



February 10, 2020

The Honorable Andrew Wheeler
Administrator
Environmental Protection Agency
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 1101A
Washington, DC 20460

On January 16, 2020, the National Agricultural Aviation Association (NAAA) wrote an open letter to The Honorable Andrew Wheeler, current Administrator at the Environmental Protection Agency. The letter contained several factual inaccuracies, as well as several assertions that were either made with no basis in fact or presented with no evidence. This letter's purpose is to:

1. Introduce Rantizo to the EPA and our role in the application industry,
2. Address and correct the false statements by the NAAA,
3. Highlight many of the misleading assertions the NAAA made in their letter to the EPA,
4. Urge the EPA to take a holistic view and review the capabilities and benefits of the unmanned spraying industry, which is inherently safer for applicators, bystanders, and the environment,
5. To invite you or your representative to a demonstration of state of the art unmanned piloted technology at the Third Annual Workshop on Remotely Piloted Aerial Application Systems, and
6. Finally, give the EPA an opportunity to review our concerns of the NAAA's false statements regarding Rantizo's drone tank capacity and weight.

Rantizo, the market leader in agricultural drone spraying, has been at the forefront of the budding aerial drone application industry. Our market leading results have only been accomplished by keeping applicator safety as a top priority in our decision-making processes. Even though Rantizo is faced with legislation that is not meant to regulate small-UAS (unmanned aircraft system), we pride ourselves on the fact that we abide by all rules set forth by the FAA, regardless of their context. For example, early on in the dronespraying industry, the regulations classified the unmanned craft as a crop duster and required the operator to wear a seatbelt. This obviously was unnecessary as the pilot was on the ground holding the controller while the drone flew above. Pilots would literally wear a seatbelt as a belt to adhere to the regulation. Now, Rantizo and others have successfully petitioned for an operational exemption that would allow



us to fly our drones without wearing a seatbelt. This is just one example of many steps Rantizo has taken, and continues to take, to ensure Rantizo remains in compliance with the FAA.

In their letter sent to the EPA, the NAAA made two false statements regarding the Rantizo platform. The first incorrect statement was that Rantizo operates a drone with a tank that is “4.2 gallons” - this is incorrect. The Agras MG-1P contains a 2.7-gallon tank as original equipment. The NAAA also stated that Rantizo flies a drone that “weighs 89 pounds” – again incorrect. Rantizo operates under, and fully abides by 14 CFR § 107.3, which limits all small UAS to less than 55 pounds. The NAAA has publicly asserted that Rantizo is in violation of the law, and we are encouraging the organization to retract these incorrect statements immediately and publicly.

The NAAA argues that piloted aircraft are distinguished from remotely piloted aircraft because piloted aircraft are required to have their aircraft certificated and inspected for airworthiness by the Federal Aviation Administration (FAA); Rantizo steadfastly agrees with the FAA’s requirement to certificate and inspect a 4,000-pound aircraft that can fly at 150+ mph and has the potential to cause major damage in the event of an unanticipated incident. We believe the FAA’s requirement is necessary in order to promote safety and reduce loss of life, including pilots and bystanders alike. The Rantizo system is a <55 pound UAS flying around 15 mph that has automated collision avoidance onboard. This means that when the UAS sees something as small as a power line, it will emit a beep and slow the craft to a stop automatically. In order to receive the Part 137 approval from the FAA, Rantizo had to pass both written and infield testing from the Flight Standards District Office, just like a manned operator would.

The NAAA seems to imply that a small-UAS carrying 2.7 gallons of agrichemical is at greater risk of accidental discharge than a plane carrying 400 gallons of chemical, simply because the regulations do not call out UAS platforms specifically. The NAAA fails to mention the fact that UAS-applicators, like manned aircraft-applicators, must follow all state pesticide application laws. Additionally, even though 14 CFR §§ 107.1, et seq. does mandate a testing and certification program, our pilots are also required to participate in the expanded Rantizo drone-applicator training program, which is overseen by the Rantizo Chief Supervisor, an expert instructor and drone pilot. Rantizo drone applicators are required to train in this program until they have proven themselves a competent UAS-pilot and applicator, in addition to passing all required state-applicator testing. The NAAA seems to argue that the rigors of manufacturing, training, and inspecting requirements are less for the UAS industry because of its young age and fails to reach the more obvious conclusion: flying manned aircraft is simply a more dangerous endeavor because a human being is on board the craft and much larger volumes of agrichemical are present.



Small-UAS aerial application systems do not carry the same risk of danger to pilot, bystanders, or environment that manned aircraft do. Our chosen application platform, the Agras MG-1P, is limited to an elevation of 98 feet, and with our 15-mph application speed and 4-to-6-foot application height above the canopy, comes an inherently safer and more accurate application process. Additionally, UAS pilots have the added benefit of being on-site immediately prior to an application to scan for hazards or non-participating people in the operational area.

Last summer, one of our UAS pilots was legally applying fungicide in corn when a manned aerial applicator appeared, getting ready to apply on a neighboring field. Rantizo gave way to the larger aircraft, as is specified by the FAA and in the Rantizo training manual. The Rantizo operator was around 200 yards from the other field. Even at that distance, the Rantizo operator was sprayed with chemical from the drift of the manned aerial applicator. Whether this was intentional is irrelevant; there are many examples showing manual deployment is far from perfect. In fact, complaints about missed targets by manned aerial applicators were one of the reasons that Rantizo was founded.

The letter from the NAAA reveals a paradoxical position. They claim that there is “complete lack of testing analysis” and then cite several statistics about UAS application. That is a contradiction. Furthermore, UAS application data was presented at the NAAA annual meetings in [2017](#)¹, [2018](#)² and [2019](#)³. These papers, which are hosted on the NAAA website, highlight the testing and capabilities of UAS application.

The NAAA letter neglects to mention that the unmanned industry is working smarter, not harder, to aerially apply crop treatments in such a way that helps reduce pesticide resistance and ground water contamination by using far less chemical overall. As an example, [Rantizo recently worked with one of the nation’s top agronomy-imaging companies](#)⁴ to identify a nutrient deficiency issue in a small plot of a larger farm. Rantizo was able to apply a very small amount of nutrients, at very low cost, and with a very small volume of micronutrients in a small area of the field. We were able to perform an application that was safe, unmanned, without risk of large accidental discharge or drift contamination, and realized a yield increase of 2.6% in that farmer’s soybeans.

¹ https://www.agaviation.org/Files/asabe/2017/2017_Woldt_NAAA.pdf

² <https://www.agaviation.org/Files/asabe/2018/Woldt%20UAV%202018%20NAAA%20Expo.pdf>

³

<https://www.agaviation.org/Files/2019convention/2019%20Aerial%20Application%20Technology%20Resrach%20Session%20Details.pdf>

⁴ <https://www.farmprogress.com/technology/putting-ag-tech-tools->

[work?fbclid=IwAR28m1x1EiTfr_p1N2dTtSsdjVH973eYhfOfDo_PR6hMNmgAfHmOhGML3A](https://www.farmprogress.com/technology/putting-ag-tech-tools-work?fbclid=IwAR28m1x1EiTfr_p1N2dTtSsdjVH973eYhfOfDo_PR6hMNmgAfHmOhGML3A)



In their letter, the NAAA cites [this research](#)⁵ from the University of Illinois in an attempt to compare coverage rates of a 3,000 pound helicopter to our 54 pound drone. When the NAAA is ready to present actual evidence related to agricultural drone spraying, we would be glad to review it. Until that time, early findings in a soon-to-be published study by the University of Iowa have concluded that drone application drift is significantly lower than from a tractor sprayer. Drift was measured at 3 and 10 meters downwind of the spray application. When the drone was spraying, drift of small particles was 0-3% more than the background. When the tractor was spraying, drift of small particles was 49-88% more than the background. The same study will show that spray coverage for the UAS was roughly even at 1', 3' and 5' in corn that was ~7' tall. The tractor spraying covered the top of the crop much more than the stalk. The reasons for these positive results are due to numerous technologies available to UAS vehicles that enhance the capabilities of many off-the-shelf ag drones. These include autonomous GPS controlled flight, real time kinematics, anti-collision RADAR, very low altitude flight, slower speeds, and more accurate dispensing rates.

When pesticide is deployed from a traditional fixed-wing aircraft, small droplets get caught in the vortex near wingtips. Larger aircraft have more downward force, which can lead to more drift at the wingtip vortices. In their letter, the NAAA claims heavier aircraft create more downward force, pushing the spray down into the crop. [Studies](#)⁶ show that potential for drift is greater as craft size increases. Rantizo welcomes the chance to continue studying the effects of application, with a holistic view of the entire application process.

The NAAA is quick to give the "100 acre" field as an example of how the UAS aerial application industry is 'unequipped' for proper handling of chemicals during refilling. To the NAAA's point, their 100-year old mindset is precisely what we are attempting to change. Ideally, we wouldn't have to spray all 100 acres. If you are smart with scouting and drone application technologies available, many times an operator can catch 10-acre problems before they grow to be 100-acre problems. Rantizo is also currently developing a rapid "Mix & Fill" station that will make repeated fillings autonomous and safer, all while using far less chemical than a Cessna AgWagon. The Rantizo autonomous loading system will eliminate human exposure to agrichemicals during refilling operations.

Rantizo would like to invite you, or your designated representative(s) to the Third Annual Workshop on Remotely Piloted Aerial Application Systems, to be held Nov 4-6, 2020 in Little Rock,

⁵ <https://web.extension.illinois.edu/psep/ipr/issue.php?IssueID=9732#139948>

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<https://www.agaviation.org/Files/2019convention/2019%20Aerial%20Application%20Technology%20Resrach%20Session%20Details.pdf>



AR. These workshops have provided an opportunity for industry, academia, regulatory agencies, and other interest groups to gather, and further develop these compelling technologies. The workshops have been coordinated by the University of Nebraska-Lincoln in partnership with the United States Department of Agriculture – Agriculture Research Service. They have highlighted opportunity areas of crop protection in agriculture and public health, in terms of mosquito vector control. I would be pleased to provide additional information on this upcoming workshop, as information becomes available.

Finally, the NAAA seems to assert that their organization is an invaluable cornerstone of the aerial application industry that has grown and matured by evolving and adopting new technologies for their pilots, and yet, seem to be against adopting the very technologies that would make its pilots and their operations safer. The NAAA appears to be putting up barriers to improvement that may be slightly outside of their previous worldview. At Rantizo, our number one concern is safety for all. Rantizo was started because we believe there is a safer and more efficient way to apply pesticides aerially without putting people at risk.

Sincerely,

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