical examiner you can be open and honest with about your health concerns and is willing to work with you to make sure your career is not jeopardized. Schedule your flight physical immediately after your season. Do not let concerns of how a health issue might impact your medical and stop you from seeing your family physician. Make sure you understand how any prescribed or over the counter drugs can impact your ability to fly before you start taking them.

Fatigue can be avoided by getting seven or more hours of sleep every night. If you fall behind on sleep, it's imperative you remember that sleep deficit is cumulative. One eight-hour night of sleep will not make up for multiple days of sleep loss. Sleep apnea is a common cause of sleep disruption and fatigue, and it's estimated that 20% to 40% of adult males suffer from it. Limit lights, television, electronics, and alcohol intake before your sleep period, as these can all disrupt sleep. 20-to-40-minute naps, particularly taken around 3 p.m., can help battle fatigue.

Exercise is also an important component of physical health. While it can be difficult to maintain a regular exercise regime during the season, do your best to stay active. Walking or other types of simple exercises can be done when weather prevents you from flying.

Blade three is mental health and wellness. Mental health affects how we think, feel, sleep, and act, and is directly affected by stress. A person's mental health can be negatively impacted when the demands placed on them exceed their resources and coping abilities.

Mental health issues can affect anyone - more than 20% of adults in the U.S. live with a mental illness, and more than 4% have a serious, long-lasting mental health issue. Stigma and discrimination frequently prevent people from openly discussing how they feel and any mental health issues they might be having. Mental health issues cannot be internalized. There must be an open dialogue to address problems before they cause an accident. Pilots might be concerned how formal medical treatment for mental health issues can affect their medical records, but treatment does not have to be formal. Mental health therapy and community support can help and are off the record.

The fourth blade is environmental safety, which is keeping the workplace safe through use of proper personal protective equipment (PPE) and following the worker protection standard (WPS) and all pesticide labels. Ensure all required PPE is available, is properly fitted, and all employees know how to properly use it. Proper cleaning, maintenance, and storage of PPE will keep it functioning properly. Review the labels for all pesticides used at your operation for the signal word, first aid treatment for exposures, and required PPE.

Relationships with family, employees, coworkers, and community represent the fifth blade. Get to know the other people you work with, as well as their family. They, perhaps even more so than family and other friends, understand the stress of being an ag pilot. Get involved in your community through attending church, school festivities, and local governmental meetings. Having local organizations and schools visit your operation is a great way to promote the benefits of aerial applications and develop positive relationships with members of your community.

To ensure a pilot is physically and mentally safe to fly, they should use the I'M SAFE checklist every flight to verify they're not impaired by:
Illness
Medication
Stress
Alcohol
Fatigue
Emotion

Keep these five prop blades of health in mind year-round to make sure ag pilots can safely fly during the season.

In addition to Wednesday's Athena Presentation, 100 attendees enjoyed a cooking demonstration by the convention center chef and a wine pairing.

Relationship Drift Session

This year's Relationship Drift session took a different approach and instead of dividing operators/pilots from spouses and/or office crew into separate rooms to ask the same questions, Dominique Youakim of Aerinova Aerial in Mattoon, IL presented the DISC profile and how it can benefit relationships and communication. In addition to Youakim's work as an ag pilot and operator, he is also a certified DISC facilitator. The DISC profile is a behavioral assessment tool that helps individuals understand their behavioral tendencies in various situations. It categorizes behavior into four main personality types: Dominance (D), Influence (I), Steadiness (S), and Conscientiousness (C). Everyone is a unique blend of these four traits, but individuals often lean towards certain profiles. Individuals can also be on the line between two traits and jump between them based on situations that you're in.

Individuals with Dominance (D) traits are assertive, results-oriented, and tend to take charge. They are often seen as confident and decisive. The D profile is rare and only makes up about 10% of the population. Influence (I) traits are outgoing, enthusiastic, and enjoy social interactions and they are usually persuasive and thrive in collaborative environments. Steadiness (S) traits are individuals who are patient, reliable, and value stability. They are great team players, often supportive and dependable. Conscientiousness (C) traits are analytical, detail-oriented, and they prioritize accuracy. They are systematic and prefer structured environments.

DISC profiles and examples of their traits. Knowing your profile and your partner or office crew's profile can help you better communicate.

Understanding the DISC profile can greatly benefit communication in any type of relationship, whether it be a romantic or a working relationship. By recognizing one's own and others' behavioral tendencies, individuals can communicate more effectively and build stronger connections. Understanding your spouse and employee's profiles is helpful because communication can be adapted to suit their partner or employee's style, reducing tension and fostering more understanding.

Communication builds trust, which is a cornerstone for relating and communicating more effectively with others. Without trust, there is an increase in personal conflicts and misunderstandings, barriers and guards go up, there is limited communication between people, and they become indifferent and there are more conflicts. Time and energy are wasted on conflicts, which drains a relationship and can drain business relationships, as well.

Knowing each other's DISC profiles allows romantic couples and coworkers to approach conflicts more constructively. An operator may also find that he or she has an office employee who will thrive better in answering phones and working directly with farmers, rather than the bookkeeping role that they were hired for.

When an operator is interviewing to fill a position, ask the candidate whether they are more task-oriented or people-oriented. Task-oriented people tend to focus on getting the job done and accomplishing a goal and they are less influenced by the opinions of others and are logical in their approach. People-oriented individuals tend to enjoy the company of others and prioritize people over projects and they are more influenced by the opinions of others and more sensitive or emotional and less fact-based. A DISC profile for your office crew can help an operator determine if the right people are in the right jobs based on their profile.

Interested in learning more? Contact Dominique Youakim at **dominique@aerinova.com** for more information on taking the DISC profile test and see where you rank with your spouse and/or office crew.

FLYING IN THE WIRE & OBSTRUCTION ENVIRONMENT COURSE

After the overwhelmingly positive feedback from the 2022 Ag Aviation Expo, Robert "Bob" A. Feerst, President of Utilities / Aviation Specialists Inc., was brought back to teach a full day Flying in the Wire and Obstruction Environment Course. The course covers a variety

of subjects all focused on the single mission of helping ag aviators avoid hitting wires and other obstructions.

Wires continue to be the number one hazard in ag aviation, but it's important for ag aviators to know that wire strikes are not inevitable. All accidents, including wire strikes, can be avoided. The key to avoiding a collision with a wire or any other obstacle is to remain vigilant throughout the flight. Ag aviators are exposed to wires in a manner unlike most other forms of aviation. Ag aircraft are flown in extremely close proximity to wires, and the wires in and around a field can be complex, further complicating the flying.

150 attendees found the Flying in the Wire & Obstruction Environment Course to be very valuable.

Feerst spent a great deal of time discussing visibility science and how it impacts our ability to see, or not see, wires. Hazards can be broken down into two categories: visible and invisible. Because pilots can sometimes see wires, they tend to classify wires as a visible threat. However, for numerous reasons that Feerst explained, wires are often invisible to pilots. Since pilots cannot always rely on being able to see wires, they must be treated as an invisible threat. It is critical to your safety that you understand that see-and-avoid does not always work around wires, and because it's not 100% reliable, other strategies must be used to avoid wires.

Your field of vision actually has a narrow area of sensitivity. At only 3% off the center, your vision starts to deteriorate. At 10% off center, you are legally blind. This doesn't mean you can't see things that are 10% off the center of your vision - it means you cannot reliably identify what you're looking at. Your peripheral vision is designed to detect and track things, but it can't identify these things. You must focus your eyes on any object detected by your peripheral vision in order to properly identify it. It takes time to point your eyes in all different directions, so you must be aware of this limited vision while flying.

Feerst pointed out that multiple factors can impact the visibility of wires, including the size of the wire, your distance to the wire, the color of the wire and how it contracts with the background, light intensity and the position of the wire relative to the sun, background color, and atmospheric conditions. These factors change throughout the course of the flight and day, meaning a wire you saw earlier may not be visible to you at a later time.

It is important to scan for obstructions correctly and constantly. Beware of situational blindness, which can cause you to focus on one task at the expense of others. Use short, regularly spaced eye movements, and hold for a few seconds when scanning for wires and other objects. Your eyes tend to focus on moving objects. During flight, the terrain is constantly moving, which causes your vision to fixate on non-threat objects. The distance and height of wires can frequently be hard to discern.

Wire sag is another complication for locating and tracking wires. Several variables affect sag, including the distance of the wire span, the weight of the wire (impacted by both material and diameter), temperature and the load. A static line on top of the main transmission wires will be of different weight, so it will not sag to the same degree as the transmission lines. For that reason, you must use the structure height to determine the height of the static line and not rely on the sag of the transmission lines to determine how low a static line might be sagging.

The key takeaway from the visibility science portion of Feerst's course is that assuming you can see wires can be a fatal mistake. You must learn to read the hardware, including the structures and insulators, to forecast where the wires are located. While the visibility of wires is not consistent, the visibility of hardware is consistent. Do not fall into the trap of thinking that just because you see one set of wires, you've seen all the wires.

Never assume you know where all the wires are until you've read the hardware. The structures, insulators and other hardware can tell you where the wires are located and in what direction they are going. Angled insulators indicate a turn in the direction of the wires and point in the direction of the turn. Wires turning direction indicates the presence of a guy wire for poles. Conversely, a guy wire on a pole indicates wires changing direction.

During reconnaissance, identify all wires and other hazards in and around the application site. Look specifically for structures that indicate wires and be especially observant for hidden or non-standard structures. Structures need power. Rights-of-way are also indicators wires are likely present. You must complete at least one full flight around the entire circumference of the field and around the application site to scan for obstacles. It is safer, however, to conduct two entire flights around the target field, and surrounding area, and even better if they are made in different directions. Flying in opposite directions will allow you to get two different perspectives in differing light conditions.

Feerst also stressed the ag pilot's manta - "every other thought should be about the location of the wire." Your brain can only hold five to six thoughts in short-term memory at once. Once your short-term memory is full, it's full. The next new item that enters your short-term memory requires another to be deleted. This typically operates on the first in, first out principle, meaning that the newest item in your short-term memory will replace the oldest. Before you begin the application, you conduct your reconnaissance flight around the entire circumference of the field and scout for wires and other obstructions. As you make your application passes, other tasks begin to require your attention, and they begin to fill up your short-term memory. Eventually, you forget about the wires, which is when a wire strike accident can occur.

Short-term memory retention limitation is inevitable. Years of experience, age, piloting skills and good mental health are not things that can change the physiology of your brain. The limitations of your short-term memory can be further complicated by distractions that take up needed space in your short-term memory. Numerous sources of distraction can come from your work, your cockpit or your personal life. Work distractions can include demanding customers, work orders piling up, unexpected maintenance issues and weather delays. **It is critical that you have an active mental/verbal system in place to prevent short-term memory loss of wires.**

The Flying in the Wire and Obstruction Environment Course once again drew a large crowd. The popularity of the course is driven by the no-nonsense explanation about the dangers of flying in the wires environment and how to avoid an accident flying there. At the end, when Feerst asked the attendees if they felt the course was worth it, the crowd responded with an overwhelming "yes". They had just participated in an education session that very well may save their life.

MENTORING SESSIONS
Com*paass* Rose Session

Com*paass* Rose is a NAAREF program created to help both pilots starting a career in ag aviation as well as operators and experienced pilots looking to mentor new pilots into the industry. The goal is for the participants to enhance their own knowledge, continue to gain agricultural aviation experience, and improve their individual professionalism. Agricultural aviation pilots have an opportunity to discuss ideas and philosophies about the business, make informed decisions about their future, and learn with some of the industry's top operators. Operators learn about mentoring new pilots and get an idea of the questions and concerns of pilots new to the ag aviation industry.

Com*paass *Rose was a popular session with great conversation and tips for new ag pilots.

Much of the Com*paass* Rose session was spent with new pilots and experienced pilots separated in two different rooms. This is done to allow each group to discuss issues relative to their respective positions in the ag aviation industry. Polling software was used to foster dialogue related to safely mentoring new pilots on how to turn ag aircraft safely. After the separate sessions, the two groups were brought back together to share and elaborate on responses from the breakout sessions.

There were many great points made during Com*paass* Rose and it would be impossible to capture all the knowledge shared during the session in this article. Here, though, are a few of the important points made during the session.

- New pilots should be observed on how they are turning to ensure it is being done safely.
- The individual mentor is the key to a successful mentorship.
- A good safety culture at the operation is key - everyone needs to be both talking and practicing safety.
- "Do what I say not what I do" is not cutting it anymore; mentors need to practice what they preach.
- New pilots should be given easy fields as they start their careers.
- Mentors cannot assume new pilots know or remember everything - they need to keep reminding them about safety.
- Slow down ag turns - you will be a better ag pilot by giving yourself time to line up on your next pass and enter the field straight and level.
- Pilots need to know what a stall feels like and where the edge is because you can't avoid what you don't know.
- New pilots and operators will need to earn each other's trust.
- Communication between a new pilot and their mentor is critical - they must be comfortable asking questions.
- A syllabus is a valuable tool for mentoring.

If you were unable to make the Com*paass* Rose session at Expo, you can still catch a Com*paass* Rose program at either the SEAF Convention, Feb. 5-7 in Fort Walton Beach, FL, or Nebraska Convention, Feb. 19-21 in Kearney, NE.

"Ask the Expert" Speed Mentoring Session

Like Com*paass* Rose, the "Ask the Expert" Speed Mentoring is a NAAREF program offered at the Ag Aviation Expo specifically targeted towards mentoring new pilots into the ag aviation industry. It offers new pilots, the mentees, a chance to visit with numerous mentors during a single session. The mentors include operators, more experienced pilots, insurance representatives, and ag flight school personnel.

Like the speed dating phenomena, it's modeled after, mentors of each category are stationed at tables throughout the meeting room. Mentees rotate through the tables, spending a set amount of time at each one. They can ask the mentors any questions about the ag aviation industry they feel inclined to. Common subjects include the best way to get into the industry, what the first few seasons might look like, and the expectations for both pilots and operators.

Speed mentoring offered the opportunity for new and low time ag pilots to ask questions from mentors, including operators, experienced pilots, insurance representatives and ag flight schools.

Similar to the Com*paass* Rose session, there were far too many individual conversations at the speed mentoring session to capture in a single article. Here, though, are a few of the points made during the 2023 "Ask the Expert" Speed Mentoring Session:

- The importance of avoiding complacency no matter how many years you've been an ag pilot.
- There is always another day to get the work done.
- No job is worth your life.
- Attendance of Ag Aviation Expo, state conventions and PAASS is critical for learning about the industry and finding an operator who is well suited for mentoring.

- Respect the money an operator is investing in you with both their time and aircraft.
- A good record is important when it comes to getting insurance - act professionally and strive to avoid accidents.
- When you visit another operation, don't compromise on your safety standards.
- Don't let anyone rush you - commit to safety over productivity.
- It's easier to learn at 120 mph than 150 mph - don't rush to get into larger and faster aircraft.
- Work hard to maintain positive relationships. Even if a mentor/mentee relationship doesn't work out, don't burn any bridges.
- Use turbine transition training to move into a turbine aircraft.
- Breaking a new pilot in involves a great deal of non-revenue flying.
- New pilots should be assigned fields with minimal obstructions and a low risk of drift incident potential.
- Insurance companies like to see a well-laid out plan with a syllabus for bringing in new pilots.

We're Riding into Fort Worth

The 2023 Ag Aviation Expo concluded with the Excellence in Ag Aviation Banquet on Dec. 7, where eleven individuals received NAAA Awards. You can read about the awardees in the Winter 2024 *Agricultural Aviation* magazine. The Charles Stokes Memorial Turbine Training Scholarship, sponsored by Jim Mills of Turbines Inc. in Terre Haute, Indiana, recipient was awarded at the dinner. Drew Cavanaugh from Clovis, New Mexico was the 2023 recipient, and he was sponsored by Robert Shepard of Platte Valley Aviation in Minden, Nebraska.

NAAA would like to thank its attendees, exhibitors, presenters, sponsors and numerous volunteers for contributing to the 2023 Ag Aviation Expo's success. Save the date for November 18-21, 2024, and join us in Fort Worth, Texas, at the 2024 Ag Aviation Expo.

Thank You, NAAA Ag Aviation Expo Sponsors & Auction Donors!

NAAA sincerely appreciates the companies that supported NAAA and the agricultural aviation industry with sponsorship and/or an auction item for the 2023 NAAA Ag Aviation Expo last week. We have been fortunate over the years to be able to count on many of our Allied Industry and operator members who sponsor a convention program, activity, or item that benefits attendees. Thank you to our many **auction donors**.

Thank you to our 2023 Ag Aviation Expo sponsors:

- **Diamond Sponsors:** BASF, Corteva Agriscience, Pratt & Whitney Canada, Syngenta, UPL North America
- **Platinum Sponsor**: Transland
- **Gold Sponsors:** AG-NAV, AgriSmart Information Systems/Flight Plan Online, Air Tractor, Bayer CropScience, Covington Aircraft Engines, FLYING Finance, GarrCo Products, Insero, Old Republic Aerospace, Starr Companies
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- **Bronze Sponsors:** Atticus, Chem-Man, Praxidyn

Thank you, Pitch Perfect for PAASS Sponsors: AeroGuard Insurance, AgAir Update, Air Tractor, Lane Aviation, Moore's Aerial Applicators, Pratt & Whitney Canada, Starr Insurance Companies, Thrush Aircraft, Transland, Turbine Conversions.

We know that sponsoring companies can support many organizations, so we very much appreciate their support of NAAA and NAAREF! According to a post-convention survey, 75% of aerial applicators stated that they would be "very likely" to use the products and services of a company that sponsors an event at the Ag Aviation Expo. If you're interested in a 2024 Ag Aviation Expo sponsorship in Fort Worth, Texas, please contact **Lindsay Barber**, NAAA's Director of Communications & Marketing.

Guardian Agriculture's eVTOL Sprays Crops for First Time in California

NAAA Allied member **Guardian Agriculture** announced last week that its Guardian SC1, designed for commercial-scale sustainable farming, began spraying crops for a customer in California's Salinas Valley region. Guardian claims the aircraft is the first electric vertical takeoff and landing (eVTOL) designed to fly commercially in the U.S., which would mark a key milestone for the emerging industry.

"This is a watershed moment for sustainable farming and a giant leap forward for eVTOL technology," said Adam Bercu, Guardian founder and CEO. "While several companies are developing eVTOL technologies, we are now the only one that has both secured FAA approval to operate commercially nationwide, and that's actually started flying missions on behalf of paying customers."

With no pilot on board, the SC1 can carry up to 200 pounds. The eVTOL is 12-by-12-foot and 100 percent electric powertrain provides propulsion—charging it and filling the aircraft's tank with chemicals, combined, takes less than one minute, Guardian claims. The company says its automated system can cover up to 60 acres per hour. The technology is fully programmable, and no manual controls are required to operate the aircraft.

Ag Aviation Expo Receives Coverage on Palm Springs Local ABC News Affiliate

The Palm Springs, Calif. community was welcoming of Ag Aviation Expo attendees and exhibitors last week. KESQ-TV Channel 3 in Palm Springs, a local ABC news station affiliate, visited the expo and interviewed NAAA CEO Andrew Moore. View the story **here**.

Proposed AD for Certain Robinson R22, R44 and R66 Tail Rotor Tip Caps

The FAA has proposed a new airworthiness directive (AD) for certain Robinson R22, R44 and R66 helicopters. Reports of helicopters losing a tail rotor blade (TRB) tip cap prompted this proposed AD. Robinson has also seen TRBs that have corroded to an unserviceable condition, including severe leading edge pitting and degradation of the bond at the tip cap. A debonded TRB tip cap can cause severe vibration and possible failure of the tail rotor gearbox housing.

This proposed AD would require regular visual inspections of certain part-numbered and serial-numbered TRB tip caps for evidence of corrosion, removing corrosion and eventual removal of those TRBs from service.

You can find the specific applicability information in the **proposed AD**. Comments are due January 22, 2024.

Your GPS Data May Save a Life

As the Federal Aviation Administration (FAA) marches in lockstep with some corporate interests in the uncrewed aircraft systems (UAS) space, it is becoming clear that green lighting and expanding UAS beyond visual line of site (BVLOS) operations may be being prioritized over safety.

First proposed in the **2022 BVLOS ARC Report**, and later put out for **public comment in 2023**, the FAA is considering designating “shielded” areas wherein UAS would have the right-of-way over crewed aircraft. These areas are defined as the airspace within 100 feet vertically or laterally of an obstacle or critical infrastructure, such as power lines. According to the ARC Report this is based on “the limited likelihood of crewed aircraft operations in [these] areas.”

The current reality is that some of these UAS interests (think BNSF Railway, Google, Amazon), and in some cases the FAA, do not have a solid understanding of where and how we operate. It falls now to us, as an industry, to inform future rulemaking of the unique nature of aerial application operations. Using a data-driven approach, we can demonstrate our utilization of the low-altitude airspace and expose the safety threat presented by UAS not giving the right-of-way to crewed aircraft within it.

To this end, NAAA has a longstanding partnership with Mississippi State University (MSU) to collect GPS data logs donated by its members. Since the project’s inception in 2017, the data collected and analysis performed by MSU has fueled NAAA’s efforts in representing the safety interests of aerial applicators to regulators.

If you have donated logs in the past, Thank You.

If you have logs which you have not yet donated, please consider it. The data you provide can help shape policy on a national level and save lives. As a reminder, any data you submit is stripped of any personally identifiable information prior to inclusion in the larger dataset.

There are two options to submit your logs to MSU:

1. Request a secure upload link for data uploads. Email **Madison Dixon**, Associate Director, MSU Agricultural Autonomy Institute

2. Mail a flash drive or other storage device to the address below (The device will be immediately mailed back once data is received if a return address is provided):

   Mail To: Attn: Madison Dixon
   MSU Agricultural Autonomy Institute
   Pace Seed Technology Building
   Mailstop #9812
   650 Stone Blvd.
   Mississippi State, MS 39762