Senator Michael Dembrow
Chair, Senate Environment and Natural Resources Committee
900 Court St. NE, S-407
Salem, Oregon 97301

February 21, 2020

Dear Chairman Dembrow,

The National Agricultural Aviation Association (NAAA) is writing in strong opposition to HB 4109 and asks you to consider the preponderance of scientific evidence that substantiates the safety and accuracy of aerial applications before moving forward with any ban on the aerial application of Chlorpyrifos. Chlorpyrifos is an important insecticide for many crops, and aerial application provides the most accurate and safe way to apply it, as well as all other pesticides. Enactment of this bill would take away a needed delivery mechanism for Oregon state farmers and would be discounting effective technologies and science that prove the aerial application of products to crops and other targets is just as if not more efficacious, targeted and safe as other forms of application.

NAAA represents the interests of over 1,500 small business owners and pilots licensed as commercial applicators that use aircraft to enhance the production of food, fiber and bio-fuel; protect forestry; protect waterways and ranchland from invasive species; and provide services to agencies and homeowner groups for the control of mosquitoes and other health-threatening pests. Within agriculture and other pest control situations, aerial application is an important method for applying pesticides, for it permits large areas to be covered rapidly—by far the fastest application method of crop inputs—when it matters most. It takes advantage, more than any other form of application, of the often too-brief periods of acceptable weather for spraying and allows timely treatment of pests while they are in critical developmental stages, often over terrain that is too wet or otherwise inaccessible for ground applications. It also treats above the crop canopy, thereby not disrupting the crop and damaging it. Although the average aerial application company is comprised of but six employees and two aircraft, as an industry these small businesses treat nearly 127 million acres of U.S. cropland each season, which is about 28% of all cropland used for crop production in the U.S.—this doesn't include the substantial amount of aerial applications that are made to pasture and rangeland. Aerial pest control for managers of forests, rangeland, waterways and public health also add to these many millions of acres treated annually.

First and foremost, aerial application is safe and throughout its nearly 100 years of existence has utilized the latest technologies to ensure an efficacious, targeted and safe application. It is commonly known in the pesticide application industry, as documented in the National Pesticide Applicator Certification Core Manual, that wind speed, wind direction, temperature inversions, and spray droplet size are the dominant factors that impact pesticide spray drift, which is the movement of spray off-target. Aerial applicators are able to control their droplet size in order to mitigate drift. Aerial applicators routinely utilize large droplet size spectrums whenever possible, through the careful selection of nozzles, deflection angle, boom pressure, planned airspeed, and other factors that are well known to determine droplet size. Agricultural aviators are experienced in the use of USDA-ARS spray-nozzle models and AGDRIFT/AGDISP to assist in routine adjustments of their aircraft as part of pre-flight planning to minimize drift. The ability to generate a coarser droplet spectrum, can be achieved for all agricultural aircraft through the careful selection and setup of nozzles.

Aerial applicators can monitor weather conditions in the cockpit. A smoker injects a small amount of vegetable oil into the aircraft exhaust system that creates smoke, allowing the pilot to determine, by observing smoke movement, the wind direction and an estimate of wind speed. Inversions can be detected by observing vertical smoke movement. The Aircraft Integrated Meteorological Measurement System (AIMMS) provides real-time onboard weather data, including wind speed and direction, temperature, and humidity. The atmospheric data collected by AIMMS is then synchronized with the GPS unit, along with the droplet size data. This enables the pilot to consider outside wind speed and direction when making every pass, resulting in an even more precise application.

The results from the NAAA's 2019 industry survey show that 88% of agricultural aviators use smokers to determine wind speed and direction, 69% use smokers to monitor for inversions, and 8% of agricultural aircraft have AIMMS, which highlights aerial application's ability to continuously monitor wind speed and direction and adjust applications as needed throughout the actual application process. It should also be noted that this bill would short-circuits the federal regulatory process that governs the safe use of pesticides. The EPA, after reviewing multiple studies of health, environmental, occupational and water safety data, has approved and improved labeling for chlorpyrifos aerial applications for decades, by numerous different administrations. Aerial applications already are required to use less active ingredient per acre than other forms of application. NAAA doesn't agree that was necessary, yet nevertheless it always advocates abiding by the label.

Additionally, as part of the pesticide registration review process, EPA has reviewed many of the scientific studies on aerial application. Based on these studies, EPA has increased the maximum wind speed at which many products can be aerially applied at from 10 mph to 15 mph. This demonstrates the safety and accuracy of aerial applications.

While there are alternatives to making aerial applications of pesticides, these options have several disadvantages compared to aerial application. In addition to the speed and timeliness advantage aerial application has over ground application, there is also a yield difference. Driving a ground sprayer through a standing crop results in a significant yield loss. Research from Purdue University found that yield loss from ground sprayer wheel tracks varied from 1.3% to 4.9% depending on boom width. While this study was conducted in soybeans, similar results could be expected in other crops as well. Research summarized by the University of Minnesota describes how soil compaction from ground rigs can negatively affect crop yields due to nitrogen loss, reduced potassium availability, inhibition of root respiration due to reduced soil aeration, decreased water infiltration and storage, and decreased root growth. Aerial application offers the only means of applying a crop protection product when the ground is wet and when time is crucial during a pest outbreak. A study on the application efficacy of fungicides on corn applied by ground, aerial, and chemigation applications further demonstrates that aerial application exceeds ground and chemigation application methods in terms of yield response. Aerial application results in greater yields, greater yields require less land to grow crops, less land mean less pesticide use and more land available for water filtering wetlands, carbon sequestering forests and habitat for threatened and endangered species.

As shown in NAAA's 2019 Industry Survey, many of the crops grown in the state of Oregon are commonly treated via aerial application, including potatoes, blueberries, grapes, pears, nuts, and Christmas trees. While there are other application methods for these crops, no other option provides the accuracy, safety, and timeliness of aerial application. Additionally, almost all applications made to forestland are done aerially.

To highlight the timeliness of aerial application, an example using a 40-acre hazelnut orchard will be given. Assuming the 40 acres is square, it would have width and length both equal to 1,320 feet. The aircraft is assumed to make the applications at 150 mph with an effective swath width of 75 feet. It would therefore take 18 passes to treat the field. The time spraying in each pass would 6 seconds, with an estimated turning time of 45 second. This results in a total time of 51 seconds per pass, for a total time to treat the field of about 15 minutes.

For an air blast sprayer application, a common alternative to aerial application for pesticide applications to orchards, a speed of 2 mph is assumed based on a University of Georgia Extension Publication. At this speed, a single pass down the field by the air blast sprayer will take 7.5 minutes. Row spacing is assumed to be 12 feet based on an article authored by experts from Cornell University. This would require a total of 110 passes by the air blast sprayer to treat the 40-acre orchard. Not counting turning and refill time, it would take the air blast sprayer approximately 13.75 hours, or 55 times as long, to treat what an aerial application could do in 15 minutes.

While this may seem like simply a matter of efficiency and productivity, it is also a matter of safety. As shown in the example above, the time spent on an application is substantially greater when an air blast sprayer is used instead of agricultural aircraft. The increased time required when using an air blast sprayer, or other types of terrestrial application, means a greater chance that the application will occur during high winds or low-level temperature inversions, both weather conditions that increase the risk of drift. The speed of aerial applications allows far more acres to be treated under favorable weather conditions than other types of applications.

The prohibition of aerial application of chlorpyrifos will force Oregon growers to use slower and less accurate methods of application. While the ban was presumably proposed to increase the safety of using chlorpyrifos, it will have the opposite effect. Applications will take longer, dramatically increasing the chances of spray drift occurring. NAAA urges you to not support HB 4109 and make the choice to ensure that growers continue to have the option to apply chlorpyrifos by aerial application and keep it on target.

Thank you for considering our opinion in this matter. Please feel free to contact me should you have any questions about agricultural aviation or our position on this matter.

Sincerely,

Andrew D. Moore
Chief Executive Officer

CC: Vice Chair Herman E. Baertschiger Jr.
Senator Lynn P. Findley
Senator Arnie Roblan
Senator Floyd Prozanski